

**Meeting of the Federal Open Market Committee on  
January 28–29, 2020**

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, January 28, 2020, at 10:00 a.m. and continued on Wednesday, January 29, 2020, at 9:00 a.m.

**PRESENT:**

Jerome H. Powell, Chairman  
John C. Williams, Vice Chairman  
Michelle W. Bowman  
Lael Brainard  
Richard H. Clarida  
Patrick Harker  
Robert S. Kaplan  
Neel Kashkari  
Loretta J. Mester  
Randal K. Quarles

Thomas I. Barkin, Raphael W. Bostic, Mary C. Daly, Charles L. Evans, and Michael Strine,<sup>1</sup>  
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren, Presidents of the Federal Reserve  
Banks of St. Louis, Kansas City, and Boston, respectively

James A. Clouse, Secretary  
Matthew M. Luecke, Deputy Secretary  
Michelle A. Smith, Assistant Secretary  
Mark E. Van Der Weide, General Counsel  
Michael Held, Deputy General Counsel  
Thomas Laubach, Economist  
Stacey Tevlin, Economist  
Beth Anne Wilson, Economist

Shaghil Ahmed, Marc Giannoni, Joseph W. Gruber, David E. Lebow, Trevor A. Reeve, Ellis  
W. Tallman, William Wascher, and Mark L.J. Wright, Associate Economists

Lorie K. Logan, Manager, System Open Market Account

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

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

Eric Belsky,<sup>2</sup> Director, Division of Consumer and Community Affairs, Board of Governors; Matthew J. Eichner,<sup>3</sup> Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Michael S. Gibson, Director, Division of Supervision and Regulation, Board of Governors; Steven B. Kamin, Director, Division of International Finance, Board of Governors; Andreas Lehnert, Director, Division of Financial Stability, Board of Governors

Rochelle M. Edge, Deputy Director, Division of Monetary Affairs, Board of Governors; Michael T. Kiley, Deputy Director, Division of Financial Stability, Board of Governors

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

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

Antulio N. Bomfim, Brian M. Doyle, Wendy E. Dunn, Ellen E. Meade, and Ivan Vidangos, Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson and David W. Skidmore, Assistants to the Board, Office of Board Members, Board of Governors

David Bowman,<sup>4</sup> Senior Associate Director, Division of Monetary Affairs, Board of Governors; Eric M. Engen and Michael G. Palumbo, Senior Associate Directors, Division of Research and Statistics, Board of Governors; John W. Schindler, Senior Associate Director, Division of Financial Stability, Board of Governors

Don H. Kim and Edward Nelson, Senior Advisers, Division of Monetary Affairs, Board of Governors

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

Elizabeth Klee,<sup>3</sup> Associate Director, Division of Financial Stability, Board of Governors

Christopher J. Gust,<sup>5</sup> Deputy Associate Director, Division of Monetary Affairs, Board of Governors; Norman J. Morin and Steven A. Sharpe, Deputy Associate Directors, Division of Research and Statistics, Board of Governors; Jeffrey D. Walker,<sup>4</sup> Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Paul R. Wood,<sup>3</sup> Deputy Associate Director, Division of International Finance, Board of Governors

Ricardo Correa and Stephanie E. Cururu,<sup>5</sup> Assistant Directors, Division of International Finance, Board of Governors; Giovanni Favara and Zeynep Senyuz,<sup>5</sup> Assistant Directors, Division of Monetary Affairs, Board of Governors

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<sup>2</sup> Attended through the discussion of the review of the monetary policy framework.

<sup>3</sup> Attended through the discussion of developments in financial markets and open market operations.

<sup>4</sup> Attended the discussion of developments in financial markets and open market operations.

<sup>5</sup> Attended the discussion of economic developments and the outlook.

Penelope A. Beattie,<sup>3</sup> Section Chief, Office of the Secretary, Board of Governors; Dana L. Burnett, Section Chief, Division of Monetary Affairs, Board of Governors

Hess T. Chung,<sup>3</sup> Group Manager, Division of Research and Statistics, Board of Governors

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

Michele Cavallo, Jonathan E. Goldberg, Judit Temesvary, and Francisco Vazquez-Grande, Principal Economists, Division of Monetary Affairs, Board of Governors; Daniel J. Vine, Principal Economist, Division of Research and Statistics, Board of Governors

Francesco Ferrante, Senior Economist, Division of International Finance, Board of Governors; Michael Siemer,<sup>3</sup> Senior Economist, Division of Research and Statistics, Board of Governors; Manjola Tase, Senior Economist, Division of Monetary Affairs, Board of Governors

James Hebden,<sup>3</sup> Senior Technology Analyst, Division of Monetary Affairs, Board of Governors

Mark A. Gould, First Vice President, Federal Reserve Bank of San Francisco

David Altig,<sup>3</sup> Kartik B. Athreya, Jeffrey Fuhrer, Anna Paulson, and Christopher J. Waller, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Boston, Chicago, and St. Louis, respectively

Julie Ann Remache,<sup>5</sup> Samuel Schulhofer-Wohl,<sup>5</sup> and Keith Sill, Senior Vice Presidents, Federal Reserve Banks of New York, Chicago, and Philadelphia, respectively

Jonathan P. McCarthy, Ed Nosal, Matthew D. Raskin,<sup>5</sup> and Patricia Zobel, Vice Presidents, Federal Reserve Banks of New York, Atlanta, New York, and New York, respectively

Larry Wall,<sup>3</sup> Executive Director, Federal Reserve Bank of Atlanta

Òscar Jordà, Senior Policy Advisor, Federal Reserve Bank of San Francisco

Edward S. Prescott,<sup>3</sup> Senior Economist and Policy Advisor, Federal Reserve Bank of Cleveland

Brent Bundick, Research and Policy Advisor, Federal Reserve Bank of Kansas City

**Transcript of the Federal Open Market Committee Meeting on  
January 28–29, 2020**

**January 28 Session**

CHAIR POWELL. Good morning, everyone. This meeting, as usual, will be a joint meeting of the FOMC and the Board. I need a motion from a Board member to close the meeting.

MR. CLARIDA. So moved.

CHAIR POWELL. Without objection. Before we dive into our formal agenda, we've got some important personnel matters to announce. First, effective today, Presidents Mester, Harker, Kaplan, and Kashkari are voting members of the FOMC this year. Welcome back to each of you as voters.

Second, as you know, the Board recently elected Beth Anne Wilson as director of the International Finance Division, effective February 1. Beth Anne brings to this position a wealth of experience and leadership in the International Finance Division. Beth Anne, we look forward to working with you in this new role. Please join me in congratulating Beth Anne on her being selected. [Applause]

Beth Anne's arrival, of course, coincides with the retirement of Steve Kamin. As many know, Steve will be retiring this spring after more than 34 years of service, including 8 as director of the International Finance (IF) Division. This will be his 117th and final FOMC meeting. Steve cut his Fed eyeteeth as a research assistant at the San Francisco Fed and returned to the System as an economist in the IF Division after graduate school. He received a Special Achievement Award for his coverage of the Mexican peso crisis, was section chief of the Emerging Market Economies section during the Asian crisis and its aftermath, and took over leadership of IF in time to testify to the Congress on the euro-area crisis. Thus, it's not

surprising that, under his leadership, the IF Division greatly enhanced its coverage of international financial-stability issues.

For many years, Steve has been responsible for guiding the Board staff's global economic outlook and analysis of international issues. He's played a leading role in the Federal Reserve's engagement abroad, accompanying three successive Chairs on countless trips around the world; representing the Fed at G-7, G-20, and BIS meetings; and helping manage the dollar swap lines and other financial arrangements. Steve's expertise, wisdom, and wit will be much missed. We honor Steve for his wide-ranging contributions and commitment to public service, and we wish him all the best. [Applause]

MR. KAMIN. Thank you all very much.

CHAIR POWELL. Thank you.

MR. KAMIN. It's been an honor and a privilege to serve you all.

CHAIR POWELL. Thank you. Let me now acknowledge David Skidmore. As most of you probably know, Dave is retiring at the end of January after 21 years at the Board, nearly all of that time as head of media relations, assistant to the Board, and a valued assistant to this Committee. This will be Dave's 137th and final FOMC meeting: a record of service over that time that I expect very few people here or anywhere else can match, let alone even aspire to—or would want. [Laughter]

He came to the Board in 1999 as a public affairs specialist after 16 years as a staff writer for the Associated Press, most of it in Washington covering economics. In between FOMC meetings, Dave has helped countless reporters understand what the Fed does and is trying to accomplish, in his role in helping to manage our contacts with the news media. For the FOMC, Dave has played two invaluable roles: first, helping the Committee, and especially its Chair, to

see how the public will view our work; and, second, as a skilled and superb writer to help further our communications—one of the most potent tools we have to conduct monetary policy.

Dave's career at the Fed, in fact, has been an era of growth and improvement in our communications, and he has contributed significantly to that achievement. Dave was on leave in 2014 and '15 at the Brookings Institution to assist former Chair Bernanke with his book about the financial crisis, and now he is headed again to the greener pastures of Dupont Circle to assist with Ben's next book. Dave, we have greatly appreciated your abilities as a wordsmith, your deep knowledge of Federal Reserve history, your media relations expertise, and your thoughtful advice, and we wish you all the best in the next chapter of your life. [Applause]

Wait, there's more. [Laughter]

Finally, I'd like to note the retirement of Jeff Fuhrer. Jeff started his economics career here at the Board, serving as a research assistant for 2 years. After completing his degree at Harvard University, he returned to the Board. He stayed here just under 7 years, before defecting to the Boston Fed. In his 27 years at the Boston Fed, Jeff served as the director of research for 9 years before becoming a senior policy advisor. Jeff has been a frequent attendee at FOMC meetings since 1998, and he has presented research to the FOMC on numerous occasions. This is his 104th FOMC meeting. Most recently, he has worked closely with the Board staff on the framework review briefings. Jeff, we thank you for your many contributions to the Fed's mission. We wish you well in what comes next.

President Rosengren also has a few thoughts, and then we'll thank Jeff collectively. President Rosengren.

MR. ROSENGREN. The Federal Reserve has been a leader in research, as well as in policy. Jeff is an outstanding example of someone who can do cutting-edge research and get it

widely cited and also be very comfortable in a policy setting in which some of that research can be applied. As the Chair highlighted, he applied it on numerous occasions around this table, and he certainly applied it in the many years that he has worked with me. We will sorely miss him, but we look forward to seeing what he does in the future. [Applause]

CHAIR POWELL. Thanks again. And now we can return to our regularly scheduled programming and turn first to our organizational agenda items. First up is the election of Committee officers. At this point I will pass the baton to Governor Clarida, who will handle the nominations and elections for the positions of Chair and Vice Chair of the Committee. Governor Clarida.

MR. CLARIDA. Thank you. I will be calling for two sets of nominations and votes. First, I'd like to ask for a nomination for Committee Chairman.

MS. BRAINARD. I would like to nominate Jay Powell.

MR. CLARIDA. Is there a second?

MR. QUARLES. I second the nomination.

MR. CLARIDA. Any other nominations or discussion? [No response] Without objection. Now I'd like a nomination for the position of Committee Vice Chairman.

MS. BRAINARD. I would like to nominate John Williams.

MR. CLARIDA. Is there a second?

MR. QUARLES. Yes, I'll second that.

MR. CLARIDA. Any other nominations or discussions? [No response] Without objection.

CHAIR POWELL. Thank you. Next, we turn to the selection of staff officers by the Committee. Jim, would you please read the list of nominated staff members?

MR. CLOUSE. Sure. For Secretary, James A. Clouse; Deputy Secretary, Matthew M. Luecke; Assistant Secretary, Michelle A. Smith; General Counsel, Mark E. Van Der Weide; Deputy General Counsel, Michael Held; Assistant General Counsel, Richard M. Ashton; Economists, Thomas Laubach, Stacey Tevlin, and Beth Anne Wilson; Associate Economists from the Board, Shaghil Ahmed, Joseph W. Gruber, David E. Lebow, Trevor A. Reeve, and William Wascher; and from the Banks, Beverly Hirtle, Ellis W. Tallman, Michael Dotsey, Marc Giannoni, and Mark L.J. Wright.

CHAIR POWELL. Is there a motion to approve these selections?

MR. CLARIDA. So moved.

CHAIR POWELL. Second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Next is the “Selection of a Federal Reserve Bank to Execute Transactions for the System Open Market Account.” Do I have any nominations?

VICE CHAIR WILLIAMS. The Federal Reserve Bank of New York would be happy to fulfill those responsibilities.

CHAIR POWELL. Is there a second?

MR. CLARIDA. I second.

CHAIR POWELL. Without objection. Next up is the “Selection of a Manager of the System Open Market Account.” Vice Chair Williams, do you have a nomination?

VICE CHAIR WILLIAMS. I would like to nominate Lorie Logan to serve as the manager of the System Open Market Account.

CHAIR POWELL. Is there a second?

MR. CLARIDA. I second.

CHAIR POWELL. Thank you. Without objection. Next is the approval of Desk-related governance documents. Lorie, would you please introduce the vote?

MS. LOGAN. Thank you, Chair Powell. As part of the annual review of the Committee's authorization for open market operations, the staff have not identified any changes to the authorizations. As discussed in the memo circulated last week, we recommend the approval of the Authorization for Foreign Currency Operations, the Foreign Currency Directive, and the Authorization for Domestic Open Market Operations without amendment.

I would like to highlight one item for the Committee's consideration. In January 2009, the Committee suspended the guidelines for the conduct of System operations and federal agency issues in light of the Federal Reserve's programs to purchase agency debt and agency MBS. The SOMA continues to contain a significant amount of agency securities and to conduct transactions and agency MBS securities as part of the reinvestment policy adopted by the Committee. Consequently, we recommend a continued suspension of these guidelines. No Committee vote is needed to continue the suspension.

CHAIR POWELL. Thank you, Lorie. Is there a motion to adopt the domestic and foreign authorizations and foreign directive without revisions?

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. Is there a second?

MR. CLARIDA. Second.

CHAIR POWELL. Without objection. Next up is the "Proposed Revision of the Program for Security of FOMC Information." As described in a memo last week, the proposal is for the program to incorporate a number of changes, most of which are to reflect already-approved policies. The program is a very important part of our information security, and I think

these changes will improve the program further. I would like to stress, in addition, that the careful words and actions of those of us sitting around this table are of the utmost importance in maintaining information security. With that, may I have a motion to adopt, effective February 1, the changes proposed in the staff memo of January 21 and shown in the tracked-change pamphlet attached to that memo?

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. Is there a second?

MR. CLARIDA. Second.

CHAIR POWELL. Without objection. The last organizational item is a vote to provide approval, as described in the January 21 staff memo, for the publication of a *Federal Register* notice of proposed rulemaking that seeks public comment on minor and technical updates to the FOMC rules regarding availability of information, which are the Committee's FOIA rules. This is only a vote regarding a *Federal Register* notice. Our rules don't actually change until we vote on the next version of our FOIA rules. May I have a motion to approve the publication of the *Federal Register* notice?

MR. CLARIDA. So moved.

CHAIR POWELL. Second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Thank you. Our next item is the fifth installment on our review of the strategic framework. We'll have briefings now from Beth Klee and Hess Chung on the connections between monetary policy and financial stability and the use of inflation target ranges. Beth, would you like to start?

MS. KLEE.<sup>1</sup> Sure. Thank you, Chair Powell. I will be referring to the materials labeled “Review of Monetary Policy Framework.” Slide 1 offers a summary of the memo that we circulated to you titled “Monetary Policy Strategies and Tools: Financial Stability Considerations.” In the memo—which is on the second slide—we examine potential interactions between financial stability and the monetary policy strategies and tools the Committee is considering in its framework review. Following your discussions in the fall, we consider the financial-stability implications of a “makeup strategy” in which an inflation goal of 2 percent is achieved, on average, over time. We also discuss implications of unconventional monetary policy tools, such as forward guidance at the effective lower bound (ELB) and balance sheet tools.

Previous memos have shown that using these strategies and tools is typically beneficial for macroeconomic stability, and one might therefore surmise that it’s also beneficial for financial stability. However, there may be circumstances in which concerns about financial vulnerabilities could become large enough to lead the Committee to limit its use of these tools and strategies.

This finding depends importantly on the economic backdrop and the financial-stability tradeoff, described on slide 2. The backdrop is that of a low neutral rate, which means that low policy rates are needed for the Federal Reserve to achieve its dual-mandate goals regardless of whether policy is accommodative. Specifically, low interest rates will likely prevail, regardless of the strategies and tools chosen. The tradeoff is that using the strategies and tools under consideration can help support the economy and anchor inflation expectations, in turn promoting financial stability—for example, by increasing the ability of debtors to make their payments and avoiding the extreme outcome of deflation. However, the low interest rates entailed in implementing these strategies and in using these tools can boost financial-system vulnerabilities by increasing borrowing, financial leverage, and asset price pressures.

The broad question is, then, how do low rates affect financial vulnerabilities? To provide a general perspective, slide 3 provides asset valuations elasticity estimates drawn from a number of studies. For example, the estimates indicate that for every unexpected decline of 100 basis points in the policy rate, corporate bond spreads decline 20 basis points, the stock market rises 4 to 5 percentage points, and house prices increase roughly 2 to 4 percentage points relative to baseline over the course of several years. These effects are sizable and confirm the general intuition that low rates boost asset prices and can contribute to financial imbalances. However, these elasticities are modest in magnitude relative to the overall variation in some of these asset prices. As a result, we judge the empirical evidence as suggesting that changes in monetary policy generally affect valuation pressures by amounts that likely have limited effects on financial stability. At the same time, these estimates should be interpreted with some caution, as our uncertainty about linkages between low rates and financial stability is high.

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<sup>1</sup> The materials used by Ms. Klee and Mr. Chung are appended to this transcript (appendices 1 and 2).

That was the broad question. The more specific question is how the strategies and tools that the Committee is considering affect vulnerabilities. With regard first to strategies, slide 4 characterizes possible macroeconomic outcomes in a severe recession scenario, with and without a makeup strategy. In all panels, the black line depicts the baseline scenario without any makeup strategy. The red dashed line adds an example of a makeup strategy. In this example, there is a requirement that the federal funds rate remains at the effective lower bound until inflation reaches 2 percent. As a result, rates are roughly 50 basis points lower than the baseline over many years. The lower path of rates would likely support stability by keeping inflation closer to 2 percent and bringing the unemployment rate down faster. The lower path of rates would also likely imply higher house prices, equity prices, and borrowing, but the model implies that the magnitude of these changes would be modest, given the estimated elasticities that it employs. In particular, the model rules out the outsized asset price responses that have sometimes characterized episodes of financial instability. The possibility of such responses and the uncertainty surrounding the mechanisms that generate them are risks that the Committee may wish to take into account in implementing makeup and related strategies.

I'll turn next to tools. Slide 5 summarizes financial-stability considerations related to forward guidance at the effective lower bound and balance sheet tools. Many of the concerns associated with these tools are similar to those regarding "low for long" more generally, although there are some differences. With forward guidance leaving rates low, financial institutions may "reach for yield," typically by holding assets with lower credit quality or less liquidity in order to earn a higher yield. While some of this represents what monetary policy is supposed to do, it can go too far, leading to outsized credit losses in a subsequent downturn. In addition, if central bank communications leave investors feeling certain that monetary policy will be on hold, it could exacerbate a buildup in leverage.

Balance sheet policies, or QE, tend to reduce longer-term interest rates. Because many businesses and households borrow longer term, QE might encourage borrowing disproportionately more than changes to short rates. In addition, the reduction in longer-term interest rates can flatten the yield curve, and this may disrupt the business models of financial institutions that depend on positive long-run returns. There is some indication that QE leads to "reach-for-yield" behavior and narrowing of risk premiums, both for Treasury securities and other instruments. That said, evidence to date suggests that the QE of the financial crisis has not posed a serious financial-stability concern. And, in the longer run, we would expect financial intermediaries' business models to adjust to the low rates.

In sum, the experience to date suggests little evidence that unconventional monetary policy contributed significantly to financial vulnerabilities. But past experience is limited, particularly with respect to times when the economy is at or close to full employment.

Slide 6 notes that, should financial vulnerabilities arise, they are often best addressed with macroprudential tools. At the same time, the practice of using and

adjusting the settings of these tools to address macroprudential risk is relatively new, with practical limitations. First, the macroprudential tools available in the United States generally only affect banks. Second, the tools may require interagency coordination. And, third, compared with many other countries, the U.S. toolkit is somewhat limited. For example, the United States does not have underwriting standards—such as a global loan-to-value ratio—that apply to the borrower regardless of the lender.

Finally, a clear communications strategy likely supports minimizing financial vulnerabilities when using makeup strategies and unconventional monetary policy tools, in part by avoiding large, destabilizing changes in the level of interest rates. Some jurisdictions have used financial stability “escape clauses” in conjunction with their monetary policy strategy. Because the evolution of financial vulnerabilities may be uncertain, the escape clause allows the central bank to deviate from a monetary policy strategy or a rule if financial vulnerabilities become significant. I’ll now turn it over to Hess for the remainder of our briefing.

MR. CHUNG. Thank you, Beth. My presentation will begin on slide 7. The memo “Considerations Regarding Inflation Ranges” that was previously circulated to you outlines some of the costs and benefits of using inflation ranges as part of a monetary policy framework. For all central banks employing numerical inflation objectives, deviations of inflation from the objective have been frequent in the past and will be unavoidable in the future, especially in light of the heightened risk of being hampered by the effective lower bound (ELB). The variability of inflation motivates exploring the idea of communicating an appropriate range of inflation variation, as a way of improving public understanding of the monetary policy framework. In particular, we consider ways in which the use of inflation ranges can either support, or interfere with, strategies designed to cope with the challenges of the current environment.

Throughout this discussion, we take as given the fact that the Committee will continue to pursue a 2 percent inflation objective, and we analyze the use of ranges in this context.

Starting with my next slide, I will describe three types of inflation ranges. Although these range types serve different purposes, some of their features could be combined.

I will begin with what we label an “uncertainty range.” An uncertainty range informs the public about the Committee’s assessment of the magnitude of inflation variations under appropriate policy. The central bank may allow inflation deviations for several reasons, including imperfect information about the economy and tradeoffs between the inflation and employment objectives. An uncertainty range can clarify the extent to which the Committee views its pursuit of the inflation objective as constrained by such factors.

In my next slide, I define a second range concept, the “operational range.” An operational range signals to the public that, under some conditions, the Committee prefers inflation to be temporarily away from its objective, defining the scope of such deviations. For example, in order to communicate an intention to pursue an average inflation-targeting strategy, the Committee could state that, in situations in which inflation has been below 2 percent for an extended period, it would prefer for inflation to run between 2 and 2½ percent until average inflation over several years is roughly 2 percent.

Finally, in the next slide, I present a third inflation range concept, the “indifference range.” An indifference range indicates to the public that monetary policy will not respond to deviations of inflation within the range. An indifference range might appear appropriate if costs to the public of reacting to changes in policy are significant, even in the case of very small changes.

Slide 11, my next slide, summarizes the experience of foreign central banks with inflation ranges. First, most advanced-economy central banks use a range, and, by their own description, most of these are uncertainty ranges. Second, although no central banks publicly describe their ranges in terms reminiscent of indifference or operational ranges, a couple of central banks do have ranges without point targets, possibly suggesting some level of indifference in practice. Finally, in addition to the three concepts we outlined, ranges can play a role in providing accountability: At several central banks, additional communications are required if inflation moves more than 1 percentage point away from its objective.

I now discuss some advantages and disadvantages of ranges, beginning in slide 12, with concerns common to all three. First, ranges focus attention on the magnitude of deviations, but other features, such as the nature of the inflation shock and its persistence, also matter for the appropriate policy response. Second, the use of a range may lead to confusion in the public’s understanding of the point inflation objective. Finally, introducing a range when inflation has been persistently below 2 percent may also reduce the point objective’s credibility.

My final slide summarizes some of the key advantages and disadvantages specific to each range type, starting with the uncertainty range in the first column of the table.

The use of an uncertainty range acknowledges the challenges of inflation stabilization. In addition, uncertainty ranges are widely used by other central banks, possibly facilitating public understanding. However, there are several risks involved: Inflation may fall persistently outside the range, damaging the central bank’s credibility, while a symmetric range introduced at a time when inflation has rarely been in the upper portion of the range may initially lack credibility.

In connection with the second column, an operational range can prepare the public for intentional temporary deviations from the inflation objective while limiting the degree of acceptable deviations. An operational range is subject to credibility concerns that are similar to those arising for the uncertainty range. Also, a particular

inflation range may be compatible with many different monetary policy strategies, with the result that beliefs about the federal funds rate, if based on the range alone, may remain diffuse and not well aligned with the Committee’s own views about appropriate policy. If this occurs, the range may not shape real interest rate expectations as effectively as would more explicit forward guidance, such as the use of numerical thresholds. Describing the strategies that will guide inflation to and within the range could help pin down public beliefs.

Finally, as described in the third column, an indifference policy would spare the public costs associated with reacting to changes in the federal funds rate.

Furthermore, an indifference range extending further above the objective than below—from 1 $\frac{3}{4}$  percent to 3 percent, for example—would raise average inflation, helping to offset any downward bias due to the ELB. On the other hand, the absence of a monetary policy response when within the range increases the dispersion and persistence of inflation deviations, making it harder for the public to identify the long-term average level of inflation and possibly allowing long-term inflation expectations to drift. In the memo, we present a scenario in which long-term inflation expectations do, indeed, drift while inflation is within the range. However, stochastic simulations undertaken in that environment suggest that the drift would be modest—at least under the assumptions that we used in our modeling—and the standard deviation of inflation is only slightly larger than under a standard inertial Taylor-type rule.

Overall, the range concepts that we consider could contribute toward attaining the Committee’s objectives but they also entail risks, such as complicating communications. Being clear about the role that the range is intended to play within the overall monetary policy framework appears essential for maximizing the range’s effectiveness and minimizing the disadvantages that we have identified. That concludes my presentation.

CHAIR POWELL. Thank you. Any questions for our briefers before we proceed with comments? [No response] Okay, thank you. We’ll go ahead—sorry. Sure. President Evans.

MR. EVANS. I thought I’d hang back. I figured there would be some questions.

I have a question about having a focus on financial stability in setting monetary policy. I remember Chairman Greenspan, back in 2002, talking about how monetary policy might respond if you think that there’s financial exuberance. He gave a speech that described a couple of episodes when monetary policy increased interest rates by around 300 basis points. These increases didn’t have the intended effect of really tamping down exuberance. I guess a question is, what do we think about other approaches—like financial-regulatory policy and the

countercyclical capital buffer, for instance? In the models, if you were to increase the buffer by, say, 200 basis points, would that have any effect, or—

MS. KLEE. I think answering that question in terms of the effectiveness of CCyB is difficult. We have limited experience, as you well know—particularly in the United States, because it's been held at zero. People have tried to model different effects of increasing capital and how that affects borrowing rates. Or sometimes increases in capital increase borrowing rates and, therefore, slow the economy. Sometimes a CCyB-type rule might engender some migration of funds from the banking sector to the nonbank sector. But, in general, I think the main point that the memo makes is that macroprudential tools are preferable to monetary policy, in terms of really focusing on the vulnerabilities that exist.

CHAIR POWELL. Thank you. Other questions? [No response] Thank you. Seeing none, let's proceed to our go-round, beginning with Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. Before I begin with my remarks for the framework go-round, I would like to share with you some very good news with regard to our framework review. Of course, we held our conference in Chicago in June 2019 under the able leadership of the bank president and Anna Paulson, but we also had the intention of putting out a corresponding conference volume. The volume has now been published. And as someone who has both published in and edited conference volumes, I can tell you that the modal time to completion is usually measured in years, if not decades. [Laughter] Under Loretta's leadership, we had a conference in June, and we have a conference volume published in January—about seven months—which I think is a world record. And so, obviously, you'll be getting copies of that down the road, but I just wanted to share that news with you—it is quite a good development.

Let me now turn my attention and discussion to the memos that were prepared for this meeting. And let me begin by offering thanks to the staff for these and, really, more broadly, for all the memos that we have been presented with since the July meeting. I think they've been uniformly outstanding, timely, and very valuable as we think about any potential changes to our framework review.

I'll begin with some observations on the inflation memo and then talk about the financial-stability memo. I found the inflation memo's taxonomy of inflation ranges actually quite useful. It's something that I had not thought about much before. I was aware that many central banks use a range, but it's interesting to think about the three possibilities for interpreting a range—briefly, the range of indifference, the range of uncertainty, and the operational range.

I would say that of the three categories, the indifference range is one, conceptually, that causes me a great deal of problems. Luckily, it turns out that very few central banks really pursue an indifference-range concept. The memo does refer to the Swiss National Bank (SNB), for example, and though it is true that they don't specify and emphasize a point target, it's also true that they do a lot of monetary policy activity when inflation is inside the range. So I think it would be hard to find any central bank that literally sits on its hands when inflation is inside the range.

You know, a potential challenge with indifference ranges is perhaps more broadly a challenge with a range that could be interpreted as an indifference range. To take a phrase due to the late, great Senator Daniel Patrick Moynihan, you have the challenge of “defining deviancy down.” Namely, in an indifference range, if a central bank accepts the level of inflation below its actual target, then, over time, that view could be taken and incorporated into expectations, and that is a very real risk. And, of course, as the memo points out, that is not typically the approach

that central banks take. But as I'll mention in a moment, I do think potentially announcing a range has to, at least, factor in the possibility that it could be interpreted or misinterpreted that way.

The staff memo points out some simulations with either indifference ranges—or, I would also say, probably ranges that are misinterpreted as indifference ranges—and, of course, that can be costly, especially if you begin the analysis in a period when inflation has been below target and when you have some backward-looking behavior in inflation. In a lot of academic-research models, including the ones that I write down, that problem is essentially assumed away, because people are assumed to know the model and to look only ahead when they're forming expectations. But the real-world evidence, including great work that Jeff Fuhrer did in his career, indicates that there is a substantial backward-looking component, and that leads to, I think, a real problem with ranges that could be misinterpreted or interpreted as indifference ranges.

As I move ahead, a point that I'll make more tomorrow or later on today in my outlook go-round is that, of course, in the real world, even very capable and successful central banks do not, in each and every month, keep inflation exactly at the target. There are always shocks. And an appropriate way to think of success in the real world is not keeping inflation at target, but keeping it in a domain centered on the target. And, of course, central banks, including the Canadians and the Riksbank and others, have essentially used the concept of an uncertainty range as a communications device to educate the public on what success looks like. It's not a constant rate of inflation, but a range. But I think, importantly, in those central bank cases, they also focus both communication and effort on emphasizing that the range reflects uncertainty, but that the goal is to get inflation toward the center of the target band.

Let me conclude my discussion of ranges with some comments apropos of discussions we'll be having at later meetings about the potential costs and benefits of adopting a range. Here—and I've done a lot of thinking on this over the past several months—I've come to the view that I think there's a potentially relevant what I would call "path-dependent" communications challenge we could face if we were to adopt a range at this time. This is due to, really, the conjunction of two facts. First, in 2012, the Committee had the option of adopting a range—as other central banks at that time had a range—and chose not to. And, of course, since 2012 we spent most of the time with inflation below our objective and, including this year, with an unemployment rate at a 50-year low and an economy growing above trend.

I'm not saying it's overwhelming, but a potential risk of adopting a range would simply reflect the fact that we chose not to do so 8 years ago. Adopting it now, given that history, could lead cynics or others to view this essentially as an indifference range, and I think that would be costly. And it would present a communications challenge—not potentially insurmountable, but I think an important one.

Let me now turn to the other memo, which was on financial-stability considerations. I thought the memo was, at least to me, very informative and, I think, struck the right balance. First of all, the historical connection between low policy rates or, potentially, even balance sheet policies and financial stability is not either firmly established in the research literature or obvious in the data. I vividly remember that, during the internet boom, when Pets.com was using its IPO to buy Super Bowl commercials, the funds rate was at 6½ percent. We still had Pets.com at a 6½ percent funds rate. So it's definitely a relevant consideration.

Second, the macroprudential framework we've established, I think, is generally a better approach most of the time to adjusting financial-stability risks. Before I arrived at the Board

18 months ago, I had not followed financial stability. But I've learned a lot from my two colleagues to my left and to the right, and it really, really is, I think, a substantially more robust framework than the one that was in place a dozen years ago.

Finally—and I'll conclude on this: Because financial stability is a consideration that we will continue to talk about in the context of our policy mandates—clear communication, I think, is necessary. This is certainly a topic the community has discussed before, and, in particular, I found the memo's discussion of escape clauses quite helpful. And I think that's particularly relevant for us, given both the focus in our communication and our perception of having a dual mandate.

Of course, the Federal Reserve has always had a responsibility to think about financial stability. You can even argue we were founded not to do monetary policy but to help support financial stability. But in terms of the particular escape-clause language, that actually could be a quite useful communications device when we think about the policies we might need to pursue in the future. In particular, the escape or “knockout” clause idea is one that, for example, the Committee deployed in 2013 when it was issuing threshold-based guidance.

Anyway, in sum, I think both of the memos served us quite well, and I appreciate the staff's hard work, in some cases over the holidays, in getting them ready for this meeting. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. It will come as no surprise that I strongly believe that alternative policy strategies and tools need to consider financial vulnerabilities. There are several reasons why I view this as critically important. The first is, the discussion of the staff memos points out that, in certain circumstances, pursuing alternative strategies—such as

makeup policies—could raise financial-stability concerns. To be more specific about what are the relevant circumstances: I believe that having an economy beyond full employment, with inflation near target and monetary policy moderately accommodative, we need to worry about whether the benefits of a policy path consistent with further declines in the unemployment rate might be outweighed by the costs of contributing to or causing an episode of financial instability.

I would characterize the economy today as well described by those conditions. To be sure, we are quite uncertain about the linkages between monetary policy, macroeconomic conditions, and the rise of financial imbalances—a point that I will return to in a minute. But, as a matter of risk management, we need to be wary of pursuing a policy that accrues marginal additional macroeconomic benefits, if doing so might give an incentive to excessive risk-taking behavior not only because such behavior is itself worrisome, but because it is shown to cause or exacerbate many of the most serious recessions experienced both here and abroad. In fact, the greatest misses in achieving maximum sustainable employment in the United States have been in periods following significant financial instability. It was not for lack of trying that we were unable to achieve full employment in the years following 2009. Nor were we able to attain our inflation objective, undershooting it consistently in the wake of the financial crisis. The damage done by the unraveling of financial excesses, and the repairs necessary to get the economy back to normal functioning, made achieving our dual-mandate goals during the recovery slow and painful despite our use of extraordinary policy measures.

And our experience is not much different from that of other countries. Of course, Japan provides the most glaring example of financial instability causing significant and persistent macroeconomic problems. Between 1985 and 1990, the stock market tripled, reaching a peak for the Nikkei stock index of 39,000 at the end of 1989. It declined precipitously thereafter and

13 years later reached a low of 8,300. Today, the Nikkei index is still dramatically below its '89 peak. At the same time, Japanese real estate prices also increased dramatically and then fell precipitously.

What were the macroeconomic effects? The unemployment rate doubled and remained persistently high for 20 years. The CPI inflation rate, which had been as high as 2.6 percent in 1989, fell dramatically and remained in negative territory 20 years later.

We cannot be sure of the effects on financial instability of our policy or the state of the economy. But ignoring risks to financial stability may place our macroeconomic goals seriously at risk.

The memo summarizes estimates of elasticities of a variety of asset prices to interest rates and finds them to be quite small. I find this evidence quite unpersuasive. Low interest rates in a recession or its immediate aftermath have only modest effects on asset prices. We reduce interest rates at these times to encourage risk-averse investors to return to the market largely by making the cost of debt unusually low. Indeed, no sensible person was worried about low interest rates creating asset bubbles in 2009 and 2010.

In contrast, asset bubbles, when they do occur, arise in an economic environment of tight labor markets and very accommodative financial conditions, much like that we are currently experiencing, although asset price bubbles remain notoriously difficult to predict. Thus, the relationship between monetary policy, macroeconomic conditions, financial conditions, and asset bubbles is not well measured by an average elasticity over a long period of normal economic times. However, these interactions are highly nonlinear and subject to considerable uncertainty. Gauging the likely effect of monetary policy and overall macroeconomic conditions on financial stability on the basis of such long-run average elasticities is, therefore, likely to be quite

misleading. As a result, it would be wise for us to keep our antennae out when labor markets are tight, when credit is abundantly available, and when monetary and supervisory policies are accommodative. Such conditions can never be perfect predictors, but these are the kinds of circumstances that raise the risk of the emergence of financial instability.

The memo highlights the desirability of first using macroprudential tools to address financial instability. In theory, I agree with this. Unfortunately, however, the tools listed include margin requirements, which we have not used during my career at the Fed; supervisory guidance, which has been neutered by judicial readings; stress tests, which are primarily focused on solvency and not on macroprudential risk; and a countercyclical capital buffer, which has remained at zero even while most other developed countries have activated the tool.

Common tools that affect leverage, such as loan-to-value rules or loan-to-income rules, now being more widely used in other countries, are simply not available in the United States. With few tools at our disposal, with limited experience in using the tools we do have, and with little inclination to date to use them, the onus falls on monetary policy to guard against financial instability. I am no more optimistic that these tools will be used than I am hopeful that our low interest rate environment will encourage fiscal authorities to be more aggressive in using their tools. In the absence of a coherent strategy to use financial-stability tools, ignoring the financial-stability implications of our monetary policy tools could be tantamount to macroeconomic malpractice.

So my view on incorporating financial-stability considerations into the policy framework is that we have no choice. Ignoring the potential financial-stability implications of our policies and tools, however uncertain the linkages, would likely worsen, over time, the economy's performance relative to our dual-mandate objectives. As I will highlight in the economic go-

round, when unemployment is low, asset prices are high, and monetary policy and supervisory policy are accommodative, it is exactly the time when we should be most concerned about increasing the risks of experiencing an episode of financial instability.

With respect to the second question, I strongly support adopting an inflation range while maintaining our 2 percent target. In the terminology of the memo, it would be akin to an operational range, albeit with goals that go beyond anchoring long-run inflation expectations at the 2 percent target. I view the strategy as providing the FOMC with a series of realized or expected inflation outcomes that would promote the stabilization of the economy around maximum sustainable employment over time, anchored long-run expectations at our 2 percent target, and financial stability.

Needless to say, there could be tradeoffs in achieving these goals. For example, my willingness to overshoot our 2 percent inflation target to firm up long-run inflation expectations at 2 percent could be conditioned on not maintaining rates so low for so long that it would create financial-instability problems.

The range would function as the limited and flexible implementation of a price-level targeting approach, with the hope of centering inflation at close to 2 percent at lower frequencies—in other words, a flexible average-inflation-targeting strategy. Such a strategy could potentially allow for lower-for-longer interest rate policies and other makeup strategies when dealing with the effective lower bound, as the memo also notes. Adopting an inflation range would make it clear that there will be times when we intend to pursue a period of above-target inflation, and it would also make it clear that there's a limit to how high an inflation rate would be acceptable in such circumstances.

Today, I think a plausible operational range that would accomplish these goals and would span inflation rates from 2 to 2½ percent. The hope would be that lifting inflation into this range would sufficiently offset a period in which we have consistently been below our 2 percent target so that expectations would re-center at 2 percent. This strategy makes clear the limits to which we will try to overshoot our target in circumstances like today’s, when we are beyond full employment but have the opportunity to tolerate above-target inflation for a period of time. This implementation of a makeup strategy provides policymakers with flexibility. They should use such a strategy judiciously and communicate it clearly to the public. For example, if inflation outcomes away from our target do not appear to move long-run expectations meaningfully away from 2 percent, I would be inclined to let bygones be bygones.

The use of an operational range in the context of makeup strategies for periods at the effective lower bound would also recognize that the gains in practice may not be as large as theory would suggest. Under current circumstances, in which inflation has been below target for a persistent period, I would emphasize that my willingness to overshoot the inflation target would be contingent on monitoring incipient financial-stability problems that could arise from sustained low interest rates.

Thus, today I would be comfortable mildly undershooting the equilibrium interest rate so as to move inflation above 2 percent. However, our current policy stance at almost 1 percentage point below my estimate of the equilibrium interest rate likely stretches the notion of a mild undershooting and does not appropriately strike the balance between managing inflation and inflation expectations, on the one hand, and managing financial-stability risks, on the other. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. First, I do believe financial vulnerabilities belong in our framework and in our thinking and very much with a risk-management lens. Monetary policy works in part through transmission vehicles such as asset prices and lending stimulus. I have to imagine our policy decisions should be informed by the state of equity and credit markets at any given time, and I, like President Rosengren, would want to consider the effect of stimulus on frothy markets versus more depressed ones. I do accept that macroprudential measures would be a preferred approach, but they won't always be viable—most obviously, on nonbank markets.

Second, as I've thought about the value of using an inflation range, I keep coming back to a comment that President Bullard made a couple of meetings ago. He said that in the 20 years before we adopted a formal inflation target, inflation had, in fact, averaged 2 percent. In the 7 years since we adopted that target, we have been persistently below it. The logic in declaring a specific target, as I understand it, was to communicate our commitment to that target. Perhaps then our failure to achieve 2 percent has been because we raised rates too soon. It's hard to know. I would note, however, that regions such as Europe, pursuing lower-for-longer strategies, have also failed to hit their inflation targets.

I would like to offer another angle. By announcing our target, we have cemented it in the minds of businesses and consumers. We intended this, but it may have had unanticipated consequences. Chief Financial Officers (CFOs) and purchasing departments now have an explicit number to beat. Many purchasing departments set a goal that if inflation is 2 percent, they will create value by delivering zero. Perhaps consumers have also become more price-sensitive. When increases come in higher than their expectations, they invest more in searching for alternatives. Both reactions could be creating an asymmetry or kink, with much more

resistance to above-target increases than below-target increases, resulting in realized inflation under target.

Unfortunately, even if this is true, we will have a challenge in changing this paradigm. Simply increasing our target has credibility challenges in the messaging. Abandoning the target undermines our perceived level of commitment. So I would like to make the case that one way to raise the perceived level of normal price increases is to adopt a range. Doing this puts a larger number—say, 2½ or 3 percent—into the conversation in a more credible way. It makes explicit the commitment we will likely be making to tolerate a modest inflation overshoot.

Use of a range also acknowledges the very real challenges in our efforts to precisely hit a particular inflation target with a necessarily imprecise metric and thereby helps our public communication. For that reason, I would also favor using multiple metrics, as Canada does. But I would keep 2 percent as the target and expect inflation to be moving toward target over time, so I am making the case for an uncertainty range, not an indifference range. I understand and accept the perception challenges with declaring a range now, with inflation still below target. So I'd be comfortable with an unbalanced range—1½ to 3 percent or 1.75 to 2½ percent—to send the right message or in signaling that a range will be adopted once we achieve our symmetric 2 percent target or in other communications that send the right symmetric message.

And I'll close by saying that most other central banks use a range combined with a target. Their outcomes aren't worse than ours, and they arguably spend less time below target. Perhaps we should ask, why wouldn't we do the same? Thank you.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. I want to thank the staff for the memos and for all of the careful analysis they have been doing to support the Committee's framework review.

Today I can't promise to answer the two questions on the table here, but I am going to discuss the memos in the order given by the questions.

The memo examining financial-stability considerations and setting monetary policy is a good summary of some of the research literature and empirical results on how a period of low interest rates may contribute to financial vulnerabilities. These effects could be through asset prices and risk appetites; growth of household, business, and financial-sector leverage; and funding risks. The empirical results reviewed suggest that the effects appear to be moderate. However, it is also clear that the evidence is particularly limited, since we haven't had that many extended periods with low interest rates. So we should be cautious about drawing too firm a conclusion at this point. The memo rightly points out that there is considerable uncertainty about the estimated size of the effects, and that there may be times when financial-stability concerns loom large and should be considered when setting monetary policy.

Now, the memo focuses mainly on the effects of makeup strategies and the tools one might use at the effective lower bound, including forward guidance and balance sheet tools. What I found missing from the memo is how financial stability should be considered when making monetary policy decisions away from the effective lower bound. In view of the importance of a stable financial system for achieving our longer-run monetary policy goals, the discussion worth having is how monetary policymakers should approach buildups in financial vulnerabilities and risks to financial stability away from the ELB.

The memo briefly discusses the Bank of England's use of financial-stability "escape clauses" in their monetary policy forward guidance in 2013. These types of clauses recognize that financial-stability concerns can arise and sometimes conflict with macroeconomic goals. I agree with Governor Clarida that this type of communication is worth some further thought as

we consider how best to discuss financial stability in our monetary policy consensus strategy document and other policy communications.

Now, some might argue that monetary policy has enough to do without the further complication of dealing with financial stability. Arguably, a post-crisis consensus has emerged—that it is better to use supervisory, regulatory, and macroprudential tools to address financial-stability risks and monetary policy tools to address macroeconomic stability risks. This is a desirable separation. Indeed, it's optimal in some models. So we should do what we can to increase the chances that we can maintain this separation between monetary policy and macroprudential policy. This includes doing more to ensure the structural resilience of the financial system across the business and financial cycles, with strong capital and liquidity requirements and in doing what we can to avoid the buildup of vulnerabilities in the financial system. That means being more willing to use the macroprudential tools we have at early signs of emerging financial-stability risks.

Consider the countercyclical capital buffer. There's an intertemporal tradeoff to consider. Raising the buffer in good economic times requires banks to maintain more capital. This could limit bank lending. However, it raises the probability that banks will be able to maintain lending in the face of a negative shock when the buffer is released. The social return to lending in this state of the world would be relatively high. So, optimally, we should be willing to trade off somewhat lower lending in a healthy economy in order to support lending in a weak economy, yet the CCyB has yet to be invoked.

Finally, it is likely that maintaining the separation between monetary policy and financial stability may not be feasible in all situations in the United States, a point made by President Rosengren. The two financial-stability “tabletop” exercises that we've run illustrated that the

macroprudential tools available in the United States—namely, the CCyB and the stress test—are limited in their ability to be used in a timely way or in controlling risk in a single asset class or narrow group of institutions. With limited tools, a hesitancy about fully utilizing those tools, and the high level of interconnectedness of global financial markets, there will come a time when monetary policy decisions may face a conflict with financial-stability considerations. Against that backdrop, coming to some conclusions about how financial-stability concerns should be incorporated into monetary policy decisions would be prudent.

With regard to inflation target ranges, like Governor Clarida, I found the staff's categorization of the different types of inflation target ranges to be helpful. Of course, if we used a range to communicate our inflation goal and strategy, we wouldn't have to characterize ours as being in one of these particular categories rather than another. The range could serve several purposes. We would not have to be indifferent to where inflation is within the range. We could act and move inflation toward a point goal within the range. The range would help communicate the point that it's normal for inflation to vary because of a number of factors, including measurement issues and idiosyncratic shocks. And we could use the range to explain that, because of the lower general level of interest rates that is likely to prevail in the future and changes in inflation dynamics, inflation would likely be low in the range in economic downturns and higher in the range during economic expansions.

The memo's simulation results comparing a range with a point estimate were interesting but hardly settle the matter. The case illustrated in figure 1 in the main body of the memo suggests that an indifference target range does not work as well as a point target, but this was hardly a surprise, given the design choices for this scenario. It was almost the worst case for a range—a negative demand shock, no action if inflation stays within the range, and inflation

expectations that are determined by actual inflation instead of the usual Tealbook assumption of anchored inflation expectations. In this case, a negative shock causes inflation to fall, and this, in turn, leads to a decline in inflation expectations. But with the indifference range, monetary policy doesn't react as much as it would with the conventional Taylor rule and point target for inflation. As a result, inflation outcomes are worse than they would be with a conventional Taylor rule and point goal.

More interesting are the results given in table A1 in the appendix. These simulations allow for a variety of shocks, both positive and negative, and compare point target, symmetric, and asymmetric target ranges. The results show that far from being the worst, the asymmetric range actually yields higher average inflation than a point target or a symmetric range. And these simulation results are similar to those found by Bianchi, Melosi, and Rottner, who use a New Keynesian model that incorporates a zero lower bound on the nominal interest rate. The asymmetric inflation target range overcomes the disinflation bias induced by the lower bound and leads to better inflation outcomes.

Of course, you wouldn't need to use an asymmetric range, which might be harder to communicate than a symmetric one. A symmetric range, along with appropriate guidance that inflation is likely to be lower in the range in downturns and so higher in the range in upturns—or reacting more strongly when inflation is lower within the range than when it's higher within the range—would likely yield similar results to those arising from an asymmetric range.

Now, inflation ranges appear to be used by many central banks and have not, obviously, led to worse inflation outcomes than here in the United States. When the Committee first established its numerical inflation goal, it was moving from not having an explicit goal to establishing one. As I recall the discussions, it was thought that a point target would be more

effective at anchoring inflation expectations than a range would be. But now we and the public are accustomed to a numerical target, and I think there may be benefits in communicating our inflation goal with a range around that point target. In fact, in response to the last outreach made by the communications subcommittee, I had offered a draft revision of our consensus strategy statement that incorporated an inflation range. I would be happy to provide others on the Committee with that memo if they would find it helpful. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. My remarks will follow the sequential order of the questions. Regarding monetary policy and financial stability, I'd first like to thank the staff for framing the issues in ways that have helped sharpen my thinking on these questions. This is no mean task, as these are complex issues, so thank you.

I read the question that the memo asked us to focus on as asking whether we believe that alternative monetary policy strategies and tools will have any link to financial vulnerabilities with the result that stimulative approaches could induce greater vulnerability. In spite of past experience, I think it would be a mistake for anyone to assume the answer to this question is "no." One mechanism by which policy stimulus works is by increasing the attractiveness of more marginal investments—which, by definition, increases the risk in the system. To the extent this happens at scale, then increased financial vulnerability becomes plausible. And this seems relatively straightforward to me. A related question posed by the authors is whether I think particular tools or strategies are more susceptible to creating financial-stability risks than others, and here I have no reason to believe this to be the case.

All that said, I'd like to turn to another aspect of this issue that is important as well—namely, the extent to which the Committee should incorporate financial-stability concerns into

its monetary policy deliberations, particularly when the Committee has adopted a more aggressive stimulative monetary policy stance. In this context, there will be a race between two opposing forces—the benefits of the aggressive stance versus the risks and costs of increasing financial instability. And the question to ask is, what happens if the increase in financial stability, at some point, starts to win that race, bringing into play the possibility of systemic implications?

To be clear, let me say that I don't think this will be likely during the early stages of the application of the aggressive policy stance. But with the passage of time and the firming of the economy in response to the Committee's policy, it will become increasingly likely that financial instabilities can build. In my view, consistent with the position of the Committee and as articulated in the staff presentation and by others today, the primary lever for addressing this should be macro- and microprudential policy. In the face of rising financial instability, I would expect rapid and robust application of such policies. Now, as an aside, a proactive deployment of such policies, such as using the countercyclical capital buffer, would likely slow the speed at which financial instabilities would emerge and, thus, reduce the likelihood that this would even be an issue.

The question in my mind is whether our prudential policies will be up to the task of preventing considerable economic pain if and when instability rears its head. There are at least two reasons for some skepticism here. And I will discuss two, but I would also note that Presidents Rosengren and Barkin described additional arguments for skepticism. So, here are my two. First, I have seen firsthand how difficult it is to put the brakes on practices when institutions and people are making money. It often takes actual losses to trigger action, and by the time losses start to be seen, it is often too late to prevent very big losses.

Second, the current forces seeking the erosion of macroprudential policy tools that could address instability when it occurs—many originating from financial market sources—concern me. If these pressures gain traction and erosion occurs at a significant pace, what confidence can we have that these tools will have sufficient teeth left to be effective when they will need to be called upon? And this reality highlights the importance of retaining, at a minimum, escape clauses relating to financial stability.

With regard to the memo on inflation ranges, I want to add my thanks to the memo authors for providing some very helpful insights. In particular, the taxonomy of different ways to think about inflation ranges is very useful and has helped me organize my own thinking about how best to formulate and communicate our policies. Though I am not sure the label clearly conveys the concept, my own preferred approach is closest to the uncertainty range definition. At the previous meeting, I discussed some observations, which were based on conversations my staff and those I have been conducting with our directors and business contacts. From those conversations, I walked away with two main conclusions. First, modest deviations of the inflation rate from the 2 percent target are no big deal to them. And, second, deviations as persistent as what we have experienced over the course of the recovery have not shaken their beliefs about whether we are committed to the 2 percent objective, at least for future periods.

I favor something along the lines of the Bank of Canada’s assertion that it aims to keep headline inflation at the 2 percent midpoint of a target range over the medium term. I think our communications could be enhanced by articulating this approach. More specifically, I’m thinking of saying something like the following: The Committee intends to maintain its 2 percent target and generally orient policy to meet that objective over a medium- to longer-term horizon. However, the Committee is not inclined to “sweat” deviations that fall within a

reasonable and specific range about the 2 percent target. At any given time, the Committee will take economic conditions, including maintenance of its employment goal and possible financial-stability concerns, into consideration as it determines how aggressively it intends to push toward the 2 percent midpoint.

I do see the value of the operational range concept if the outcome of our framework review is to adopt either average inflation targeting, like example 2 on page 4 of the memo, or an approach that contemplates deliberate overshooting, like example 1 on page 3. I have not concluded for myself whether one of these is my preferred outcome. However, I don't think that the type of communication I have suggested precludes implementing, for a time, a makeup strategy of some sort, should circumstances warrant. A flexible hybrid of the memo's first two models of inflation ranges—the uncertainty concept in general, with state-contingent deployment of the operational concept if needed—strikes me as the best approach as we go forward. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I have a few general remarks on the questions posed to the Committee for this important discussion. And, perhaps foolishly, I'm going to actually answer the questions [laughter], which I understood to be about the wisdom of possibly adopting new policy tools in the face of possible financial instability concerns. So I'm going to focus right on that particular question.

I do not think there is any necessary connection between the potential tools and financial stability, and, therefore, I do not think this is a first-order consideration when deciding on the possible adoption of new tools. My reasoning is as follows. The FOMC has, for many years, been concerned about the potential effect that its policy rate path setting may have on financial

market conditions and, in particular, on the possibility of adding to existing financial market vulnerabilities in a way that creates additional risk for the macroeconomy. It has been well understood that an accommodative policy path setting achieved with conventional tools is likely to promote these vulnerabilities.

In the past 11 years, the Committee has been confronted with the effective lower bound on nominal interest rates. This bound is a constraint that has prevented the Committee from providing as much monetary policy accommodation as it wished to provide. The level of accommodation provided through this channel was “too small,” given the macroeconomic circumstances, and, by extension, the magnifying effects on financial vulnerabilities through this channel were “smaller” than they otherwise would have been.

At the effective lower bound, the new potential policy tools are intended to replicate through alternative means the level of monetary policy accommodation that, because of the ELB, cannot be achieved through conventional channels. Alternatively, the new potential policy tools could be employed in such a way as to prevent the Committee from being constrained by the ELB in the future. But either way, the desired end result is that the appropriate level of monetary policy accommodation is provided, as opposed to the constrained amount of accommodation that would otherwise be provided.

In short, the amount of accommodation is either constrained, if the ELB is binding, or is just right, if the alternative policy tools work well. But, importantly, there is no excessive policy accommodation of the sort that would possibly feed into financial-market excess. For this reason, I do not think that interactions with financial stability offer an important reason to discard or limit the use of new potential policy tools. I am certainly cognizant of possible risks to

financial stability, but I do not think this impinges on our choice of alternative monetary policy tools to circumvent the effective lower bound.

I will now turn to the second question, which concerns the use of formal target ranges for inflation. This is an old issue for this Committee and has been debated in various forums for decades. I'm going to agree with Governor Clarida. My main concern is that attempting to put a formal target range into place today, after having generally missed the stated inflation target to the low side based on our preferred measure since 2012, would send a powerful signal that we are willing to accept the relatively low inflation outcome of these years, along with the increased risk of another extended encounter with the effective lower bound similar to those occurring in Europe and Japan today. A formal target range may be something for the Committee to consider should we achieve our inflation target on a sustained basis and simultaneously re-center inflation expectations, measured in markets, at the target. However, even in that case, I'm doubtful that much is being gained by using a formal target range.

The primary theoretical issue—and I'm agreeing with Governor Clarida again here—with the target-range concept is that the range intimates a zone of policy inaction, or at least less action, which then creates uncertainty about the longer-term intentions of the Committee. What else could a range entail, other than the idea that we're going to be less serious about inflation stabilization when you're particularly close to target than when you're farther away from the target? In short, theory wants us to make our goal as sharp as possible in order to firm up private-sector expectations, whereas target zones tend to fuzz up those expectations, with an attendant deterioration in macroeconomic outcomes. For these reasons, I do not think we should pursue this idea further at this time.

I would say, as a footnote, that if we want to pursue something like price-level targeting and we're serious about it, then we might want to express that goal relative to the price-level target. Then what we're doing would become much clearer, as opposed to a shifting inflation target inside a target range. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chair. And thank you to the staff for the excellent memos. I do support explicit consideration of financial stability in our framework statement. I agree with the comments that, ideally, you'd like macroprudential tools to be a first line of defense and primary line of defense. But, unfortunately, I think there are limits, because a big part of the financial system is outside the banks, as has been mentioned.

And I do strongly believe that in a period when rates are low and we're using alternative tools such as our balance sheet, excesses and imbalances can build. And the irony I found about excesses and imbalances is, the greater they build, the greater risk you must take if you want to keep making money. And often, early on in these situations, it may seem innocuous. It may even feel good. But I think history has shown that if these excesses build and risk-taking behavior builds sufficiently, they can have a big effect on the medium- and longer-term outlook, and, ultimately, I believe would jeopardize our ability to achieve our dual-mandate objectives.

I'm particularly glad about and support putting financial stability in our framework in light of some of the discussions we're having about inflation. In my view, and in the work we've done at the Federal Reserve Bank of Dallas and that by others around the table, muted inflation does relate to monetary policy, but I think it also relates significantly to structural issues and structural changes going on in the economy. And I must admit that I don't know how much of the muted inflation is due to monetary policy and how much of it is due to technology,

specifically technology-enabled disruption, and other structural trends that are not particularly susceptible to monetary policy actions.

As we do more work to try to figure that out, though, it highlights to me the need for this Committee to take a balanced approach to monetary policy. That is, we should not focus so narrowly on achieving our inflation target that we do it to the exclusion of considering excesses and imbalances that we're creating. And so I think I support this type of insertion into the framework discussion.

Regarding an inflation range, I am receptive to having an uncertainty range, as has been discussed earlier, around the 2 percent target, for a couple of reasons. It emphasizes that PCE inflation is uncertain and there's a lack of precision, and I think it's also worth emphasizing that we need to be forward-looking in terms of achieving our inflation target. In that regard, it's uncertain in times like this when we are on the path to actually reaching our target.

I would like to see us more explicitly acknowledge other measures of inflation. And I would love to see us cite that we look at other measures of inflation—not just the Dallas trimmed mean, but other alternative measures, some PCE-based but some CPI-based, done by the Atlanta, Cleveland, and New York Federal Reserve Banks. But I think all of that conveys the message that PCE inflation can bounce around. There's always a lack of precision. There are transitory factors. There's uncertainty. And I think we'd do a better job of communicating to the public the fact that there are other alternative measures of inflation, and, at certain times we might be doing better or worse than we think in terms of reaching our target.

But I think it would help the public better understand the uncertainty associated with this path—and, again, emphasizing it's not realized inflation. It's not realized PCE inflation. It's our

expectations about medium-term PCE inflation, and I think sometimes that gets lost in the conversation. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I would also like to thank the authors for the thoughtful work they've done in helping guide the Committee as we review our monetary policy framework. I'd like to say we've saved our best for last, but as these are our final memos on the framework review to be circulated to the Committee, before we begin our discussion on possible changes to our framework, it would not be fair to everybody else. So I'd just like to say a hearty "Thanks" to everyone who's contributed to this process over the past few months.

With respect to alternative monetary strategies and their effects on financial vulnerabilities, while I recognize that we should pay some homage to that in our statement, my main take is that framework choices really don't differentially affect financial-stability considerations. I don't see these choices having a large effect.

As well, our understanding of the interactions between monetary policy strategies and financial vulnerabilities, I think, is too imprecise to warrant systematically adjusting monetary policy on the basis of imperfect measures of financial fragility. Macroprudential tools and supervision and regulation are, I believe, much better suited to this task. But I also share the concern raised in the memo regarding the use of negative interest rates, and I would simply hope that we keep that alternative out of the prospective toolkit for the foreseeable future.

The primary concern of monetary policy should be macroeconomic outcomes, and in this regard, makeup strategies are potentially beneficial. However, obtaining those benefits may rely heavily on the credibility of the makeup policies, and I do continue to remain doubtful that the current Committee can bind the actions of future Committees. In light of that skepticism, I favor

conducting policy in the way we do now, although, as many have pointed out, there is room for improvement in our communications.

Regarding ranges versus point targets, I can see advantages and disadvantages to both ways of conducting policy. That we cannot control inflation exactly is evident to everyone. Yet in our communications it is worth reiterating that our control of inflation is only approximate. Ranges do have an advantage in that they more precisely define policy failures and consequently better define success. They also inherently build in greater flexibility.

Explicit ranges would more easily allow for asymmetric policy—maintaining an inflation rate somewhat above the midpoint of the range in normal times in order to better insulate the economy from lower-bound events. However, a range could also make it more likely that inflation expectations would become an anchor, because a range could lead to the view that the FOMC is comfortable with an average inflation rate that differs from the midpoint.

In light of the behavior of inflation over the past seven years, announcing a range today, as others have said, may very well result in inflation expectations moving below 2 percent. I'm not taking the addition of a range off the table completely, especially an uncertainty range accompanied by language akin to that suggested by President Bostic, but minus the word "sweat" in there. [Laughter] But I do believe, before we do any of that, we must first achieve inflation above our target before making such a move, lest we run the risk of expectations becoming an anchor at the low end of whatever range we announce.

Also, the predominant view among economists is that the economic outcomes under a range or point target are not substantially different. I think it's absolutely essential that we keep inflation expectations well anchored, and, therefore, I favor remaining with our point target for

now. I believe our biggest challenge is communicating the message that our inflation goal is a symmetric one and that 2 percent is, indeed, a reasonable average target.

From the interaction with certain audiences I have had and my staff has had, I believe that we have not satisfactorily communicated the reasonableness of our 2 percent target, nor, as others have noted, the fact that we regard both significant upside and downside departures with equal concern.

In view of the effort that has been expended by all of us in the System on this matter, the lack of understanding by the general public continues, to me, to be somewhat puzzling. Perhaps it will actually take inflation exceeding 2 percent before the symmetry of our goal will be understood. As some have said, the proof may be in the pudding, or, more correctly stated, the proof of the pudding may be in its eating. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. Thank you to the staff for two excellent memos and to Beth and Hess for excellent presentations.

I keep going back to, what are the changes that really necessitate this strategy review? And there are three. First, trend inflation is below our target, and there is a risk that inflation expectations have slipped. Second, the sensitivity of price inflation to resource utilization is very low—which means that policy would have to remain accommodative for a sustained period to achieve 2 percent inflation after a period of undershooting. And, third, the equilibrium interest rate is very low—which implies a large decline in the conventional policy buffer compared with the amount by which the FOMC has typically cut rates to buffer the economy in the face of recessionary shocks. In turn, that large loss of policy space can be expected to increase the periods when the policy rate is pinned at the lower bound, unemployment is elevated, and

inflation is below target. And that, in turn, can lead to a downward spiral in which the experience of extended periods of low inflation risks further eroding inflation expectations and policy space.

In light of these three features of the “new normal,” our strategy review shouldn’t only expand the policy space to buffer the economy against adverse developments at the lower bound, but also successfully achieve average inflation outcomes of 2 percent over time in order to reanchor inflation expectations at target.

Let me turn to the discussion of inflation ranges. This ties directly to the achievement of 2 percent inflation outcomes, on average, over time. With inflation having undershot our objective for almost all of the past eight years and measures of underlying inflation stubbornly a few tenths below 2 percent, introducing an inflation range symmetric around 2 percent would risk solidifying expectations below our target and undermine our credibility.

Over 36 meetings, this issue has come up repeatedly. And I have consistently been uncomfortable with accepting inflation of 1.6 percent, 1.7 percent, 1.8 percent as being close enough to our target, because I worried it would essentially validate the slippage in inflation expectations and raise the risk of that downward spiral I talked about earlier. I think a symmetric range around 2 percent that suggests indifference or inaction within the range would similarly exacerbate the loss of policy space.

By contrast, I could support adoption of a range as a means of implementing a flexible inflation-averaging approach that commits to achieving inflation outcomes of 2 percent, on average, over time. A range that signals the Committee’s intention to support inflation a little above 2 percent for some time to compensate for the previous period of underperformance could

be much simpler to communicate and implement than a complicated and formal average-inflation-targeting regime.

For instance, we could explain that, because inflation has fallen between 1½ and 2 percent over the past five years, the Committee will target inflation outcomes in a range of 2 to 2½ percent for the next five years to achieve our objective. I think that's similar to what President Rosengren suggested earlier. In this way, the Committee would make clear that it would accommodate, rather than offset, modest upward pressures on inflation—what could be described as a process of opportunistic reflation to compensate for previous shortfalls.

Second, I am delighted we're including a discussion of financial stability in the monetary policy strategy review, so let me turn to that now. One lesson of the Global Financial Crisis was that the stability of the financial system is very important to the achievement of our dual-mandate goals. Other central banks have acknowledged the linkage between a stable financial system and achievement of their monetary policy goals, and we should do the same in our statement.

So far, the Committee hasn't formally addressed that relationship. The closest we have come is a discussion in the minutes of April 2016 that stated a few key "takeaways." And I won't quote it, because it's too long, but I will just near-quote it: "Participants emphasized the importance of macroprudential tools in promoting financial stability, and they generally expressed the view that such tools should be the primary means to address financial-stability risks. . . . Most participants judged that the benefits of using monetary policy to address threats to financial stability would typically be outweighed by the costs." And, finally, "Participants generally agreed that the Committee should not completely rule out the possibility of using monetary policy" in circumstances in which macroprudential tools were unlikely to be effective,

a so-called escape clause. We've never codified those conclusions in our statement. Since that time, we have actually come to much greater agreement about those three underlying macroeconomic conditions that I described earlier, and I think they matter for financial stability.

Historically, when there was a steeper Phillips curve, inflation tended to rise as the economy heated up, prompting the Committee to raise rates to restrictive levels. And, as a by-product, it would have the effect of tightening financial conditions more broadly, thereby naturally damping “reach for yield” behavior as the expansion extended. We do know, thanks to case studies, that the past few cycles didn’t see this kind of behavior, and, in each case, rising financial imbalances played a large role in amplifying the downturn, regardless of whether or not it triggered it.

In today’s circumstances, starting from a position with low underlying inflation and a flat Phillips curve, inflation has not risen as resource utilization has tightened. And, as a result, interest rates have really not been rising to restrictive levels. The resulting low-for-long interest rates, along with sustained high rates of resource utilization, are conducive to increasing risk appetite, which provides incentives for “reach-for-yield” behavior and taking on additional debt, contributing to financial imbalances—which I think is what was referred to by Presidents Rosengren and Kaplan and a few others.

To the extent that the combination of a low neutral rate, a flat Phillips curve, and low underlying inflation may lead financial-stability risks to become more tightly linked to the business cycle, it would be preferable to more actively use tools other than monetary policy to temper the financial cycle. In particular, countercyclical macroprudential tools are designed for precisely these kinds of circumstances, and, indeed, this is a tool we didn’t have in the past few cycles.

Peer central banks have let their communications evolve to clarify the appropriate relationship between monetary policy and policy on financial stability, and I hope we won't be the last to do so. We have tried to bring our practices in line with best practice globally by the quantitative surveillance (QS) process, releasing our *Financial Stability Report*, implementing a CCyB, and voting on it annually. Clarifying the relationship between financial stability and monetary policy would similarly bring us more into line with peer central banks.

In particular, and like, I think, Governor Clarida and Presidents Kaplan, Mester, and Bostic and perhaps some others, I would like to see the Statement on Longer-Run Goals and Monetary Policy Strategy reflect two points: First, a stable financial system is an important prerequisite for achieving our dual-mandate goals, and, second, countercyclical macroprudential policies are the preferred tool for addressing financial imbalances, with monetary policy to be used only when other tools prove inadequate. This is akin to an escape clause. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. The current low- $r^*$  environment and accompanying elevation in the risk of encountering the effective lower bound (ELB) pose important challenges for policymakers. The primary challenge is to the consistent achievement of the Federal Reserve's dual-mandate goals. A secondary issue is dealing with potential financial-instability risks that might hinder the achievement of those policy goals. The most effective way for monetary policy to meet both of these challenges is to pursue an outcome-based policy focused squarely on achieving our dual mandate.

Regarding the first question posed to the Committee, delivering on our dual-mandate goals enhances financial stability: After all, a strong economy with price stability delivers

creditworthy borrowers, well-capitalized lenders, and fewer defaults for everyone. It should be acknowledged that the prolonged periods of low interest rates that accompany monetary policy strategies aimed at the ELB might risk sowing the seeds of the next financial crisis if financial regulation is insufficient.

I don't think I can stress that enough. A lot of this comes down to, how is the financial regulatory system structured? Does it take into account the likelihood that we will be seeing these periods of low interest rates? And is it a weak system, or is it strong and resilient to live up to what we need to do for our monetary policy goals?

Our framework review strongly implicates the current and prospective low-real- $r^*$  environment as the root cause of these low nominal interest rates. This is a structural feature of the U.S. economy and other advanced economies today and for the foreseeable future. It reflects demographic trends, labor and immigration policies, and the state of productive innovation.

Private-sector agents need to come to grips with the reality of lower trend growth and low  $r^*$ . Notably, financial market participants need to recalibrate their views of achievable returns—sustainable over time—and adjust business models accordingly. In addition, financial regulators need to properly take on board the risks associated with this transition and the low- $r^*$  environment.

The adjustment process to low rates definitely raises important policy issues. But these are, in my opinion, structural-adjustment problems—not cyclical ones that can be addressed by monetary policy. So it seems that the additional financial-instability risks are matters for stress tests and prudent financial regulation, if financial-regulatory preparation is inadequate. And if it's inadequate, I can't see how altering the path of monetary policy in a way that compromises the achievement of our dual-mandate goals is an appropriate response.

In particular, one must ask, how much higher would the federal funds rate target range have to be, to meaningfully reduce instability risk? Subject to the answer to this question, one then must ask, how much are we willing to trade fewer financial regulatory safeguards against lower employment, lower growth, lower inflation, and lower central bank credibility that would accompany rate hikes that moved us further away from maximum employment and price stability?

Chairman Greenspan spoke at Jackson Hole in 2002 on the subject of how high the funds rate would have to go in order to reduce financial exuberance risk sufficiently. He cited examples in which even 300 basis points was not enough. That's a lot of restraint—reducing employment and inflation.

To sum up my views on the financial-stability issue, our monetary policy challenges are already legion, as we essentially have only one tool to use to meet our dual-mandate goals of maximum employment and price stability. We should be extremely hesitant about adding the difficult role of dealing with financial-stability risks to the list of monetary policy challenges. That's a job for regulation, in my opinion.

Let me now turn to the subject of inflation target ranges, and I generally agree with the comments by Governor Clarida, President Bullard, and Governor Brainard, and also I think President Harker in a number of cases. In a low- $r^*$  environment, we face a heightened risk of encountering the ELB. In this environment, standard policy approaches that treat inflation shortfalls as bygones will leave inflation biased to the downside. That is, the average inflation rate will be below 2 percent, and inflation expectations will similarly be low.

Once you acknowledge that traditional policy approaches deliver average inflation and inflation expectations below 2 percent, two things are immediately evident. First, some kind of

bias adjustment is needed to correct this problem. Second, this adjustment will require the central bank to deliver a period of inflation above 2 percent in order to center inflation expectations and achieve a truly symmetric inflation objective.

As a consequence, a critical theme that the framework memos have repeatedly presented—and a key issue for the Committee to grapple with—is this: What kind of framework will allow policymakers to be comfortable with inflation running above their objective for a period of time in order to eliminate the downward bias induced by the ELB? Ultimately, achieving this bias adjustment will almost certainly require the FOMC to treat below-target inflation different from above-target inflation. We will need an asymmetric response. I'll give a couple of examples shortly.

Okay, so now how could an inflation target range work? Clearly, the range must deliver an expected value of 2 percent inflation over the long term. Research carried out by my staff—Leonardo Melosi, with coauthors Francesco Bianchi and Matthias Rottner—and the contributions in the framework memos show that policies with a range need to take an asymmetric approach to inflation.

In particular, absent other features, an inflation range that puts the target at its center does not address the low-inflation-bias problem. And if this symmetric range is interpreted as a de facto range of inaction, then it just makes the downward bias in inflation worse. Now, you can offset these problems with some particular additional policy features. Frankly, I don't think the proponents of inflation ranges will like these added details. But they aren't optional if you seek to address the problems we face.

Specifically, the research I referred to suggests two possible approaches. First, if you want a centered indifference range, monetary policy needs to react asymmetrically outside the

range. When inflation is below the lower band, policy needs to provide aggressive accommodation to get inflation back into the zone quickly. When it is—

MR. CLARIDA. Above. We're hanging on every word. [Laughter]

MR. EVANS. When it is above the range [laughter]—thank you, Governor Clarida—policy should be milder in trying to nudge inflation back down into the range. Such an asymmetric policy would lead to extended periods of above-target inflation that offset the deflationary forces of the effective lower bound.

The second approach is to adopt an asymmetric range with a wider band above target than below it. An example might be an asymmetric inflation range with 1 $\frac{3}{4}$  percent at the bottom and 2 $\frac{1}{2}$  percent at the top. With such an asymmetric range, policymakers could then react symmetrically to inflation deviations above and below the target range and still achieve 2 percent inflation on average.

Let me be clear. I prefer a point inflation target like our 2 percent objective. I'm not advocating either of these inflation range policies. I acknowledge that they both can work in theory. But, in practice, they would be very difficult to communicate. Furthermore, the public would have to see and believe the additional features of the Committee's policy reaction function in order for the downward inflation bias to, in fact, be corrective. That's a pretty stiff test, it seems to me.

These and other challenges were described well in the staff memos, and they make ranges a nonstarter for me. Much like the makeup strategy, which we discussed at previous meetings, ranges can be good in theory but very difficult in practice and, ultimately, problematic for me.

As I've said many times to the Committee, I prefer to avoid getting mired in the technical nitty-gritty of tactical considerations such as these, and I strongly believe we should not risk policy being hamstrung by the adoption of a rigid, mechanical operating framework.

Whatever we do, we need to make sure that inflation expectations are consistent with our objective of 2 percent, and market expectations, as President Bullard indicated, would be very, very important. In view of the challenges posed by the ELB, we will be best served if we maintain a laser-like focus on outcomes-based monetary policy and communicate a "do whatever it takes" approach to achieving our dual-mandate goals.

I frankly think escape clauses, although, in principle, they sound very sensible—"Financial-stability concerns might have risen to the point at which we now need to do something different"—are really going to step on our ability to commit to doing whatever it takes. We're going to do whatever it takes right up until it probably is really important, and we're not going to get inflation up to 2 percent.

So I think that's really problematic if we were to—depending on how the Committee likes commentary about the financial-stability initiative, I think it would be very important to mock up some language about how we would describe the most recent increase in the federal funds rate, with the unemployment rate at 7½ percent and inflation undershooting "is unbelievably necessary because of—fill-in-the-blank."

We're stuck with a 2 percent inflation objective that might have been a good idea in the past, but it's not ideal today, in light of the greater risk associated with the ELB and our stronger understanding of the limitations it places on our policy options. The heightened frequency of ELB episodes leads to a significant downward bias to inflation and inflation expectations—which will limit our ability to respond to cyclical challenges in the future.

We must adjust our policy framework to add as much monetary policy firepower as we can to overcome this problem. For me, this means we will need to acknowledge publicly an asymmetric policy response. We should act aggressively to bring actual below-target inflation back up to 2 percent, and then we should allow inflation somewhat above 2 percent for a period to counter the bias induced by the ELB. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. I, too, want to thank the staff for the framework memos related to considerations regarding financial stability and inflation ranges. I'll address the two questions, starting with financial stability.

As the Committee discusses the prospects of a lower-for-longer interest rate strategy, financial-stability risks take on particular relevance and importance for the Committee's ability to achieve its mandates for employment and price stability. As was pointed out repeatedly in the background memo, low-rate environments are likely to alter significantly the risk appetites of financial firms. Under such circumstances, we've benefited from discussions about these risks based on the staff's assessment of vulnerabilities in the economy.

As the memo notes, the Federal Reserve and other regulatory agencies have a range of regulatory and supervisory tools to build resilience and mitigate financial vulnerabilities. Because decisions about deploying these tools are beyond the remit of the FOMC, it's critical that policymakers understand how decisions will be made about the timing and use of these tools if we're to have the confidence and the capacity to focus on our macroeconomic objectives.

Today's risk landscape in the context of a lengthy expansion and low interest rates raises important questions, in my view, about financial stability. For example, capital buffers are declining at a time when the largest banks are reporting record profits and setting ever-higher

profitability goals. The Committee might benefit from a broader discussion not only about the nature of vulnerabilities in our financial system, but also about the Board’s regulatory posture and the use of its supervisory and macroprudential tools as they relate to these risk and longer-term financial-stability considerations.

Organizational designs such as the Bank of England’s Financial Policy Committee seem to bring that kind of perspective, as they judge the stance of monetary policy and its relation to threats to financial stability. As we think about the role of financial stability in our framework considerations, I think about it this way: An ounce of prevention is worth a pound of cure.

We would be wise to take a defensive stance with regard to our macroeconomic objectives and a lower-for-longer interest rate environment. A robust regulatory and supervisory framework is a prerequisite for adopting strategies that potentially require exceptionally low rates for extended periods to achieve our mandate.

With regard to the considerations regarding inflation ranges, I’ve not been as concerned as some others have been about the Committee’s preferred inflation measure running a bit below our 2 percent target, in view of its relative stability in the context of low employment and sustained economic growth and, as President Kaplan notes, in the context of looking at other inflation measures. However, the narrative concerning inflation below target continues to raise questions around this table and with the public that are certainly worth addressing.

Consideration of an inflation range could be worthwhile, in my view. As with other aspects of our framework review, the options presented in the staff memo are not without issue, but, at a minimum, I see the overall benefit of these options as enhancing communication, if not our credibility. Describing an uncertainty range around our inflation objective seems straightforward and conventional. Even an indifference range might be helpful, but we would

have to make clear that deviations of inflation from 2 percent are judged in the context of broader economic conditions, including employment and output growth.

Adopting an operational range, on the other hand, raises questions about how it would interact with other aspects of our monetary policy strategy and communication. For example, if we were to adopt a makeup strategy, would we need to consider an asymmetric target range for inflation of, say, 2 to 2½ percent over the medium term? Could we have confidence that the public would view it as a credible commitment and, in turn, increase their inflation expectations? Or would we risk locking ourselves into ever more accommodative policies in an effort to build credibility for a target that may prove difficult to achieve without causing adverse consequences elsewhere in the economy?

Finally, none of these options seem well suited for raising longer-term inflation expectations on their own. At the end of the day, the Committee will continue to carry the burden of properly calibrating its policy stance to achieve its mandated long-run objectives. Thank you.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Chair Powell. I'd also like to thank the staff for today's briefings and for preparing the background memos for this round and throughout our framework discussions. The staff analysis provided very helpful insights on the potential benefits and costs associated with each of the two special topics for today's discussion. So I'll start with the question on how to weigh the benefits of our monetary policy strategies and tools against the effects that they might have on financial stability.

First, regarding the benefits, there is compelling evidence to support the view that the monetary policy strategy and tools used by this Committee over the past decade have helped the

economy recover following the crisis. Inflation is now near our target, and the unemployment rate is the lowest it has been in 50 years. But there are potential costs in using our strategy and tools, including the possibility of an adverse effect on financial stability. Of course, the main concern here is that low interest rates can lead to financial instability by encouraging excesses, for example.

But the studies reviewed by the staff and summarized in the memo revealed that the evidence of a link between low interest rates and higher risks to financial stability was limited. And I found the staff's analysis persuasive. I should add that, although this seems counterintuitive, in some cases low interest rates might actually help promote financial stability. For example, the accommodative monetary policy of the past 10 years has helped improve the financial condition of many businesses and households.

Low interest rates can help reduce debt-servicing burdens and support asset prices, including home prices—benefiting not just businesses and households, but also the overall resilience of the financial system. So, potentially, in all but the most extreme circumstances, the benefits that monetary policy can provide to our economy appear greater than its negative side-effects on financial stability.

Therefore, in practice, I would be less inclined to cut short a monetary easing cycle solely because of financial-stability concerns. Instead, I would prefer to let our interest rate decisions be guided by the pursuit of our price-stability and maximum-employment objectives. Likewise, I'd be hesitant to raise rates mainly or solely in an attempt to deflate or prevent an asset bubble. In view of the apparently weak link between interest rates and financial vulnerabilities, as described in the staff's memo, it may be necessary to increase interest rates quite significantly in order to address such a bubble.

The effect of steep rate hikes on unemployment and economic activity would be very painful. This reinforces the point that monetary policy might not be the best tool to address financial-instability concerns. I'm not saying that I would never support the use of monetary policy to address risks to financial stability, but I would prefer to first turn to our macroprudential and supervisory tools.

I do want to acknowledge, however, that there are limits to the effectiveness of these tools. Most of our macroprudential and supervisory tools are intentionally bank-centric, meaning that they're not designed to address vulnerabilities emerging in other areas of our financial system. In addition, the pace of deploying many of these tools would likely be too slow to address emerging vulnerabilities. This process often requires coordination and negotiation with other prudential regulators or extended periods of public comment.

In sum, my view is that we should have a very high bar for using monetary policy to address risks to financial stability—high enough to reflect a strong preference for first using our macroprudential and supervisory tools, but not too high, in view of the limits of their effectiveness in addressing these risks.

So let me turn now to the second staff memo and to the question of how our public communications should balance our 2 percent inflation objective against an acknowledgement that deviations from this objective are likely to occur and have persistently occurred over an extended period of time. I believe it's important that we acknowledge that we have only imperfect control over inflation in the short run. But the staff memo raised some interesting questions about the merits of adopting some sort of uncertainty range for inflation.

As a concept, I don't mind the idea of an uncertainty range. But, as inflation has been running persistently below 2 percent for most of the past decade, I would be concerned that the

announcement of either an uncertainty range or an indifference range at this point could lead some in the public to question our commitment to our 2 percent target.

It might be helpful to see that we can specifically influence inflation in such a way that it will hover around our target, sometimes a touch below and sometimes a touch above. Perhaps then we could revisit the inflation-range question. For now, I think we would be best served by continuing to reinforce the message that we would be concerned if inflation were running persistently above or persistently below our 2 percent objective.

Let me conclude by saying that I have some reservations about the idea of an operational range for inflation. I have some concerns about intentionally overshooting or undershooting our target and the communications challenges that these strategies could create. First, in view of our imperfect control over inflation, I'm not sure that we could easily deliver on a promise to overshoot, and if we committed to doing so and the overshoot doesn't materialize, that could raise broader questions in the public about our overall monetary policy strategy and tools.

Second, even if we had perfect control over inflation over a longer horizon, I wonder about the wisdom and practicality of making a commitment today that will be effectively passed on to a different FOMC at some point down the road. For example, I'm not comfortable with makeup strategies that involve longer-term or multiyear promises to deviate intentionally from our 2 percent target. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. I keep hoping that, at some point, the staff will provide some really substandard memos [laughter] to inform us—so that I can criticize them, instead of repeating the standard praise. But, to paraphrase, as Aragorn said to his troops before the gates of Mordor, “Today is not that day.” [Laughter]

Let me start with the issue of financial-stability considerations, and then I'll turn to inflation target ranges. Obviously, for financial stability, the key question, as it has been for some time, is a threshold question of whether to incorporate financial-stability concerns into the setting of monetary policy. The dogma surrounding this is that monetary policy is the wrong tool for pursuing financial stability, that these concerns are better addressed with macroprudential tools.

I thought that, given that dogma, the range of discussion of this has been interesting, and I think that any dogma should be subject to regular and thorough examination, particularly when you take into account the fact that, as Governor Clarida noted, this institution was created to promote financial stability and not to do monetary policy as we currently understand it, to the extent we understand it, which they wouldn't have understood.

One thing that I think needs to be acknowledged, in that discussion of the relationship of financial stability to monetary policy, is how different the environment is now, compared with before the crisis. Capital levels in the system are much higher. Financial-sector vulnerabilities are much lower.

Capital could be even higher. We could always set higher capital, of course, and in the discussion around here it has been noted that other countries, for example, have turned on the CCyB. Given that we're about to have a discussion of financial stability, I don't know whether I should comment on this here or there, but I'll comment on it here and probably there, too.

Our capital levels are higher than those in all of those countries that have turned on their CCyB. Our actual capital levels and our required capital levels are higher, even in light of their having turned on the CCyB—which is the basis for the statement that I frequently make, that, effectively, we have already activated our principal macroprudential tool, the CCyB, which

creates the space, as many of you around the table have noted, for monetary policy to focus on the dual mandate by pushing interest rates down to very low levels. As President Evans said a number of times, it really depends on how safe the financial sector is, and it is a very safe sector. We have very high capital levels, effectively having already turned on our CCyB.

One factor that argues for leaving financial stability to macroprudential tools is the difficulty of communicating financial-stability goals for monetary policy. Because of the complexity of the financial system, it is difficult to communicate a simple measure—really, even a simple framework of measures—for assessing financial stability. I think we have a pretty good framework for assessing financial stability. But one indication of its complexity is the joy I feel when being subjected to questioning in testimony or wherever when the subject of financial stability comes up, because I can say, “Well, this is going to take a while,” as I explain our framework, to the extent I remember it. And to have to do that—to have the entire economy—all economic actors—understand what our reaction function is going to be to this, I think, quite useable but nonetheless complex framework that we have, would be difficult. I think that’s especially true in an environment in which we’re more reliant on forward guidance for making policy. And certainly other central banks—notably, the Riksbank, and we’re all familiar with their situation—have struggled with that too.

Now, I think that the memo presents a fairly ambiguous assessment of the implications for financial stability of alternative strategies and tools. And that’s not surprising, in view of the short history we have over which to make a judgment about any of these alternative strategies and tools. I think the memo repeatedly makes the valuable point that the potential negative effects of unconventional tools or alternative frameworks on financial stability have to be

balanced by the positive effect that such policies have on growth, an effect that in turn feeds back positively on financial stability.

One unconventional policy does give me pause. I think it gives everyone here pause. I'll mention it not because I think anyone here needs persuading, but just so that the minutes don't fail to record it. As I have discussed in previous meetings, negative interest rates may increase the incentive of banks to lend. But, if maintained over more than a very limited time, they reduce the capacity of banks to lend.

Banks may be able to adjust to negative rates on a transitory or short-term basis. But the more entrenched negative rates become, the less effective these compensating measures that they can take will be—and, thus, the more likely that negative rates will be a net drag on the profitability of the banking sector and, thus, a drag on the capacity of the banking sector to do its job in supporting the real economy.

On inflation ranges: I'm somewhat agnostic on the issue of a target range. I can see some appealing features. I see the cons that other people have discussed. I don't feel strongly either way. I did think that the staff's discussion—as a number of colleagues have commented—of the potential rationales for supporting a target range rather than a point target was interesting and clarifying. And of the three rationales for a range presented in the staff memo, I gravitate toward a combination of an uncertainty range and an indifference range. Mainly, I am indifferent because I am so uncertain. [Laughter]

The measurement of inflation is beset with a number of practical and theoretical problems, such that we can be pretty much assured that inflation is being mismeasured at any point in time. Indeed, it's likely that it is being mismeasured in different ways over various points in time. As a consequence, allowing a few tenths above or below our target to dictate the

course of monetary policy would seem to introduce a level of false precision into what we can or should be trying to accomplish.

Now, that doesn't mean that I am indifferent to inflation expectations, that I would be insouciant about seeing inflation expectations slip. But I don't think we know enough about how inflation expectations are formed to have much conviction that even a prolonged period of inflation slightly below target would necessarily pull expectations down. As much as anything, what we've learned from *Fed Listens* is that the public is currently not devoting much thought to inflation and couldn't even guess what the inflation rate is with anything other than random accuracy.

In my view, that is a good thing. A public that is indifferent to inflation presumably is a public who believes that prices are effectively stable—which is a key objective in our mission. I'm not sure that trying to convince a public that doesn't care that we are somehow failing because inflation is slightly too low or too high is a high-priority policy objective. Thank you.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. Starting with vulnerabilities, I would say, after reading the memo, I found that the argument about vulnerabilities was even less compelling than I had expected when going into reading the memos. To me, the key is, do we believe in a low- $r^*$  environment or not? I think we all do. I think we all agree that we're in a low- $r^*$  environment, and having a low policy rate in a high- $r^*$  environment is very different from having a low policy rate in a low- $r^*$  environment.

And the reason these arguments collapse, in my mind, is, once I think through, if we believe that low  $r^*$  itself leads to financial vulnerabilities, what do we do about it? If the option is to raise rates and potentially put the economy in a recession, recessions definitely create

financial vulnerabilities, so that's a bad trade: a definite financial vulnerability to prevent a possible financial vulnerability. I think that that's a bad trade. So, like others around the table, I think we should focus on the right tool for the right job—and that is, macroprudential tools like the countercyclical capital buffer. If we're unwilling to use them, then we should confront that issue directly—not reach for the wrong tool for the wrong job. I mean, I think about a hammer and a screwdriver. If you're trying to screw a screw in, and you're unwilling to use the screwdriver, whacking it with a hammer is not going to be very effective. So we better figure out why we're unwilling to use the screwdriver.

Turning to the range: I'm not in favor of the range. I think, as others have said, that no matter what we say, it will be interpreted as an indifference range, especially because we've been missing our target to the downside, and not just externally. Around the table, there's going to be a wide range of interpretations of what the range means. We don't agree with each other on what "symmetry" means. If we adopt a range, we are each going to see what we want to see in that range, and that ambiguity is not going to be helpful in achieving our mission.

One thing I am in favor of is some form of retrospective goal of achieving average inflation of 2 percent over time. I think that that would be very helpful. I think it would provide us many of the benefits of a makeup strategy, without the downside of committing ourselves to a strict formula, which is associated with some adverse scenarios. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. The first thing I'll do is just say, again, thanks to all of the staff for the excellent memos on the framework discussion. I tried to think about how I could convey to the members of the staff how much I value them. And so I'm going to use something that I think they'll all appreciate, which is: We get a lot of materials each time, but I

have kept these memos in a special part of my drawer so that I can refer back to them. So that is testament to my happiness with the memos. [Laughter]

The second thing I'll say is that much of what has been said around the table, I agree with, in general, something that everyone said. So there's a blanket inclusion of, as President so-and-so or Governor so-and-so and Vice Chair—I know I'll agree with some of the things you'll say—have offered.

So with that, let me start with financial stability. I think it's completely undisputed that financial stability is a precondition for a healthy economy, as has been mentioned. One of the reasons we were first formed was for promoting financial stability, because it's the foundation.

So the question isn't "Is that the case?" but rather, "How do we best foster it, given the tools we have?" And on this issue, I think that the memos and the research experience have made clear, and many people around the table have said, that the most effective policy for promoting financial stability is macroprudential policy, including tools like the countercyclical capital buffer, but others as well. If you just did a simple stack ranking—and I took notes here—I think the stack ranking wouldn't change. Monetary policy is at the bottom of that stack ranking.

As the memo said, changes in the federal funds rate are too weak or ineffective to adequately address the financial-stability concerns. And so, as President Evans and Governor Bowman said, we'd have to really raise rates high in order to get to the goals that we were trying to achieve with regard to financial stability. And that has real effects on the dual-mandate goals we have. So if you net this out—it's always a tough call, but, net–net, there's really no compelling evidence that I've seen yet in research that this type of approach, this sort of blunt instrument, really works.

More generally, the idea that we—and I have it in writing here, in case anybody says—I just came from a remodel, and so we can hammer a screw into a wall. [Laughter] It is much more effective to use a drill and a screwdriver, and you don't leave a big hole. But I think the general point I want to make—and many around the table have made it—is that we're facing a new world, and I think Governor Brainard laid it out very completely. We're facing a new world. And in facing that new world, we have to ask, what tools do we need to achieve our dual-mandate goals and financial stability, fostering that financial stability that we know is the foundation? And if we think we don't have the right tools in the area of financial stability or we're not using the tools we have enough, then I would argue we should be having a very robust discussion around this table about that, because I'd hate to see us reach for the hammer. Because we don't know either if we've got the right screwdriver or are unwilling to reach in our bag and use it. But it just seems like that's a third-best, even fourth-best outcome.

And I liked what President Rosengren said. I had to go off-script because I'm at the end, but President Rosengren said, "It's much like fiscal. We take the fiscal house we have, and then we respond to it as monetary policymakers." I would say that's not exactly the situation we're in with financial stability. We have more latitude to debate these issues robustly and even try to think about the right regulations and supervisory restraint we would need in order to foster financial stability and free up our monetary policy tools to have the largest effect in achieving the dual mandate.

In the end, when I summarize all of this, my view is, we've got—you know, I always tell people in the public, monetary policymaking is difficult, because you have one instrument and two goals, on employment and price stability. If you add a third goal to that and have one blunt instrument, it makes achieving all of those goals less likely.

So let me turn to the topic of an inflation target range. And this, as many have said, is something the Committee has debated off and on for years. I actually read the transcripts of the March 2007 and January 2009 meetings. And they really make for good reading, because they outline so many of the things that we heard discussed around the table today.

But reading those transcripts, hearing everything around the table today, my answer is still that having a point target is a better communications strategy than having a range. Just because a range is more difficult to communicate. I think that that is especially the case in the current environment. In fact, when I read the background memo, I was asking myself, what problems are we trying to solve right now? Are we trying to solve the problem that we want to re-center inflation expectations on 2 percent because we think the public falsely perceives 2 percent as a ceiling? Or are we trying to say, don't worry about misses when we're below 2 for a long period of time?

Well, I strongly follow the idea that we want to make sure that this is a symmetric inflation target, and that the target is centered on 2 percent. And if we announce a range, I agree with the remarks Governor Clarida made right off the bat and President Bullard and others have made, that it seems counterproductive right now to announce a range, because it's probably going to be interpreted as an indifference range, in view of the fact that we have not been able to hit our 2 percent target sustainably over the past decade. So I think this would be especially difficult now.

The other thing I'll say about that is—and this is sort of a simple way to say what others have said: It is odd to move your goalposts when you haven't achieved the target. So if we were going to have this discussion, I'd like to push it off to another time when we've actually been able to achieve 2 percent sustainably and then say, okay, now we think of this as maybe not the

best way to do it. And if we don't do that, if we actually have a range, I'm worried about the material effect.

I don't want to overblow this, but I don't want to underestimate it either. We have learned from decades of research and practice that well-anchored inflation expectations deliver tremendous benefits to the economy. They help in wage- and price-setting. In the financial crisis, my own opinion and read of the evidence is, they helped us not move into deflationary concerns even though we had tremendous downward pressure on the real economy. Potentially unwinding those benefits right now does not seem worth the risk, especially in view of the conditions we face—slower growth, low  $r^*$ , and weak inflation. On this idea of communication, therefore, I think a point target is the preferred objective. Now, on the other hand, I think there is something real about this idea that every month, or every year even, just for idiosyncratic reasons, we won't actually get to 2 percent. And so, tactically, we might want to be able to communicate that.

But I'm going to venture into territory no one has discussed today. I think we already do this. We have the SEP. It has the fan charts. We regularly get them out. People have a forecast for inflation, and you can clearly see that while we want to get to 2 percent—that's our long-run objective—it deviates, and you clearly see this.

And then not only the current Chair, but also previous Chairs in press conferences have talked about the evolution of inflation and have an ability to take the time to talk about why there is idiosyncratic movement, as opposed to more systematic movement. So I think if we want to really emphasize that more, that would be terrific. I'm very much for that, but those tools are underutilized right now, and a range, I think, would not be something to take before we fully utilize those tools.

Finally, let me put this in an international context as some others have done. Many central banks are grappling with the new world with low inflation that Governor Brainard described and President Evans mentioned. And they're recognizing that looking backward to the decades that were behind us is not going to help us tremendously in solving the problems we face looking forward. And this has led many central banks, and notably the ECB, to consider whether inflation ranges are still appropriate. Are they even still useful? And if they are still useful, should they be moved up, in order to attain substantively this inflation target that they have in mind?

And I would say that one of the things I like about the framework review is that we similarly should be looking forward, addressing the problems that are ahead of us—using history to guide us a little bit, but recognizing that history is probably not going to provide the best path for the future. And I'd like us to reaffirm for the public that we still have the power to achieve our goals of full employment and 2 percent inflation, even in the challenging economic environment we face. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I, too, appreciate the new memos on the framework review and the presentations that we've heard this morning. And, more broadly, the series of excellent memos and briefings have helped frame and analyze the important issues related to our monetary policy framework.

My plan was to spend the next hour summarizing the very rich discussion we had. But I'm getting pretty hungry. [Laughter] So, instead, I'm going to focus my comments on the appropriate roles of inflation ranges and financial stability and how we frame and communicate our longer-run goals and policy strategy. In addressing both topics, I'm going to try to

distinguish clearly between goals of monetary policy and the strategy that sets out how we aim to best achieve those goals—obviously, as described in the FOMC Statement on Longer-Run Goals and Monetary Policy Strategy.

Now, starting with the question of inflation ranges, I do not see a range as an appropriate goal of monetary policy. To use a sports analogy, the goal is not to come within 10 points of your opponent's score. It's to win the game, a point that I hope Kyle Shanahan and the San Francisco 49ers think carefully about on Sunday. Okay. Don't worry—that's only the beginning. [Laughter]

Now, let's be honest—and here I'm picking up on comments of President Daly and others. The problem we're trying to solve is to make clear that our inflation goal is truly symmetric around, and firmly anchored at, 2 percent and not lower. In that respect, it's not obvious to me what a range is supposed to convey at this time. Is it a range of indifference or inaction? Does it mean that we're moving the goalpost, as President Daly said, to saying that 1½ percent, or maybe some number like that meets the test?

And what does a range mean for how we behave, in terms of our policy decisions? Is it something that's different from how we behaved before? Does it mean that we're going to react very strongly if inflation breaches the range? So I think there's just a lot of uncertainty. And it's not totally clear to me even what exactly the range is saying.

And I have, in thinking about that—I actually think our experience with the federal funds target range is instructive about some of the communications challenges associated with using a range to talk about what you're trying to do. It's never really been entirely clear to the public whether we're targeting the midpoint of the range in terms of the federal funds rate, well within the range, or just within the range. What's now undeniably clear is that if you breach the range

even briefly, that's seen as inconsistent with the framework. That suggests that when we talked about the range, at least in that context, an *extremely* nonlinear loss function applied to that.

Now, some may favor the ambiguity associated with a range. But for something as important as our inflation target, such lack of clarity will not serve us well. The inherent unpredictability of how the public would perceive the introduction of a range and the description of our goal, especially in the context of a long history of undershoots of our target—a point that's been made by a number of people this morning—makes me very uncomfortable with this approach.

That's not to say that a range, or some other similar construct, cannot be useful in describing how we balance our competing goals as distinct from describing the inflation goal itself. We should make clear that 2 percent inflation is a medium-term goal. We don't set out, nor is it even possible, to keep inflation exactly at 2.0 percent each and every month. And this approach implies some variability of inflation over time that is centered on our target. In this regard, perhaps a quantitative range could be useful in describing this implication of our policy strategy—perhaps with more discussion of the SEP, as President Daly suggested.

Now, on the issue of financial stability, again, I find this distinction between goals and strategy helpful. Of course, over the medium and longer run, a strong and resilient financial system supports achievement of our dual-mandate goals, and this should appropriately be the focus of our regulatory and supervisory efforts—a point that Governor Brainard and many others emphasized. But in the narrow terms of monetary policy, I do not see financial stability to be a separate objective, distinct from our dual-mandate goals. That is, we care about vulnerabilities in the financial system because of their ultimate effect on our ability to achieve our employment and inflation goals.

And I was actually looking at the most recent version of our Statement on Longer-Run Goals and Monetary Policy Strategy. We have a sentence there. It says: “The Committee’s policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee’s goals.” So I think that captures this notion of how financial stability connects to our dual-mandate goals.

Of course, a concrete example that a number have brought up is that buildups in credit or in asset markets can create the potential for sharp reversals that pose risks to the achievement of our dual mandate in the future. In practice, I think what this means is extending the forecast horizon that we discuss here and the analysis that we do over the forecast and policy options, and I think it means focusing more on the distribution of outcomes, rather than having so much attention on the modal outlook. And, here, I think, analysis along the lines of GDP-at-risk and other similar models would help us in thinking through the connection between monetary policy and vulnerabilities in the financial system and the economy.

So, in summary, I would not like to see financial stability raised to the level of a third independent goal of monetary policy. But, of course, we should take into account vulnerabilities in the financial system and the future risks posed to the economy. This is what prudent risk management is about, keeping the economy on a sustainable path consistent with achieving our dual-mandate goals over the longer run. Thank you.

CHAIR POWELL. Thank you. I’ll add my thanks as well to, really, all who have worked to produce the materials and to produce this show that the framework review has been. I particularly would point out the way that you’ve thoughtfully identified the topics, broken them into small, digestible pieces, not least 25-page memos, which were themselves digestible, and I

just think it's been really excellent. The analysis has been excellent. The writing has been great. It should be a proud moment for all of you who have been part of this production. So, thank you.

A word about the process as we go forward. We expect to circulate reasonably soon a markup of the Statement on Longer-Run Goals and Monetary Policy Strategy and then to follow up with a round of calls to discuss that document. We will then proceed after that to FOMC discussions of the issues. The plan is to conclude the review around midyear, which some might take to mean the June meeting, but I'm trying to preserve a little bit of flexibility here for the minutes—successfully, I hope. But that is the plan, around midyear.

Let me also say, thanks for this meeting. This has been another great discussion. I feel like it has clarified a lot of things for me and, I hope, for all of us. And I'll say that the main thing I want to get out of this exercise remains a stronger, more robust commitment to achieving our 2 percent inflation objective in light of the ongoing challenges we face with low inflation, a flat Phillips curve, low  $r^*$ , and the proximity to the effective lower bound. I'd be tempted to say "Low, flat, and low," but I'm sure Tom Friedman has probably already said that. [Laughter]

MR. CLARIDA The next book.

CHAIR POWELL. Yes, that is probably his next book.

Let me briefly lay out the reason why I see that need. Simply, we have a 2 percent inflation objective. We refer to it as symmetric. I think those facts impose on us an obligation to try to conduct policy so that people can reasonably expect 2 percent inflation over time.

That means inflation expectations need to be anchored at a level that produces 2 percent inflation over time. And, of course, inflation has to run at 2 percent for inflation expectations to be anchored there. So we need to run policy in such a way that 2 percent will be expected and achieved over the foreseeable future, and I think the current goals-and-strategy document is

unnecessarily ambiguous. I would actually say that it is symmetric, really, only in its reaction rather than the focus on outcomes. Hence, I see the need to strengthen and clarify.

If in 10 years—and this is a counterfactual, dystopic world I'm describing here—we've lost the battle to avoid the maladies that now affect Japan and the euro area, I would want the record to show that, in light of the structural, global, disinflationary pressures that we see around the world, we did see this coming and did what we could to prevent it rather than saying—as policymakers have before us, at the Bank of Japan and the ECB—that there is no problem here.

Of course, I'm also mindful of the fact that there are other things to balance, including the maximum-employment goal and financial-stability concerns. I do not see either of those concerns as undermining the case for a clearer, stronger, more robust framework for achieving our inflation objective. I believe there's broad agreement that we need to conduct policy so that people can reasonably expect 2 percent inflation over time. If that's so, we need to make this clear in our goals-and-strategy statement. Of course, doing so would actually help us achieve the objective, giving a firmer basis to our regular statements that 2 percent is not a ceiling. We need it to be clear that inflation above 2 percent will, at times, be a sign of success, not failure.

Finally, I know it's important for us to characterize the 2 percent objective in a way that avoids formulaic approaches. I believe we can find broad support for a formulation that is generally agreed to be an important advance.

Let me now turn to the two topics covered in the memos and the questions for this meeting. First, there is no doubt, certainly in my thinking, that financial stability is a serious concern, and that we can see plausible links between highly accommodative monetary policy and high asset prices and the buildup of excessive borrowing. Of course, “highly accommodative” incorporates the thought of low  $r^*$ . We often hear this connection between low nominal interest

rates and financial instability. I think you have to be clear. If those rates are caused by a low neutral rate, I think that needs to be part of the analysis, and it's far less clear what those links would be.

Anyway, regarding financial stability, I don't see a conflict arising between the sort of robust commitment to 2 percent inflation I've just described and our responsibilities. Financial stability may sometimes have implications for monetary policy. After all, financial excesses—excessive leverage or unsustainably high valuations—were key causes of the past three recessions. But my view is that none of those three episodes was related in an important way to low interest rates.

In addition, we've now had low rates for more than a decade, and many have warned along the way, first, about high inflation that didn't appear as well as excessive credit growth and asset bubbles. More than a decade into this new world, these serious financial-stability concerns by and large have not happened either. Of course, I hasten to add, that doesn't mean they won't happen in the future. This expansion will end, and when it does, the likely cause may be some exogenous shock amplified by financial imbalances rather than high inflation and monetary tightening.

But the evidence, which was well reviewed in the background memo, suggests that there's not a tight link between low interest rates and the appearance of financial excesses. That's a good thing, because low rates aren't a choice anymore. They're a reality. Excesses have not been tied closely to the level of interest rates. Instead, they seem to be associated with excessively buoyant attitudes toward risk-taking—attitudes that don't seem to be very interest sensitive.

Indeed, astute commentators have long noted that excessively cavalier behavior toward risk is likely to be impervious to the magnitude of moves in interest rates that will be called for by standard macroeconomic considerations, as a number of us around the table have echoed and as the memo echoes. Since inflation came under better control, we've seen expansions that are very long by historical standards. Long periods without a recession seem to lead gradually, over time, to risk-taking that will be understood in hindsight as clearly excessive.

To me, nothing in a robust commitment to 2 percent inflation precludes the FOMC from choosing to use monetary policy as part of a comprehensive response to financial excesses—a response that would surely include use of regulatory and communication tools. I would expect those situations to be quite rare. I would expect that our regulatory and supervisory policy, both through the cycle and time-varying, will be the principal defense against financial instability. Sustainably achieving maximum employment and price stability depends on a stable financial system.

Regarding inflation ranges, it's true that a number of other central banks do use ranges as part of their communication about inflation. The question for us is whether, in today's specific context, adopting a range might be a constructive part of a comprehensive approach to communicating our intentions about inflation. And so, to turn that around: In a world in which we face sustained disinflationary pressures, can adopting a range help?

And I've been struggling with this, like some others around the table. This really has to do with initial conditions. Inflation has run at 1.75 percent over the past quarter of a century. It's run below 2 percent almost the entire time I've been here, which comes up on eight years. But over the past decade it's really moved as low as 1 percent and has only tapped 2 percent a couple of times.

I think we removed accommodation at what I believe was a very sensible pace, and I supported those moves. But, as events played out, inflation appeared to turn back as it hit 2 percent again. So, like it or not, public discourse and understanding of a range is very vulnerable to the idea, I think, that at least a symmetric range is a way to excuse continued misses below 2 percent. And I agree with what President Kashkari said, that, inevitably, people are going to explain it in their own words at the end of the day, and I worry that that will get out, and that's something I expect to continue to worry about.

Against this risk, there's clear virtue in deemphasizing the precise value of 2 percent for inflation. We need to communicate that success is not 2 percent inflation. Instead, success is modest fluctuation centered on 2 percent. Some range-like language might help convey this message, as a way of just naturally emphasizing a range of natural variation centered on 2 percent.

I will say that the idea of an asymmetric range, particularly one whose low end is 2 percent—the 2 to 2½ percent range is something that I want to think about more. And that would seem to address some of the concerns that have been expressed. Again, I think, with all of these things, it's wise to take our time and let these ideas rise to the top. So I view this as a question that we need to do more thinking about. And, with that, thank you very much for a great discussion, and it's lunchtime. We will resume at 1:30. Thank you very much.

[Lunch recess]

CHAIR POWELL. Welcome back, everyone. Our next item is the Desk briefing, including a discussion of the memo on transitioning to the longer-run ample-reserves framework in coming months. Lorie, would you like to begin?

MS. LOGAN.<sup>2</sup> Thank you, Mr. Chair. I'll be referring to the "Material for Briefing on Financial Developments and Open Market Operations." It's been an eventful intermeeting period, with risk asset prices reacting strongly to a variety of developments, while money market conditions have remained subdued. As outlined in panel 1, I'll review developments in broad financial markets and money market conditions over year-end and then turn to a discussion of the staff memo on transitioning to steady-state ample-reserves operations. Patricia will then conclude with considerations for a possible technical adjustment to IOER and the overnight RRP rate.

Starting with broad markets: Over most of the intermeeting period, there was a "risk-on" tone—suggesting some improvement in the outlook for growth, an increase in risk appetite, and expectations that U.S. monetary policy won't tighten anytime soon. However, in recent days, market attention has shifted to the economic implications of the spread of the coronavirus in China. This has pushed down Treasury yields and, to a lesser extent, equity prices. As shown in the left-hand column of panel 2, on net over the intermeeting period through Friday, yields declined and inflation compensation was unchanged. However, the S&P 500 index increased considerably, extending what we'd seen since the beginning of October, shown in the middle column.

Market participants largely attribute the moves over that longer period since October to three interrelated drivers, summarized in panel 3. The main driver cited has been a reduction in key downside economic risks, particularly those related to U.S.–China trade relations and, to a lesser extent, Brexit. Panel 4 shows expectations for U.S.–China trade policy, taken from the Desk's surveys, using as a baseline the tariff regime in place at the start of September. The surveys show increasing optimism regarding the near-term outlook starting in October, when expectations started to move away from an escalation, depicted in red, toward a continuation of the *status quo*, depicted in light blue.

The second driver cited has been foreign economic data, especially in the euro area and China, which have been viewed as pointing to a bottoming in the manufacturing slowdown and a stabilization in the outlook for global growth. Panel 5 shows economic-surprise indexes for these two regions. Both started increasing from negative territory around October, indicating a transition to data releases more in line with, and more recently above, expectations.

The third driver cited is that, despite the better trade news and stabilizing global growth outlook, the FOMC isn't expected to tighten policy anytime soon, and other major central banks are expected to maintain their accommodative stances. As shown by the blue line in panel 6, the market-implied federal funds rate at the end of 2020 has been relatively range-bound since October, after dropping notably early in 2019. As of yesterday's close, market pricing implied about 30 basis points of easing in 2020. The PDF-implied mean expectation of this rate in the Desk's surveys, shown

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<sup>2</sup> The materials used by Mses. Logan and Zobel are appended to this transcript (appendix 3).

in the red dots, has followed a similar contour, though it did rise a bit on the most recent survey.

As shown in panel 7 on the top of your next exhibit, this slight rise resulted from a decline in the probability attached to rate cuts, rather than an increase in the probability attached to rate hikes. As shown on the right half of the panel, the average probability placed on an increase in the target range this year is little changed since December, at around 10 percent. As we look further out, the market-implied path of the policy rate over the next three years, shown in dark blue on panel 8, is relatively flat, having shifted up slightly since October.

In explaining the absence of any increase in expectations regarding rate hikes despite the reduced risks and stabilizing global outlook, Desk contacts note policymaker communications over recent months that they perceive as signaling a high bar for changes to the target range, and for rate hikes in particular.

Despite the abatement in key risks over recent months, many market participants still see risks to the economic outlook as skewed to the downside. In a special survey question asking respondents what they see as the most significant risks to the U.S. economic outlook in 2020, mentions of downside risks outnumbered those of upside risks. As summarized in panel 9, the most frequently cited downside risks related to a reescalation in trade tensions and to the U.S. election. These were followed by risks related to a slowdown in various sectors of the economy as well as those related to geopolitical developments. In recent days, market participants have been focused on the coronavirus and the downside risk to global growth it could pose. Joe will discuss this further in his briefing.

Nevertheless, as I noted earlier, the recent rise in equity prices has been striking. Through Friday, the S&P 500 index was up 5 percent this intermeeting period and 12 percent since October. This has drawn a lot of attention to the equity market, and while our sense is that the three drivers I've just described have been most important, some market participants have suggested that the Federal Reserve's recent balance sheet actions have contributed. The Desk's staff have engaged a wide range of market participants in order to understand the channels through which our recent operations may be affecting the prices of equities and other risk assets. A high-level summary, as well as possible implications, is outlined in panel 10.

Overall, we've heard about a range of channels, with varying degrees of conviction regarding what, if any, effect they've had. We've organized them into two broad categories: first, those through which the Federal Reserve's operations and their effect on reserves and growth in the balance sheet have an actual, direct effect on markets, and, second, those that operate exclusively through market participants' beliefs.

On the first category—capturing direct effects on markets—some contacts suggest the supply of Federal Reserve repo reduces funding costs, making investors more comfortable taking on leveraged positions. They also point to a portfolio

balance channel, through which a reduction in privately held Treasury bills leads to a rebalancing in portfolios that eventually boosts prices of equities. As part of this, some seem to expect that the Federal Reserve’s balance sheet will continue to grow at a rapid pace.

The second category captures channels that operate exclusively through beliefs. These include the notion that the Federal Reserve’s response to the repo market developments in September reveals an inclination to react to market volatility generally, which has made investors less cautious in their risk-taking. Some appeal to sentiment or look at various measures of the historical correlation between equity prices and the Federal Reserve’s balance sheet and project that correlation forward.

So what do we make of all this? Well, first, we do see evidence that the repo operations and bill purchases have had some effect on Treasury bill yields. This can be seen in the spread between bill yields and comparable-maturity overnight index swap, or OIS, rates. As shown in panel 11, these spreads have narrowed since October. But this narrowing retraces the rise in bill–OIS spreads that occurred over the middle of 2019 and in itself shouldn’t ease broader financial conditions much. More generally, we’re somewhat skeptical about whether there is a meaningful fundamental connection between the implementation actions and prices of risk assets, in part because we would expect that a sizable funding or portfolio balance effect would also affect longer-term interest rates. Such an effect has been less evident. That said, we are mindful of the fact that if enough market participants hold these beliefs, they can be self-fulfilling, at least for a while. Perhaps most importantly, some of these views may be predicated on incorrect assumptions about the Committee’s implementation plans or its likely reaction function. This underscores the importance of communications regarding the transition to steady-state ample-reserves operations. I’ll turn to this in discussing your next exhibit.

Overall, the strategy the FOMC outlined in mid-October has been successful at maintaining stable funding conditions. As shown in panel 12, overnight rates were stable over the year-end date, and the effective federal funds rate “printed” at the IOER rate. Overnight repo rates also traded close to the IOER rate and well below the levels implied by term and forward-settling trades executed ahead of the year-end date. Additionally, as shown in panel 13, the dispersion of rates on federal funds and Eurodollar trades, depicted in the light blue bars, was lower than seen before September.

We think three primary factors contributed to the subdued year-end conditions. First, Treasury bill purchases and repo operations kept aggregate reserves above the level that prevailed in early September. This is shown in panel 14. The horizontal black line indicates the level of reserves that prevailed in early September—around \$1.5 trillion—and, as you can see, reserve balances have consistently stayed above that level since November.

Second, the Federal Reserve’s supply of repo funding was widely cited as a distinct factor contributing to subdued conditions. As shown by the red line in panel

15, the Desk increased total repo offered around year-end; in addition to regular overnight and two-week term repos, we offered \$125 billion in longer-term repos spanning year-end and increased overnight repos on the year-end date. Market participants cited funding obtained from these operations and the unused repo capacity as improving the bargaining power of cash borrowers and providing a safety valve in the event upward pressure materialized. This may have reduced the odds that investors placed on disorderly year-end conditions and enhanced confidence, with a stabilizing effect.

Third, market participants prepared for year-end earlier than previously. Cash borrowers increased their term borrowing from private institutions earlier than they did ahead of previous year-ends, as shown by the solid blue line in panel 16. Furthermore, significant take-up in the Desk's term repo operations, illustrated by the dotted blue line, facilitated year-end preparations, with dealers intermediating some of this funding to other market participants.

Importantly, we also saw significant advance preparations by cash lenders. Large, supervised firms reported extra outreach to clients about year-end balance sheet constraints and appear to have managed their G-SIB surcharge scores more efficiently than many had anticipated. There were also positive signs that the capacity for repo lending through other channels increased. Additional firms became sponsored service members on the FICC's centrally-cleared repo platform, and lending in that market increased to a new high over year-end. Since year-end, rates have remained stable, and the longer-term repos have matured without incident. Repo outstanding has now fallen to levels seen in late October. Meanwhile, Treasury bill purchases have continued to proceed smoothly.

In the period ahead, market participants will be focused on the FOMC's transition from current operations to a steady-state ample-reserves regime. So let me discuss a possible approach and potential communications regarding this transition, as described in the staff memo. By the second quarter of 2020, the staff projects that the Treasury bill purchases will have restored the permanent base of reserves to levels above \$1.5 trillion. As indicated in the right-hand side of panel 14, the gray and blue areas show that reserve levels inclusive of expected Treasury bill purchases are projected to increase through March. However, a surge in the Treasury's General Account balance during the April tax season is expected to draw down reserve levels, which, in the absence of repo operations, would temporarily bring them back to around \$1.5 trillion or perhaps below, given the uncertainty in our forecast. The light red area in panel 14 reflects assumptions about the repo operations that could be maintained through April. After tax season passes, reserves are expected to rise more durably above \$1.5 trillion, likely permitting a transition to an ample-reserves regime in which active management of reserves using repos is no longer required.

As indicated in exhibit 4, and as summarized in panel 17, we anticipate that operations in this steady-state regime will differ from our current implementation approach in a few important ways. Once an ample base of reserves is achieved, the pace of purchases could slow significantly to a level consistent with the expected

average growth rate of Federal Reserve liabilities. Reserves will, of course, continue to fluctuate over a fairly wide range, with swings in nonreserve liabilities, like the TGA. However, repo operations should no longer be necessary to add reserves or for the normal control of the federal funds rate, which should trade near the IOER rate. Further, the IOER rate could be set closer to the middle of the target range, while overnight repo operations could be maintained at a higher rate—as a backstop—or wound down entirely.

There are a number of steps to consider over the first half of 2020 in order to transition to this steady state in a manner that supports smooth money market functioning and continued control over the federal funds rate. I'll highlight three.

First, the amount of repo offered can be gradually reduced and the number of term operations can be consolidated. The December FOMC meeting minutes have already communicated the intention to reduce repo operations, and the operations calendar released in mid-January brought total offered amounts in term repos down by \$20 billion. We expect subsequent calendars to further reduce and consolidate term repo offerings and, after April, to be phased out. Overnight repos could also be scaled back in coming months and the minimum bid rate raised. To reflect the need for ongoing repo operations to maintain reserve levels through the April tax season, the Committee could update the directive at this meeting to authorize repo operations through April.

A gradual reduction in both overnight and term repo offerings over the first half of 2020 would be consistent with median expectations in the Desk's survey, as shown by the blue dots in panels 18 and 19. However, as indicated by the light blue bars, toward the end of the forecast horizon, expectations are more dispersed, suggesting there could be some benefit to further communications that would better align market participants' expectations regarding repo operations.

Second, the pace of reserve management purchases of Treasury bills could be tapered after the end of April and could slow further in June, to align with trend growth in Federal Reserve liabilities. Tapering purchases in the second quarter would broadly align with median expectations in the Desk's January survey, as shown by the blue dots in panel 20, though here, too, expectations toward the end of the forecast horizon are quite dispersed and suggest some benefit to further communications to align expectations.

Alongside the transition to a slower purchase pace, the Committee could consider whether to change the maturity composition of reserve management purchases. For example, instead of only bills, it could decide to purchase securities in proportion to the overall “Treasury universe.” Such a decision would align with the Treasury reinvestment purchases from MBS principal payments that began last August.

Third, as purchases slow after April, the FOMC could update its communication about the level of reserves it wishes to maintain through a change in the directive. The directive could refer to a specific level of reserves—either a similar level to that

prevailing in early September 2019 or a different level, depending on the FOMC’s assessment of reserve conditions. Alternatively, the FOMC could direct the Desk more generally to “maintain ample reserves.” Whether or not there is a specific reference in the directive, the staff would expect to be continuously assessing reserve and money market conditions and consult with the FOMC about adjusting minimum reserve levels based on this assessment.

What seems important to note regarding this transition period through June is that the pace of balance sheet expansion will have already decelerated significantly from that seen in late 2019. Since early September, considerable increases in nonreserve liabilities, most notably the TGA, resulted in the need for a large amount of repo and bill purchases to maintain reserve levels. Collectively, these caused total Federal Reserve assets to grow around 11 percent from mid-September to the end of 2019, as seen by the sharp increase in the red line in panel 21. However, as we go forward, with declines in repo outstanding expected to offset some of the ongoing growth in the portfolio coming from bill purchases, assets are likely to grow only 2 percent over the first half of this year. This can be seen in the leveling-off of the red line.

The Desk will continue to consult with the FOMC over the next few meetings on plans to support a smooth transition. In consultation with the Chair, in advance of each meeting the staff would plan to distribute materials regarding the elements to be discussed and would update the Committee on reserve conditions and operations, including the effect of any changes to operational parameters. Details of these plans could be released through the minutes or in a change to the directive. This would inform the public about steps in the transition and further help to align market expectations. I’ll now hand it over to Patricia to discuss considerations with respect to a potential technical adjustment.

MS. ZOBEL. Thank you, Lorie. I will refer to exhibit 5 of your handout. As Lorie discussed in her briefing, in the steady-state ample-reserves regime, the federal funds rate would be expected to trade within a few basis points of IOER and the overnight reverse repo rate would maintain a floor for the federal funds rate at the bottom of the target range.

In September, administered rates were adjusted lower amid the volatility in money market rates and, for a time, the federal funds rate remained somewhat elevated. Since that time, the federal funds rate has stabilized around the IOER rate. At 5 basis points above the bottom of the target range, it is now trading lower within the Committee’s target range than at any point in the past two years, as shown by the light blue diamonds in panel 22. An adjustment that lifted the IOER rate closer to the middle of the funds rate target range and restored the alignment of the overnight RRP rate with the bottom of the target range would reverse some of the downward movement in the federal funds rate and keep it trading well within the target range.

Market expectations of a technical adjustment have grown in recent weeks. Subdued year-end conditions increased confidence that money markets will remain stable and prompted speculation about a near-term adjustment. The release of the

December meeting minutes, which noted the potential for a technical adjustment at some point, combined with the federal funds rate “printing” 1 basis point below the IOER rate for several days, contributed to expectations of a move at the January meeting. Federal funds futures contracts suggest roughly a 50 to 70 percent chance of a 5 basis point technical adjustment in the current meeting, as shown in panel 23.

Market outreach also suggests expectations for a change at the current meeting. Roughly two-thirds of respondents to the January Desk survey have a modal expectation for an adjustment higher in the IOER and overnight RRP rates at this meeting, as shown by the placement of the dark blue and red dash marks on panel 24. Interestingly, market participants anticipate this to be the last technical adjustment, with a majority of respondents to the Desk’s survey expecting the IOER rate to remain at 10 basis points above the bottom of the range in the long run. In light of stable conditions and relatively high expectations regarding an adjustment at this meeting, policymakers may wish to consider such an adjustment.

Finally, on an operational note, we provided advance notice of all small-value exercises planned for 2020 as indicated in the Desk’s annual memo on small-value tests for operational readiness. Small-value exercises completed over the previous period and planned exercises for the upcoming period are summarized in the appendix.

Thank you, Mr. Chair. That concludes our prepared remarks. Lorie and I would be happy to take any questions.

CHAIR POWELL. Thank you. Questions for Lorie and Patricia? President Barkin.

MR. BARKIN. On chart 21, I guess I just have a question about what the assumption is.

I guess it includes the tapering of the repo facility, post-today. It looks like the reserves levels, if I’m reading it right, are quite high, at least compared with the end of September level. And I didn’t know if that’s before a taper decision or after a taper decision.

MS. LOGAN. The assumptions underlying panel 21 are shown on panel 14. So it might be more straightforward to look at it on panel 14. The forecast that we’re using for reserves in that previous chart is based on these projections here, and in those projections we assume \$60 billion of purchases per month through April and then a tapering in May and June in Treasury bill purchases. And then, on the repo side, those assume overnight take-up of \$40 billion through the end of June, and then term repo tapers from current levels to zero by the end of June.

On the repo side, those are really placeholders, because we'll be assessing conditions at each of the monthly releases of our calendars. But that just gives you—so I would say that the red portion of that is very much a placeholder, as of right now. The Treasury bill purchases are what we are focused on—making sure that those purchases get us up above the \$1.5 trillion level.

MR. BARKIN. I guess my question is, as I listened to you, I thought you'd be headed toward a world in which, at some point in the next couple of months, you give us a recommendation that we would begin tapering, and that tapering would, over some time period, send us down to somewhere around the September levels or so, plus or minus. I may have misheard that. Is that where you're headed, and why would this show a higher level?

MS. LOGAN. The Treasury bill purchases—what we're doing is we're building those up in advance of April. We want to get to the point at which we're at a high enough level of reserves that when we see the \$200 billion drop that results from the funds going into the TGA, we stay above \$1.5 trillion. After that period, we would be coming to you—probably at the March meeting, because that's how we'll do our forward planning—suggesting that the bill purchases would come down in those next two months. And we would bring them down gradually. We'd be a little high for those two months, but then the nonreserve liability growth is going to continue over the next period, and it's going to bring us down.

MR. BARKIN. So this showed three more months.

MS. LOGAN. If we showed it all the way out it's going to come down further, and then there's going to be another move in the nonreserve liabilities, which we'll have to build back up for the drop closer to year-end. So it's just sort of this natural progression, as the purchases taper and we move into a steady state.

MR. BARKIN. Thanks.

CHAIR POWELL. President Mester.

MS. MESTER. Lorie, there's a lot of market commentary out there that seems to think that what we've been doing to address the issues that came up in September regarding liquidity was a form of QE. And I guess I'm a little concerned—if we end up having to buy coupon securities, that's going to make that problem even worse. And, of course, what we worry about is that when we taper, that somehow that's going to provoke something like a taper tantrum because they're going to think we're actually cutting accommodation.

Part of your communication plan is about what the path's going to be. But have you thought about: How we can better, or more effectively, communicate that this really isn't QE? I know we've said this, but it doesn't seem to be influencing necessarily all of the beliefs out there about what these purchases were really about. Is there some other way that we could communicate that would be more effective? And should I be worried about a taper-tantrum kind of situation or not?

MS. LOGAN. I think our sense here is to communicate the specific details of our forecast and how this will work over the next couple of months and then how the regime will work over time, so that there's a better understanding of what will drive the size of the purchases over the longer run. By doing that, we'll hopefully communicate the point that these are technical in nature, focused on a particular goal of maintaining reserves at this level. I think being able to depict a picture like this, perhaps in a simpler form, might also be helpful in promoting better public understanding. I think our goal after April as we bring down purchases is to do so gradually, so that we can limit or mitigate any market-functioning considerations.

On the connection between the overall size of the balance sheet and QE, I tried to indicate that my sense is that the larger factors about risks coming down, global growth looking better, and policy being on hold for some time are probably the larger drivers of what's happening there. And then if we can communicate more clearly about the technical nature of the operations, maybe we can mitigate the way that that's supporting the beliefs in that connection.

CHAIR POWELL. President Daly.

MS. DALY. As we're on chart 14, I have a two-part question. We've been referencing this solid black line, but it's early-September levels. Do you have any sense that this is going to move over time? And what is our model for how it moves over time? And when we're communicating to the public—I mean, I think this is partly related to President Mester's question—it's harder when you're just saying "early September levels." Are we going to have some way to explain it that seems more tangible for the average person?

Associated with that question is, in the postmortem that you did after the September events, did we get any early-warning-sign metrics versus longer warning sign? In project management, they go from "yellow," to "orange," to "red," finally. Did you get anything out of your Desk surveys or your conversations that allows you to move up in some progression so you can warn us a little bit—"Hey, this is getting a little dicey, but we're not ready to move yet"—so that we can have those conversations before we go from "Everything's great" to "Everything's not as good"?

MS. LOGAN. In picture 14, again, what I think we're focused on right now is the Treasury bill purchases and getting to the point at which the underlying level of reserves is sustained above \$1.5 trillion. I think that's our immediate focus.

With the bill purchase and the repos, I think the money market conditions that we're seeing, as shown in panels 12 and 13, do show that the conditions in money markets in their rates, the limited volatility, and the dispersion suggest that conditions are ample at these levels. So I think we feel very good about how money markets are performing at this level of reserves.

In the long run, there's probably a sense that, barring major changes in regulation or in business models, we would expect this level to rise over time, perhaps with the economy. But what we've done is just penciled in the \$1.5 trillion for now, because that's what's driving our current operational decisions, and then to come back to you in March and April, when we plan to start tapering the bill purchases, with a broader assessment of reserve conditions and money markets. And, by that time, we'll have results of a new Senior Financial Officer Survey, which will go out at the end of this week, with a revised set of questions based on learning from September. So we think we can ask more precise questions whose answers will better inform us about how to think about these levels over time. And I think we're also doing postmortem-type work by looking at what we saw earlier, and we'll be able to integrate that into the analysis we will bring back to you in March and April.

In terms of thinking about what we might have learned, just from a very preliminary perspective, I do think it's interesting to look at charts 12 and 13. On these charts, on chart 12, you can see that starting in around March last year, that the red line, which shows the federal funds rate, went from being very flat, and it would move up in very small increments, to showing a lot of volatility. At the time, we talked about that volatility coming from the repo market—it was spilling over into the federal funds market. But I think at those levels of reserves, we did start to see a change in the way money markets were behaving. But they were generally small, and we didn't know how long they might last as reserves came down.

I think, similarly, if you look at panel 13, you can see at about that same time period we started to see the dispersion in rates traded on a given day—a much larger range of trades that were at different rates were being traded. I think that was a sign that we were starting to see reserve conditions tighten for some institutions, and they started bidding up or paying higher rates to obtain reserves. So I think that those might have been some early warning signs that the conditions in reserves and broader money markets had started to shift around that time frame.

MS. ZOBEL. And I would just add that in September, what we saw was reserve levels falling from around \$1.5 trillion to near \$1.3 trillion over the course of a short period. In a steady-state ample-reserves regime, we wouldn't be letting reserves fall to new lows. So the signs that we would be seeing would be that reserve conditions are ample right now, not that they would be ample if reserves were \$100 billion lower, which is what you would have needed to see in September, in order to predict that event.

MS. DALY. Thank you.

CHAIR POWELL. President Kaplan and then Governor Brainard.

MR. KAPLAN. I think this is an excellent presentation, and we've had several conversations, and I think this is very responsive. I just have one communication question. I gather this chart 21, which I think, as we've had discussions, is the right chart, because it shows what the reserve levels mean to growth in our balance sheet in a way that's easier for people to translate. I take it—I guess this will be referred to in the minutes, so it will come out. How will we, in our public comments, be able to refer to our expectations regarding growth from January to June? In what way will we do that?

MS. LOGAN. I think that, in a broad sense, our goal in the presentation today was to provide some high-level expectations about how we think things will transition, and these could

be then communicated in the minutes. And I think describing in the minutes how we would expect the size of the balance sheet and reserves to evolve could be informative. I think a chart like this could also be used in other public speeches over time in the coming weeks.

CHAIR POWELL. So if I can just for a second—you know, as the first one over the wall on this tomorrow [laughter], I'm not going to try to be the one who first explains to them, “Actually, you've already had the balance sheet growth, and it's now flat.” That's not going to be what I say. I'm going to talk about our plan. I'm going to amplify what's going to be in the minutes very gently, stressing flexibility and the willingness to adjust and that kind of thing.

I'll certainly get the question on QE. You know, I'm not going to try to pick a fight. I will explain how this is different from QE. I'll explain that in detail. But if someone says, “Well, don't you admit that it's affecting asset prices?” I'll say, “Many factors affect equity prices. Let me tell you what our intention is with this.” I'm looking to get through this by “socializing” the plan confidently and stressing flexibility.

I was going to say this in the next round, but the people who cover us are already seeing this now, and so you're seeing it more and more. I think they're going to get it that we had this one-time bump in the balance sheet. If it's all about balance sheet growth, that's kind of done, and I'm hoping that that realization will sort of seep into people's consciousness, and we'll get through this without any disruption.

MR. KAPLAN. Yes. And we've had a lot of conversations on this, in the lead-up to this meeting. From here, I know we'll figure out how much of this is structural, how much of this is reserve levels, and refine our thoughts, and I'm sure we'll talk about it more. But, in the meantime, public communication that gives a sense that you're going to see much more modest growth from here on because of the repo runoff, net of the bills purchases, and the fact that—this

is my suggestion, and you don't have to do it—while we're addressing this issue, we're sensitive to growth in the balance sheet. I think that would go a long way in this effort.

CHAIR POWELL. Yes. That is the intention. And you'll be able to all benefit from what I look like when I come back. [Laughter] Governor Brainard.

MS. BRAINARD. Yes. Thinking ahead, relatedly, to the minutes' account reflecting the Committee discussion, when do you want the Committee to respond to this plan? Do you want us to do it as part of the financial-stability go-round or part of the policy go-round? I just didn't know when you wanted us to comment on it.

CHAIR POWELL. Well, why don't we say that comments on reacting to this plan would go in this round of comments, if that's all right. So everybody will have a chance to add—you'll have a chance to think about it and add in any reactions you have to it.

MS. BRAINARD. Part of the financial-stability go-round?

CHAIR POWELL. I was going to suggest, no, as part of the outlook go-round.

MS. BRAINARD. Outlook go-round.

CHAIR POWELL. If that's all right. Does that makes sense?

MS. BRAINARD. Yes.

CHAIR POWELL. Vice Chair Williams.

VICE CHAIR WILLIAMS. Everything I was going to say has now already been said, but we do care about what goes in the minutes, so I think I'll say it again. [Laughter]

But I think that this is a really important point. The balance sheet growth, as shown in chart 21, is already behind us. In fact, if you go on the H.4.1, like people in the markets do, and you plot these in your screen, the balance sheet is basically flat over the long run—the overall size.

So if you're taking this very simplistic kind of correlation between the size of the balance sheet and the stock market, which is what a lot of market participants talk about to us—we hear that—that has happened. That is the 10 or 11 percent that is in this chart. That has already occurred. However, based on any version of the plans that we have over the next six months and tweaking all of these controls that you could think about, the balance sheet is basically going to grow between 0 and 3 percent or something like that over the next six months. So it's not going to be a “story.”

I think that, underneath the hood, we're going to see this kind of interesting path of building up through the T-bill purchases more underlying reserves and a natural shrinkage of the term and overnight repos. Again, that's going to leave the level of the amount of reserves up modestly over the next six months from where they are today and, again, consistent with balance sheet growth that's a percentage increase in the low single digits. And that would, of course, continue out after the middle of the year.

So I think that this issue of the narrative in the market, which is definitely on the buy side—we hear it. We hear it consistently. That story is kind of over. And for 2020, it's mostly going to be a relatively boring story when you look at the growth of the balance sheet and the amount of reserves.

I do think one issue that we need to address that's part of this plan, and Lorie mentioned this, is that as we move into April, May, and June, we're going to be reducing—I swore I'd never use the “*T*” word again—the pace of our purchases of bills, and there will be a natural point at which that transitions to this true organic growth of the balance sheet, one that's just growing along with the overall growth in liabilities. And I think that switching from the bill purchases—which was really about getting those reserves back to the right level, thinking about what the

long-run organic growth should be, the composition of that—is something that we need to decide on and communicate.

I do think this is part of, as President Mester pointed out, a little bit of the nuance of this story. Because the story “It’s not QE, it’s not QE” that’s—as we move into that transition or move into the permanent phase of gradual organic growth, it probably makes sense for that to be kind of buying across the markets. So we’ll have to communicate that clearly.

I think the other thing about signals, mentioned by President Daly—I’ll just reiterate what Lorie said, because I think that’s exactly right—is, the lessons really are in charts 12 and 13. And when I think about looking ahead, watching for signs of the funds rate trading above IOER is a sign that the “ampleness” of reserves is shrinking.

Obviously, the dispersion of trades and some of these other indicators are important—last year, we were looking for these flat versus steep kind of break points in the demand for reserves. That’s not what we should be doing as we go forward. It’s really about making sure the funds rate is trading near the IOER rate, making sure that all of these signals are clearer and consistent regarding ample reserves. And with regard to President Mester’s question, which I think is an important one, and also earlier comments too, we’re looking for a level of reserves that hits a minimum at this \$1.5 trillion —or whatever the right number ends up being and how that evolves.

So that means that, just by math, the *mean* is well above the 1.5. And I just want to make sure we all understand that if you’re aiming for a minimum of early September at 1.5, that means that this chart, which shows us in the 1.6 to 1.7 range, is consistent with a—on an average day, you could be at 1.6, 1.65, like we are now, because we are preparing for the fact that the amount of reserves will fall because of these very seasonal and other factors.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I just wanted to amplify, on this chart 21 here, “Changes in Total Assets and Reserves.” The market does want to interpret the red line over the fourth quarter as being QE, and I think our “taper risk” lies exactly in the fact that this line is going to flatten out in the first quarter. According to the story being told, we took away QE, and the impetus to liquidity in markets went away. But I think the answer to that is that we also lowered the policy rate significantly during the third quarter of last year—and we’re not taking that part away. So I think that should be the retort to this story that we’re taking something away, which I think may come up after this meeting. We’re not taking the rate decreases away, at least at this juncture.

CHAIR POWELL. Thanks. If there are no further questions, we need a vote to ratify the domestic open market operations conducted since the December meeting. Do I have a motion to approve?

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. All in favor? [Chorus of ayes] Thank you. Without objection. Next, we’ll turn to the review of the economic and financial situation. Bill Wascher, would you like to start?

MR. WASCHER.<sup>3</sup> Thank you, Chair Powell. I’ll be referring to the “Material for Briefing on the U.S. Outlook.” The information that we’ve received since the November Tealbook has not changed our view that the current expansion remains solidly on track. As you can see in the first line of the table in panel 1, we now think that real GDP rose 2.1 percent in the fourth quarter of last year and expect it to rise at about the same pace in the first half of this year. These figures are a little different from our January Tealbook projection 10 days ago, which isn’t shown here, for two reasons. First, the latest data on housing construction and sales in December were, on balance, somewhat better than we were expecting. Second, and going the other way, we pushed back from March to July our assumption for the time of the resumption of

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<sup>3</sup> The materials used by Mr. Wascher are appended to this transcript (appendix 4).

production of the Boeing 737 Max aircraft, in response to last week's announcement that Boeing doesn't expect the plane to be ungrounded until mid-2020.

These adjustments don't, however, change the basic picture. Although private final demand, line 3, appears to have made a contribution to aggregate spending growth last quarter that was smaller than we had anticipated, a large downward surprise to imports boosted the contribution of net exports, line 5. Taken literally, this suggests that the rise in domestic demand that we did see was met by a greater-than-expected increase in domestic production. Looking ahead, we think that the dip in PDFP growth—which largely reflects a fourth-quarter slowdown in personal consumption—will prove to be short-lived, as the fundamentals for consumer spending remain solid. Moreover, available indicators point to a pace of business fixed investment growth in coming quarters that is a little faster than what we had previously projected. In addition, residential investment looks to be on a better trajectory than we had anticipated in November.

The two labor market reports that we received after the November Tealbook give us additional confidence that the economy remains on a solid footing. BLS's estimate of private payroll employment over the past three months—the black line in panel 2—stood at 182,000 in December, about 30,000 higher than our November Tealbook forecast, not shown. The red line on the chart shows the adjustment we've penciled in for the upcoming benchmark revision, which will be released at the end of next week. Furthermore, the pace of job gains implied by our translation of firm-level data produced by the payroll processor ADP, the blue line, has strengthened markedly in recent months, and our preliminary read for January suggests that job growth got off to a good start in the first quarter. Meanwhile, in the household survey, the unemployment rate held at 3.5 percent in December—a tenth below our previous Tealbook forecast—while the participation rate came in a touch higher.

The medium-term real GDP projection is shown in panel 3. Over the medium term, output is forecast to decelerate gradually, reflecting a waning boost due to fiscal policy, rising interest rates, and a leveling-off of equity prices. Relative to the November Tealbook, however, we pushed up our real GDP growth forecast to reflect the more-supportive financial conditions—primarily higher stock prices and a weaker dollar—along with a boost to U.S. exports that we think will result from the recent trade deal with China. Combined with our changes to the near term, these revisions yield an output gap that averages  $2\frac{1}{4}$  percent over the next few years,  $\frac{1}{2}$  percentage point wider than in our November projection.

With output expected to outpace potential through next year, the unemployment rate, panel 4, edges down further and remains about a percentage point below our estimate of its natural rate. Compared with the November Tealbook, the projected path of the unemployment rate is a couple of tenths lower, reflecting the higher level of output in this forecast.

One could ask whether we've raised the real GDP forecast sufficiently in response to a reduction in trade policy uncertainty after the China trade deal. Joe will talk a

little more about the trade deal in a few minutes, but I thought it might be helpful to review our assumptions on this issue using the next exhibit. First, although we certainly think that trade policy uncertainty weighed on business investment last year, that wasn't the only drag on capital spending. A range of other influences—including slower foreign growth, the suspension of Boeing 737 Max deliveries, and the continued decline in drilling and mining investment in response to low oil prices—also played a role. Correspondingly, and as shown in panel 5, much of the weakness was in categories of investment that we wouldn't expect to be affected by trade policy. In all, we judged that, over and above the direct drag on production due to enacted trade policies, the level of real GDP would be held down by an additional 0.4 percent because of trade policy uncertainty, with about half of that assumed to have occurred in 2019. Our estimate is a bit larger than estimates of the Federal Reserve Bank of Atlanta and Goldman Sachs but smaller than the widely cited estimates in last year's research paper by the Board's staff. The pattern and composition of business investment last year were consistent with our assumptions.

For the period ahead, although we think that the lagged effects of last year's elevated uncertainty will likely continue to hold back cap-ex some in the first half of this year, we do think that the recent reduction in trade policy uncertainty will provide some offsetting impetus to GDP growth this year and next. For example, much of the rise in stock prices in recent weeks has reportedly been in response to the positive news on trade developments, and the upward revision to our equity price forecast adds an additional tenth to GDP growth this year and next. As shown in the inset box in panel 6, however, profit expectations remained subdued in January, even after the trade deal was signed. And with plenty of open questions about how U.S. trade policies with China and Europe will evolve over time, trade policy uncertainty, panel 7, remains somewhat elevated. As a result, we've been cautious about building in a larger boost to growth thus far. And, for what it's worth, the adjustment we made to our forecast in response to the China deal seems roughly in line with those in outside forecasts.

We could, of course, be wrong. Some indicators of business sentiment in the regional Fed surveys have turned up of late, and it's possible that the China trade agreement will provide more impetus to real GDP growth than we have projected. Panel 8 highlights such a risk using an alternative simulation that illustrate the possible effects of a substantial reduction in trade policy uncertainty, as viewed through the lens of one of our DSGE models. The effect in that model is to raise the level of real GDP by  $\frac{1}{2}$  percent, with most of that coming in 2020. Of course, we'll continue to monitor indicators of business sentiment and reports from our Beige Book contacts on this issue.

Your next exhibit summarizes the inflation outlook. As you can see in panel 9, which shows monthly changes in core PCE prices converted to an annual rate, the data we have received since the November Tealbook—which include our translation of the December CPI and PPI—have come in more or less as expected. Looking ahead, we expect that the 12-month change in the core index, the black line in panel 10, will move up from 1.6 percent in December to 1.9 percent in March. After

some additional small wiggles, core inflation settles in at 1.9 percent for the remainder of the medium term. Total PCE price inflation, the red line, is expected to run a little below core inflation this year, held down by declines in consumer energy prices and a relatively subdued pace of food price inflation.

Panel 11 decomposes past and prospective movements in core PCE inflation, the black line, into the contributions of various fundamental drivers. The relatively flat contour of core inflation over the medium term largely reflects our view that underlying 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 this period at 1.8 percent. High rates of resource utilization, the red bars, are expected to put upward pressure on core inflation. The contribution is small, however, and is partly offset by a negative contribution of relative import prices, the bright green bars.

I'd like to wrap up my presentation with an update on some of the benefits of the current strong labor market. These charts aren't new to you, but we haven't shown them in a while. Panel 12 on the inflation chart shows the improvement in wage gains at the lower end of the wage distribution. The red line plots the Federal Reserve Bank of Atlanta's Wage Growth Tracker for workers in the lowest quartile of the wage distribution. Wage growth for that group is currently running about 1 percentage point higher than the overall measure, the black line. Although some of the differential can be attributed to recent increases in state and local minimum wages, recent analyses by economists at the Board and at the Federal Reserve Bank of Atlanta indicate that the strong labor market has also played a role, as it did in the late 1990s.

In addition, the strong economy continues to provide additional job opportunities to historically disadvantaged groups. The top two panels of the next exhibit show unemployment rates by race and ethnicity through the end of last year, while the bottom two panels show participation rates for prime-age adults. As indicated in panel 13, the unemployment rate for African Americans has fallen below 6 percent, while the unemployment rate for Hispanics is close to 4 percent. These levels, as well as the differentials relative to the unemployment rate for whites shown in panel 14, are the lowest since the BLS began reporting these measures in 1972. As shown in panel 15 in the lower left, labor force participation among prime-age black men remains quite low; nevertheless, it has improved markedly in recent years, and that group is the only one on the chart for which participation has regained its pre-recession level. For prime-age women, shown in panel 16, participation has risen roughly proportionately—and to or above pre-recession levels—for all of the groups shown. For completeness, the charts in the final exhibit plot similar data on employment-population ratios. Joe will now continue our presentation.

MR. GRUBER.<sup>4</sup> I'll be referring to the "Material for Briefing on the International Outlook." Indicators suggest that foreign real GDP growth was very

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<sup>4</sup> The materials used by Mr. Gruber are appended to this transcript (appendix 5).

weak at the end of last year and is estimated to have fallen below 1 percent in the fourth quarter. Notably, as seen in the chart on the left, foreign growth crossed this threshold on only a handful of occasions in the past 50 years, almost always when the United States was in recession.

The fourth-quarter malaise was the culmination of a terrible year for the foreign economy. The factors that held down growth at the end of the year were mostly the same ones that had been weighing on growth for some time—mainly, the pronounced global slump in manufacturing, trade, and investment—which, in turn, reflected a number of factors, including increased trade tensions. By our estimate, trade—tariffs, and uncertainty—lowered foreign growth about 0.3 percentage point in 2019, accounting for a sizable portion of the shortfall below potential, shown on the right. Global growth in the second half of the year also took a significant hit due to disruptive social unrest, notably in Hong Kong and Chile. As you can see, we are anticipating these factors to fade and annual growth to rise slightly above potential by next year. However, I acknowledge that the coronavirus presents a notable risk to this assessment. I will turn to this topic later.

On the next page, it is indicated that we are not alone in calling for a strengthening in foreign growth. The IMF, as shown in blue, is forecasting a slightly stronger pickup than our own, in black. In the near term, stabilization in Hong Kong and Chile contributes to the increase, as does a recovery in Mexico, assisted by the projected pickup in U.S. manufacturing.

Over the longer term, easing trade tensions are an important factor in our projected recovery, as they have been for some time now. Recent developments, including the passing of the USMCA agreement by the U.S. Congress, the signing of the phase-one deal with China, and a recent détente in the Franco–U.S. digital-taxation dispute, all support this outlook. That said, trade tensions will likely continue to weigh on foreign economic activity, as most tariff hikes remain in place. Also, as discussed by Lorie, market participants continue to highlight the risk of a reescalation of trade tensions, and indexes of trade policy uncertainty (TPU), shown in the middle, remain elevated.

It could be, however, that trade tensions and uncertainty erode much faster than we are currently assuming, a view seemingly consistent with ebullient financial markets. The chart on the right is based on the same alternative scenario that Bill described earlier, but showing foreign rather than U.S. growth. A substantially faster easing in TPU would provide a significant boost to growth this year.

As indicated on your next slide, the easing of trade tensions has led many commentators to call an end to the manufacturing slump, though evidence remains tentative at this point. The aggregate AFE manufacturing PMI, the red line on the left, ticked up in January but remains below 50, while the EMEs are looking a bit better. One sector that looks more encouraging is high-tech goods. As shown to the right, the tech cycle in emerging Asia has been on a significant upswing.

Another consideration underlying our outlook for a pickup in foreign growth is that some key economies have stabilized, including the euro area. To be sure, manufacturing continues to be very weak, especially in Germany, where auto production, given in the top right, is still depressed. And as shown on the bottom left, recession probabilities remain elevated. However, on the plus side, euro-area GDP growth appears to have stayed around 1 percent in the fourth quarter and soft indicators, such as economic sentiment, have been moving up.

Indicators at the end of the year were encouraging in China, where IP growth, the blue line in the middle panel, stepped up; trade, on the left, stopped declining; and auto sales, on the right, started to flatten out, following a steep decline. Chinese demand likely spilled over to other countries in the region, with both Taiwan and Korea posting strong Q4 GDP increases of 7 percent and 4.7 percent, respectively.

It appears increasingly likely, however, that the recent outbreak of the coronavirus, the subject of your next slide, will dent Chinese growth, with spillovers to the region and possibly the global economy. As a reference point, as shown on the left, the SARS outbreak in early 2003 had a noticeable short-term effect on growth in China and its trading partners. The panel on your right presents an estimate, calibrated to the SARS episode, of how we might revise our forecast, assuming the effects are primarily concentrated in China and its neighbors. If the virus were to spread in force to other countries, the effect could be even larger. We will be monitoring the situation closely and adjusting our forecast accordingly.

On your next slide, even with the recent downturn in response to the coronavirus, global equity prices, the blue line in the top left, had a good year despite serial downward revisions to the global growth outlook. More broadly, financial conditions, on the right, eased considerably last year, supported by accommodative monetary policy and the perception that some notable risks had diminished. Interest rates at most foreign central banks, bottom left, are expected to stay low for quite some time against a backdrop of still subdued inflation pressures, bottom right.

On your next slide, both the increase in foreign growth and reduced trade tensions should help pull U.S. exports out of the doldrums. The top panel decomposes export growth, the black line, into its determinants. Exports were flat last year, dragged down by weak foreign growth, the green bars; retaliatory tariffs, the gold bars; and disruptions in the export of 737s, the purple bars. We expect export growth to step up this year, in line with stronger foreign growth but also boosted by purchases committed to by China in the recently-signed phase-one trade deal, with our estimate of that effect shown by the red bars.

Imports, the black line on the bottom left, have also been weak and are estimated to have posted a dramatic 10 percent decline in the fourth quarter. While falling imports from China and declining imports of automotive products related to the strike at GM contributed to the fall, the decline was broad-based across source countries and goods. We'll find out more tomorrow morning, with the release of advanced data for December.

As I noted earlier, falling interest rates and easing financial conditions should support global growth this year. However, they could also exacerbate financial instabilities. Your next slide presents an updated staff assessment of international financial vulnerabilities, which we do in tandem with the quarterly surveillance report for the United States that will be presented by John shortly. As shown at the top of the table, our summary assessment of vulnerabilities in foreign economies remains “moderate.” This implies that it would take a sizable shock abroad to have a material effect on financial stability in the United States. Our country-level assessments are also unchanged from July 2019.

Near-term risks, captured in our prominence-of-risks assessments, remain “high” for a number of countries. We raised Hong Kong’s assessment to “high” because of heightened geopolitical risk. In contrast, we lowered the assessment for some countries because of an easing of trade tensions.

On the next page, considerable attention is focused on the accumulation of high levels of nonfinancial corporate, or NFC, debt. In the AFEs, this development has not been evident in all economies, shown on the left, but it has been true for some, shown on the right. We are closely monitoring NFC vulnerabilities because of the possibility that they increase the likelihood of a financial-stability event or amplify an economic downturn—a possibility we analyze in the next two slides.

First, on the next page, we use international data to examine the relationship between vulnerabilities and financial crises. Country-specific vulnerability indexes are shown for five major financial sectors, with the level of vulnerability ranging from the lowest, in blue, to high, in red, following the method in a research paper by Board colleagues Seung Lee, Kelly Posenau, and Viktors Stebunovs.

The heat map presents the median levels of vulnerabilities leading up to and after the onset of banking crises, the black vertical line. We find that median levels of vulnerabilities in the financial, household, and external sectors are generally high before a crisis. In contrast, nonfinancial corporate vulnerabilities have generally not been that elevated before crises.

Recent U.S. vulnerabilities, measured using the same methodology, are shown in the right panel. Vulnerabilities in the nonfinancial corporate sector are high, but vulnerabilities in the financial and household sectors are not. These vulnerabilities show a very different pattern of vulnerabilities from that seen in the two-year period before other historical crises.

Even if nonfinancial corporate vulnerabilities do not help predict crises, they may amplify recessions. Therefore, we also look at the historical relationship between recessions and a simpler measure of corporate vulnerabilities, NFC debt expansions, measured as an increase in the gap between the level of NFC debt relative to GDP and the trend value of this series. We find that only about half of the recessions in our sample were preceded by a notable NFC debt expansion. Recessions preceded by

NFC debt expansions were not significantly lengthier or deeper, on average, than other recessions.

Overall, we find only a weak relationship between corporate vulnerabilities and the onset or severity of crises or recessions. Of course, the average historical international experience may not be the best guide to prospects for the U.S. financial system, as our system is significantly larger and more complex than those of most of the countries in our sample. John will now continue the presentation.

MR. SCHINDLER.<sup>5</sup> Thank you Joe. I will be referring to the “Material for Briefing on Financial Stability Developments.” We continue to view overall vulnerabilities facing the financial system as moderate. On the positive side, major financial institutions remain resilient. Capital at banks, the top panel of your first exhibit, remains high, although there are some indications that banks intend to allow their capital ratios to move down closer to regulatory requirements over the medium term. Borrowing by households, the middle left, continues to lag income.

Vulnerabilities associated with business debt remain a potential source of concern, although we take some solace from the research that Joe just presented that finds limited links between corporate borrowing and banking crises. The basic facts on business debt have not changed much since our July assessment. As shown in the middle-right panel, corporate borrowing has clearly outpaced GDP growth for some time. As you know, we have a good grasp on the financial condition of public corporations but less insight into the financial condition of private companies. Using data that we routinely collect to support our stress tests, we’re able to get a view of the riskiness of the borrowing by these private companies.

The lower-left panel uses data from a vendor and shows the interest coverage ratio, or ICR, for public companies. The dark red area shows the share of total debt balances with an ICR of less than 1—that is, the share of debt balances owed by firms for which earnings before interest and taxes are less than their interest expenses. The pink area shows the loans with an ICR between 1 and 2.

Data on private firms provided by the same source are quite limited, but comparable data for private firms that have a loan or line of credit from at least one of the bank holding companies that participate in the stress-test exercises are shown in the lower right. The sample uses filings by banks participating in the stress tests, but the data cover, in principle, total borrowing by these private firms. These data cover considerably more of the debt of private firms than the data sources cited in some outside financial-stability reports. That said, these series only begin in 2014.

There are two key “takeaways” coming from this chart. First, private firms that borrow from these banks do look riskier than public firms, with roughly 30 percent of debt outstanding owed by private firms that have low interest coverage ratios, compared with about 20 percent for public firms. Second, the riskiness of the private

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<sup>5</sup> The materials used by Mr. Schindler are appended to this transcript (appendix 6).

borrowers appears to have been stable over the past several years, a period when we have seen underwriting standards loosen in some markets.

Let me now turn to the two changes we made to our financial stability assessment. We raised our assessment of vulnerabilities due to asset valuations to “elevated,” a one-notch increase that leaves us in the highest category we have. As a reminder, “elevated” does not equate to “extreme”—we defined our categories, including “elevated,” so that each covers, roughly speaking, one-fifth of historical experience.

The upper and middle panels of your second exhibit highlight measures of risk appetite in various markets. The top-left panel shows a staff measure of the equity risk premium, or the compensation investors need to hold equities rather than Treasury securities. This measure has moved down recently to a level below that which prevailed over much of 2019 and is now near its 28th percentile. The upper-right panel shows bond spreads, which recently also moved down below 2019 levels. The middle left shows a similar picture for leveraged loans, and the middle-right panel shows the capitalization rate for commercial real estate, which is at historical lows. While none of these markets appears to be blazing hot, the pressure across markets appears fairly widespread. This is similar to the situation in much of 2017 and 2018.

The second change we made to our assessment was to raise our judgment of vulnerabilities related to funding risks by one notch, from “low” to “moderate.” The events in repo markets in mid-September suggested that vulnerabilities in those funding markets were higher than we had appreciated at the time of the July QS assessment. Further, not only were there risks in funding markets, but, as shown in the upper-left panel of your final exhibit, the pressures in the repo market spilled over to related markets. The actions taken to alleviate pressure in the repo markets have been effective to date. However, in the absence of a fuller understanding of the frictions that underlay the mid-September event and all of the channels of contagion, we raised our assessment to “moderate.” At the same time, we assess that the core of the financial system remains resilient to vulnerabilities arising from maturity and liquidity transformation. Large banks maintain substantial liquidity buffers, the upper-right panel, and assets under management at prime money market mutual funds, while moving up, remain a much smaller part of the financial system, the middle-left panel.

To finish, I’d like to describe some of our ongoing work on interconnectedness. Among the categories of financial-stability vulnerabilities, interconnectedness may be the most difficult for us to assess—because of data limitations, the relative immaturity of the relevant science, and other factors. The image in the middle-right panel tries to show succinctly the different perspectives we use to examine interconnectedness. For example, the two boxes in the top row represent the effects that a shock to a set of institutions would have on other institutions, the blue box, or on markets or activities, the yellow box. The two boxes in the bottom row represent the effects that a shock to a particular market or activity would have on different types of institutions, the yellow box, or on other markets, the green box. Most of the

available data help us understand the blue box. For example, in the lower-left panel we show a measure of fire-sale vulnerabilities for banks and broker-dealers, which is currently at very low levels. In the lower right is a new measure showing the real-output loss that could result from insurance companies rebalancing their bond portfolios away from some sectors and thus potentially straining credit supply to that sector.

There's another category of interconnectedness, not shown, that is also important—namely, the critical infrastructure that markets and institutions depend on like central counterparties, which have grown in importance over the past decade, or LIBOR, which underpins contracts used in many markets and by almost all institutions.

This framework outlines many possible interconnections, when you consider the number of different types of financial institutions and markets there are. At present, we can only glimpse into a few of the interconnections, but in the coming years we will be striving to get information on as many of those interconnections as we can. That concludes our presentations. Bill, Joe, and I would be happy to take any questions.

CHAIR POWELL. Thank you. Any questions for our briefers? President Kaplan.

MR. KAPLAN. This is for Joe. I liked your slide on page 11, but I just wanted to make sure I understand it. “External sector” is the—

MR. GRUBER. Current account, reliant basically on foreign funding.

MR. KAPLAN. So I was trying to—if I read this right on valuation pressures, it's kind of elevated two years before the crisis, and then it sounds like asset values declined into the crisis and at the time of the crisis. As the asset values went down, financial leverage went up. If I liken “two years before” to 2006 or 2007 versus 2008 and 2009, and I go back and look even at 2006, they weren't historically elevated, but they were elevated. It almost seems like this narrative, then, sounds reasonable, but it may still have something to do with valuation.

MR. GRUBER. Definitely. And one way to look at this is, it could be sort of an early-warning indicator, and that the valuations start to fall even before the crisis breaks out. I think that would be one interpretation.

MR. KAPLAN. Okay. Thanks.

CHAIR POWELL. President Rosengren.

MR. ROSENGREN. Two questions on the financial-stability presentation. The first one, in the *Financial Stability Report*, you talk about some of the concerns about corporate debt being offset by the household sector not having nearly as much growth in debt. And we've talked about it before, but when I think about the financial crisis, in which household debt was the biggest problem, I don't recall thinking about corporate debt as offsetting that risk. So we treat these as offsettable risks, and I view them a little bit more as separate risks. So I'd be interested in your perspective on that.

And then my second question is on two figures that you had in the report that didn't show up here, which were figures 9-3 and 9-4. Figure 9-3 shows the payout ratio for banks is over 100 percent, and figure 9-4 shows the target capital ratio is below current equity ratios. So, in effect, it's showing that the buffer that the large banks are maintaining has gone down fairly significantly, or is likely to go down fairly significantly, over the next year. How far would that have to go down before you changed your judgment on the financial sector from "green" to "yellow"?

MR. SCHINDLER. Let me try to handle, first, the question about offsets. The language that you used maybe strikes us as a little bit odd, in the sense that "offsetting" might indicate that something is contributing positively to financial stability and something is contributing negatively, and then they offset each other, so there's no effect. But I think if what you're getting at is, let's look at the total of these two—if they're both high, then clearly we're going to signal something high. If household debt is high and corporate debt is modest, maybe that's orange or something like that. So I think the way we look at it is to look at that total.

If you look at that first exhibit that I had, you can see the household-sector credit—2007, you’re looking at roughly 100 percent of GDP. If you look at nonfinancial business, which is in chart 1-3, looking at the time of the crisis, it’s around 70 percent of GDP. So it’s a total of 170 percent of GDP for those two sectors. Whereas, right now, you’re going to be at roughly 150 percent. So you’ve seen a significant chunk lower. So we think more in terms of that total, and we probably wouldn’t talk about the offsetting, like one is offsetting the other.

If I could turn to your second question, which is about bank capital. I’m flattered that you think that we could project our assessment ahead. I think we struggled just to get the assessment of where things are at the current point in time. I think there are a few thoughts here. These targets are gradual targets, so if they do achieve them, it should be over the next couple of years. If we were to isolate this effect, I wouldn’t expect a big change anytime soon, assuming that they keep to a gradual target.

Also, if we were to isolate them and say, “This is the only thing that’s changing,” that would be sort of an artificial exercise. When we look at financial leverage, we’re looking at the banks, we’re looking at insurance companies, we’re looking at hedge funds, broker-dealers. So if we were to say, “Just the banks changed, and nothing else changed,” I don’t know when we would be forecasting some sort of change—and the nonbank sector accounts for more than half of all financial intermediation.

In addition, in our input reports, which you don’t get, there’s a purely quantitative exercise in which we look at just a heat map that depicts historical percentiles. Right now the banks are blue, which is in the lowest category, in terms of their leverage. So we’re at a low level. It’s probably going to move up, but I’m hesitant to give you a forecast of when. We will

certainly monitor it. But it's a constellation of things that would have to change within financial leverage, I think, before we felt ready to make the jump.

MR. ROSENGREN. Thank you.

CHAIR POWELL. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. Joe, back to the international outlook. On your slide 10, nonfinancial corporate debt has been rising. On the right, is there some debt that's missing here that's not captured? Because when I look at this chart, it says, "Wow, what do we have to worry about? We're much lower than other Western advanced economies." But maybe there's a bunch of debt that isn't captured by this chart. So can you help me understand this chart?

MR. GRUBER. Comparing the United States to the other levels here, I think, generally, the levels are much higher in the other countries. This is BIS-reported data. I think their numbers were lining up with ours for the United States, and it's just the fact that these other countries have an even larger debt burden than we're seeing here in the United States.

MR. LEHNERT. I think it's fair to say that economic theory doesn't give us a lot of guidance on what the right debt-to-income level is. Some of these countries have low or negative interest rates, but Canada doesn't—or not negative. It could be differences with the treatment of commercial real estate or other assets in countries that might have more social housing. Several years ago we noticed that Denmark had an extremely high debt-to-income ratio and it did not have the same kind of financial crisis that we did.

MR. KASHKARI. Thanks.

CHAIR POWELL. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I have two questions for Bill Wascher. I'm looking at the outlook for inflation, chart 10, for medium-term PCE inflation. And in the blue area, which is the forecast, inflation converges to something less than 2 percent. So I'm wondering—this has been something that we've had for a long time here, but didn't we just change the policy rule slightly in the model so that it actually comes out to 2 percent in the long run?

MR. WASCHER. I don't know about that. But if you look at the lower left, you see why. I mean, in some sense, if we didn't have a drag coming from import prices, it would be at 2 percent. So it's a combination of our—

MR. BULLARD. It is kind of giving advice to the Committee to the effect that you can't hit your target. Assuming that the Committee wants to hit the target, we're going to pursue some policy rule that's going to get us there over the long run.

MR. WASCHER. Yes. I don't know if this is useful or not, but at his pre-FOMC briefing, Brad Strum calculated the unemployment rate that would actually get you there, holding everything else constant, and that was 3.2 percent. So if you held the unemployment rate roughly where it is now and nothing else happened, this particular framework would give you 2 percent.

MR. BULLARD. Okay. And then—

MR. ENGEN. And in our longer-term outlook, with the rule that we do have, we get to 2 percent in 2024—so, just outside the medium-term projection, for what it's worth.

MR. BULLARD. So it does converge in the long run, but it's because of the adaptive component of the expectation: it takes a very long time.

And then, on panel 13, the unemployment rate by different groups—can we get this to converge here, if we just had a simple model and simulated this out so that the unemployment rates would all be equal? It kind of looks like that when you look at these lines, but I'm not sure if that's really true. If the expansion went on long enough, is that what we would hope for? Because, in some of these other pictures, some of the other convergence is pretty impressive—not all of it, but some of it is.

MR. WASCHER. No, I—so, yes, I think that's what we would hope for, but I think there are potentially structural issues that are related to discrimination that might prevent that from happening in the long run. So there's the cyclical aspect, and then there are sort of long-run differentials that may not be amenable to the cyclical—

MR. BULLARD. So the literature thinks that there are probably long-run differentials that are not cyclically sensitive, I guess, is what you're saying.

MR. WASCHER. Right. I mean, that's what the long period of differential would suggest. And there's not a lot of understanding of exactly what all of those factors are, but there does seem to be a sense that there are longer-run structural issues in a variety of ways that might be leading to those persistent differences.

MR. BULLARD. All right. Thanks a lot.

CHAIR POWELL. Governor Clarida.

MR. CLARIDA. Yes, thank you. I'll have more to say during my outlook go-round. But I did have a question on the financial-stability developments, and I'll make reference to charts 1-3 and 1-4.

Clearly, chart 1-3 reminds us that nonfinancial business-sector debt has been going up. And I'm going to piggyback a little bit on our conversation before lunch. We are in a low- $r^*$

world, and we think that it is with us for the foreseeable future. So as we think about financial stability, we've got to get used to and come to grips with the fact we're in a low- $r^*$  world. If you look at chart 1-4, you do show that if you use this metric under which smaller is better. That indicates companies are borrowing a lot, but, at least using this metric, these numbers are not flashing. In fact, by my eyeball, they're at the lowest levels in 25 years.

It's also the case—and I don't see this in the chart pack—that one thing that U.S. nonfinancial companies have done when faced with a flat yield curve and the low rates is, they've “termed out” their debt. So the average term of U.S. corporate debt is three years longer. As we think of metrics for financial stability—and it's a question if we do, but I do suggest, are we safer in a world of somewhat less debt that's overnight, or of more debt that, on average, has a 12- or 15-year maturity? I think the maturity composition and the coverage should be relevant. These things are always judgment calls, but I think we do want to stay away from a situation in which we ignore the fact that we're in a low- $r^*$  and a flat-yield-curve world, because companies are endogenously factoring that into the mix. And I think just a narrow focus on chart 1-3 might lose some of that perspective.

CHAIR POWELL. President Daly.

MS. DALY. Somewhat relatedly, when you think about overall valuations—this is for John—overall valuation levels appear comparable with those that prevailed before the financial crisis. But since the crisis,  $r^*$  has fallen 2 percentage points—or estimates of it. And that would lower the discount rate, which would raise valuations. So how should I consider the valuation comparison over time in a low- $r^*$  world?

MR. SCHINDLER. We don't make any attempt to adjust for the level of interest rates, although one of the things potentially pushing up asset valuations is debt. Looking at the

historical distributions is the way we'd cut it, so you would have to do an analysis that breaks those down by different interest rate regimes. Potentially, you could sustain a higher asset valuation in a lower-rate environment, although over the long term, if people are building up debt to do that, there's a potential sharper correction, more spillover effects, afterward.

MR. LEHNERT. Let me just make sure that I got the question right. I mean, "valuation" is one of those words that different people use to mean different things. What John showed here, on exhibit 2, are three spread measures. These are relative to a risk-free rate. So if the risk-free rate is following 2 percent but everything else was unchanged, then these spread measures would be unchanged. The compensation for risk really is at the lower end of its historical range, as best as we can judge.

CHAIR POWELL. President Rosengren.

MR. ROSENGREN. Just one follow-up on Governor Clarida's comment—thinking about whether the coverage ratio is a very good indicator of the amount of risk that's actually occurring. So you get into a recession, and it's not that the risk-free rate  $r$  changes so much, it's that the income changes. And, when I think about a coverage ratio, it tells me you can take plenty of debt in good times, but if your income disappears, that's the problem. So that's why, when you think about a coverage ratio versus debt-to-asset or some other form of leverage, I think just looking at one without looking at the other may not give the full picture of the amount of tail risk that you're taking in a recession. So I maybe didn't take as much comfort from your coverage-ratio idea as you all did.

MR. CLARIDA. Point well taken.

CHAIR POWELL. Thanks. So we're running a little late—not terribly late, but I think we should go ahead with the first half of participants' comments on financial stability and then

pause at around 3:15 for our coffee break. Unless there's violent objection, we'll go ahead and do that, beginning with Vice Chair Williams.

VICE CHAIR WILLIAMS. I'll just talk fast. [Laughter] Thank you, Mr. Chair. The latest U.S. report documents a worrying set of developments: sky-high asset prices, nonfinancial corporate debt zooming to new highs—and all the while, the largest banks are preparing to cut back on their capital ratios.

Under these circumstances, the timely question is whether the banking system is well-positioned to weather a storm and how changes in bank capital affect risks to the economy. And, to that end, my staff has reexamined the issue of the appropriate level of capital in the banking system in the context of low  $r^*$  as well as the relationship between bank capital and macroeconomic vulnerabilities.

So the first question is whether change in the economic landscape should change how we view the appropriate amount of capital in the banking system. In particular, what's the implication of the substantial decline in  $r^*$  for capital requirements? In addressing this question, I'll start with the assumption that current capital requirements were appropriately balancing associated costs and benefits for a world in which  $r^*$  was higher than our current estimates, picking up on President Daly's point that  $r^*$  was perhaps 2 percentage points higher 10 years ago. The question is, does a lower value of  $r^*$  imply a higher or a lower appropriate level of capital in the banking system today than what we saw a decade ago or so?

There are numerous channels by which a lower  $r^*$  could potentially affect the costs and benefits of maintaining regulatory capital and thereby appropriate capital requirements. Although it's difficult to come to a definitive quantitative answer to this question, there are a few

concrete reasons to think that lower  $r^*$  creates greater risk to the ability of the banking system to withstand shocks, with spillovers to the broader economy.

First, as we've discussed extensively in our meetings here over the past few years, lower  $r^*$  implies less monetary policy space to mitigate economic downturns, due to the effective lower bound. This, in turn, implies the need for the banking system to have a larger capital cushion to withstand longer and more severe downturns than would have prevailed back in the days of higher  $r^*$ .

Second, it is argued that a low  $r^*$  and associated flatter yield curve leads to greater risk-taking by banks and other financial institutions. Now, the jury is out on how big these effects may be, and I may not be convinced by some of the estimates. But to the extent that these effects exist or that we assign any credence to the possibility that this kind of “reach-for-yield” behavior happens, again, at least directionally, they point to greater vulnerabilities in the banking system than would otherwise occur.

In summary, while it's admittedly a complex topic that calls for greater study and analysis, a reasonable conjecture is that a lower  $r^*$  calls directionally for more capital to guard against negative shocks, rather than less.

Now, the second question that my staff took a close look at is the relationship between bank capital and GDP growth. Using U.S. data since the '60s, they used quantile regressions to examine the relationship between the distribution of GDP growth outcomes and growth in bank capital ratios, controlling for overall credit growth. They found that rising bank capital ratios do not affect median real GDP growth over the subsequent two years, but they do reduce the tail risks of both very-high-growth outcomes and very-low-growth outcomes. So, on the flip side, declining capital ratios, if you were to consider those, are associated with greater tail risks both

to the upside and the downside. This research nicely illuminates aspects of the tradeoffs facing us on bank capital and macroeconomic vulnerabilities, and I'll leave it to my learned colleagues on this side of the table to draw their own conclusions regarding the possible policy implications of this research. Thank you.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. We've made a number of regulatory changes over the past two years, and the view was that we were streamlining regulations without intentionally reducing the solvency capital in the banking system. However, as the *Financial Stability Report* highlights, high payouts are resulting in lower capital ratio targets for G-SIB banks, despite a variety of indicators showing heightened financial-stability risk.

Perhaps the streamlining of regulations, the possible continuing changes in stress testing, and the recently-discussed move to reduce supervisory discretion might cause banks to maintain smaller buffers at about their regulatory minimums. However, we should be offsetting these changes—which will likely lead to lower target capital ratios—in order to avoid a reduction in solvency capital.

I am also worried that the ongoing trend to constrain the effect of guidance—in addition to the possibility of moving bank examinations away from forward-looking risk-management concerns and toward more transparent, but potentially more backward-looking, compliance—will constitute a significant move toward more-accommodative supervisory and regulatory policy. This change, coupled with accommodative monetary policy at a time when labor markets are tight and financial-stability concerns seem to be rising, risks increasing financial-stability risks. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. I continue to find the QS report very useful, and I want to thank the staff for all they’re doing to continue to monitor and assess financial-stability risks. As I said earlier, a stable financial system is a prerequisite for a sound macroeconomy, so I’m glad we’re talking about these issues here.

The staff continues to view overall financial-stability risks as moderate. The vulnerabilities associated with two areas increased since July. Vulnerabilities related to maturity and liquidity transformation were raised to “moderate,” largely reflecting the mid-September stresses in short-term funding markets, and vulnerabilities related to valuation pressures were raised to “elevated.” Now, given the low level of nominal interest rates, we should expect price-earnings ratios and the stock market to be higher than their historical averages. Still, the size of the increase in stock prices last year, along with high commercial real estate prices, does give me pause.

Vulnerabilities in the household and nonfinancial sectors remain moderate. It masks the notable financial vulnerability posed by high corporate debt levels to hear results in terms of the combination of these two into a single category. I continue to think the report should assess these separately.

Leveraged lending has become particularly risky. Underwriting standards are weak. A larger share of new loans have very high debt-to-earnings ratios, and the average debt-to-earnings ratio in the market is also high. Now, default rates remain low but are expected to rise to the historical average this year. The interest coverage ratio on these loans is relatively high, but if interest rates ever do increase, more of these loans will get into trouble.

The staff assesses the vulnerability of financial-sector leverage to be low partly because bank capital levels are high. However, as shown in chart 9-4 on page 23, the G-SIBs are

planning to reduce their common equity tier 1 capital ratios this year from the levels of capital they maintained in 2018 and 2019. The targets are getting closer to their regulatory minimums, and this is troubling.

Because raising capital is time consuming and expensive, the lower capital buffer means that should a negative shock hit, these banks may opt to shrink their lending to meet their regulatory minimum capital requirement. Of course, this would be precisely the time when it would be socially valuable for the banks to lend, in order to damp the effects on the macroeconomy of the negative shock. An increase in the countercyclical capital buffer could counteract the planned reductions of capital buffers and help support lending across the business cycle. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I applaud the work on interconnectedness in the financial-stability document. As you think of critical infrastructure, I'd love to urge you to add cyber explicitly to that list, especially in the context of recent events in the Middle East. In line with recent work by the Federal Reserve Bank of New York, I do very much fear an operational cyberattack, by a state actor, aimed at crippling our economy's ability to operate. It could come directly against the banking system, including our operations, or, alternatively, against our core infrastructure, such as airports or the electrical grid.

In that event, I fear resuming normal operations across the economy will be more challenging than we anticipate, with dire implications on consumer and business confidence and financial markets. So I'd suggest it would just be prudent as we report our risk assessment that we flag and monitor our cyber-readiness and resilience as a critical infrastructure issue as well. Thank you.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I'll just comment: I thought this was an excellent report, and I'm glad to go through this exercise. I'll just give you a couple of other metrics that, for better or worse, I have tended to follow for the past number of years. And those are, equity value to GDP and enterprise value to GDP. Numbers are kept back to 1970, when the Wilshire 5000 was started. On that basis, we are at an all-time high in 50 years. Now, there are some good reasons for that. So, just to give you the exact numbers, we were at about 194 percent of GDP a week ago. Today we are in the low 190s, with the little latest correction. Just by comparison, at the end of the third quarter of 2019, we were at 179 percent of GDP. The peak of the 1999–2000 dot-com boom was about 179, 180 percent. And I know we noted that the third quarter of 2018, as you all mentioned, was elevated—that was about 185 percent.

So it's somewhat higher than it was. There are some good reasons for that. We had corporate tax reform in 2017. You'd expect we're higher than in the dot-com boom. But I would note these are the highest P/Es that I'm aware of. We went back and looked since the dot-com boom. We are approaching 20 times earnings—19 and a fraction. And whereas the dot-com boom was based on overestimations of growth and certainly overestimations of what technology could do for growth, this is based predominantly, as we said, on low interest rates and financial engineering.

The issue is, we've got a lot more debt than we did in 1999 and 2000, and in particular on this comment about interest coverage, what I worry about is that, in the event of a downturn—the revaluation of the equity markets and other asset classes is not the biggest concern of mine. It might even be a healthy thing. What I do worry about is, how much debt is based on that? And while  $r^*$  will be low, credit spreads are going to gap out, and those coverage ratios are going to

look differently, particularly, as we talked about before, as you've got a substantial increase in triple-B debt, double-B debt, and single-B debt. Triple-B debt has tripled since the Great Recession. And so my concern would be, in that scenario, you get a revaluation. You get credit spreads gapping out. All of a sudden, coverages don't look so good. Profits are down, which also makes coverages worse.

Like a lot of things in life, I don't know that it matters as much what has happened up to today, but I think what will matter is where we go from here, in that we are at very elevated levels. My experience with elevated levels of valuation is, you need to do riskier things to keep making money when risks get higher, and they usually involve debt and other ingenious ways to make money, and there are whole industries of people who are being paid to do that.

So I would just—as others have said, I think this is a time when we're elevated. I think this may be manageable, but we should be very cognizant in macroprudential policy and, in light of this, go back and maybe take a fresh look at where we are in macroprudential policy. And I think, certainly, we should be cognizant in our calls with contacts, particularly in the nonbank financial sector, as to practices going on and just cognizant generally in terms of how we're managing economic policy. But I think this is a time to be on high alert and vigilant. It doesn't mean this won't be manageable. It could well be manageable, but I think what happens from here is going to tell the tale as to whether this turns into a problem. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. So, they all are very interesting comments so far. As I look at the information that we have been presented on financial stability, I'd say I see something old and something new, something borrowed, and something blue. So let me briefly summarize each of those.

For something old, or at least something that's characterized this entire economic expansion, household borrowing is muted. It's concentrated among households who have strong credit histories. I think we should view that as an important source of resilience, because excessive mortgage borrowing has, in the past, been a key factor in producing financial instability, and we are not seeing that currently.

For something new, we have seen some developments that would lead me to shift somewhat my views on funding risk and valuation pressures. On funding risk, I think we understand the causes and consequences of the repo market disruptions of mid-September last year pretty well, but some degree of disquiet is appropriate. The spike in rates itself is a surprise. The subsequent spillovers to other short-term markets were larger than usual. I think we should understand better whether certain institutions—for example, small dealers that employ substantial leverage to finance repo positions—are vulnerable because of their business model.

At the moment, I don't think such considerations are a significant risk to financial stability, especially in the current environment, in which Federal Reserve operations have facilitated smooth market functioning. The broader funding risk pictures remain good. Bank liquidity positions are strong. The potential for serious instability associated with money market mutual funds remains much diminished. With regard to valuation pressures, we clearly appear to be in a “risk-on” environment. I take the strength of those comments entirely. With the economy continuing to power along, we shouldn't be surprised that investors are optimistic, but we need to watch how that's developing.

If that's what's “new,” then what's “borrowed” is what has been a frequent topic of conversation around this table and in the comments so far—which is that business borrowing is elevated. It's either at or near historical highs relative to GDP—relative to business assets.

Underwriting standards remain loose, especially for riskier borrowers, as we observe in the leveraged loan market. So I do see a considerable risk that there are going to be borrowers that experience strains if economic activity weakens, and such strains would likely affect their investment and employment decisions.

I agree with President Rosengren's question and assessment that we should look at the risks posed by business debt separately and not simply as one category of nonfinancial debt, or at least it's worth doing that because those aren't offsetting one another in any purely straightforward way, in one moderate nonfinancial leveraged sector necessarily.

But at the same time, I don't see significant risk to financial stability arising from elevated business borrowing, for three reasons. First, the run-up in business debt is large by the standards of business-debt expansions, but it's actually relatively modest by the standards of overall expansion in leverage during an economic expansion. And in that respect, the run-up in business debt doesn't look anything like the boom in household debt during the 2000s. It is significantly smaller, and, consequently, it poses a more moderate risk.

Second, and relatedly, we had Joe Gruber's presentation, which I thought was very relevant. Cross-country evidence suggests that business-debt expansions don't tend to lead to financial instability. It doesn't mean they can't, but maybe that's because, as in the recent U.S. experience, business-debt expansions haven't been as extreme as certain household mortgage booms. In any event, the current configuration of vulnerabilities doesn't appear particularly likely to lead to instability or to unduly amplify a recession, at least based on historical experience both in the United States and globally.

Those two considerations lead me to what's the last and, I think, perhaps the most important reason that I see overall vulnerabilities as moderate. And that is what is "blue," which,

as John told us, “blue” in the heat-map context is vulnerabilities that are low or subdued and signal substantial resilience to adverse shocks. And the current level of financial-sector leverage is “blue” and is a strong source of resilience.

Banks have historically-high levels of capital. A couple of points illustrative of that: If you look at our pre-crisis capital framework, you had 8 percent total capital to be well capitalized, and 4 percent of that needed to be tier 1. We only required half of that tier 1 capital to be common equity. So our actual requirements were that banks had to have 2 percent of common equity tier 1 capital. Currently, banks have about 12½ percent or so of common equity tier 1 capital. That’s over six times as much common equity, strong capital, as we required before the crisis.

Another illustration: In an earlier round, I mentioned our high capital levels relative to the rest of the advanced financial economies. But to particularly concretize that, 27 months ago, when I first arrived in this building, the task that was facing us was getting agreement from the Europeans that they would keep the minimum output of their capital frameworks at levels that were somewhere near ours. We could not—long before I arrived, we had given up as an institution on getting them to agree to keep them equal to ours, and what was on the table was our request to keep them at 75 percent of our levels. And they ultimately wouldn’t agree to that. My great victory was getting them to agree to 72.5 percent of our minimum capital levels. And it is a constant effort of patient diplomacy to keep the Europeans, who are always threatening to bolt like a skittish horse from that commitment that they made two years ago, committed to that.

So, in addition to our high capital levels, broker-dealers are much less leveraged than in the past. The information we have suggests that the insurance sector is resilient to adverse

shocks, and this low leverage throughout the financial sector is the most important bulwark against instability.

So my view on the policy implications of the current vulnerabilities stems directly from the assessment of vulnerabilities. First, vulnerabilities are moderate. They certainly don't suggest any role for a monetary policy adjustment. I'm skeptical, in general, of using monetary policy to lean against natural vulnerabilities. But that point is moot in the current context, because vulnerabilities are moderate. Moderate vulnerabilities and strong capital positions at the banks also leave me generally comfortable with the setting of the countercyclical capital buffer at 0 percent.

Now, to be clear, I haven't yet made up my mind regarding the right level. When the Board discusses the issue in the coming months, I, of course, will be open-minded about what the facts say on the basis of the full set of materials and arguments. But my vulnerability assessment is pretty low—pretty similar to that of a year ago. And, in that context, I think it's also important to take into account the environment in which decisions about financial stability measures are made.

In my view, further increasing bank capital from levels that are quite high relative to our history and high relative to other parts of the financial sector runs a material risk of driving activity from that portion of the financial sector, which we have reason to believe is quite resilient, into other portions of the financial sector about which we have more doubt, whether that is the non-U.S. banking sector or the nonbank sector completely.

I do want to emphasize, though, that I do see the CCyB as a valuable tool. And, again, as we have discussed around this table before, an important piece of learning comes from the United Kingdom, which has turned their CCyB on and off and on again, and it is that the real use

of this tool is the ability to turn something off in a downturn, as opposed to turn something up in a boom. And we have no ability to turn our very high capital levels down in a downturn, currently. That does concern me. I think it ought to concern all of us. And I think that is a reason that we have discussed ways to better integrate the CCyB with our stress tests, possibly as a part of Board deliberations regarding the stress capital buffer, and I think that that could enhance the efficacy of both tools. Thank you.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. While the overall vulnerability of the U.S. financial system continues to be viewed as moderate, changes in several of the underlying risk components of this assessment are not encouraging to me. Valuation pressures are elevated. Stress in short-term funding markets last fall has heightened the attention to potential shocks, and corporate debt remains elevated, with weak underwriting standards. In the face of these notable risks, we should take stock of how regulatory and supervisory tools are calibrated to ensure resilience of the banking industry in particular.

Although viewed as strong in this assessment, large bank capital positions are eroding amid high payouts. Even with a fraction of the losses realized in the most recent crisis, it's possible these banks would have to dip into the required regulatory buffers to absorb losses. Under such a scenario, maintaining lending or buying distressed assets would require large equity injections at a time when capital was scarce.

Judging the financial system's resiliency is a tough task for sure. When I look back to 2007, you would find policymakers acknowledging the sharp downturn in housing and, in particular, subprime mortgages but concluding that troubles in that sector would not likely spill over to the broader economy or the financial system. That's not a criticism, but it is a lesson that

I think we should take to heart as we try to assess today's vulnerabilities and the risk mitigants available to address them, especially with bank capital, remembering the cost of spillovers to the broader economy and the financial system, should our best judgments prove wrong. Thank you.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. Valuations have increased notably over recent months among several classes of risky assets, against the backdrop of elevated leverage among nonfinancial corporates and high payout rates at the largest banks. Equity prices have climbed to new highs, as President Kaplan noted, resulting in S&P 500 firms having elevated price-to-forward-earnings ratios. That increase appears to reflect, in part, market expectations that monetary policy will remain accommodative for some time, together with market beliefs about the implications of our actions to restore reserves and an expectation of some favorable resolutions of risk events.

Valuation pressures for other risk asset classes have also increased. Corporate bond spreads have continued to narrow and are in the lower part of their historical range. Leveraged loan spreads have also narrowed, with spreads for higher-rated issuers reaching post-crisis lows, and CRE capitalization rates have remained near historic lows. As has been discussed extensively, corporate debt has remained at historically high levels, whether measured relative to income or assets, and the credit quality of newly-issued debt remains weak. Leverage is especially elevated in the case of public firms that have a speculative-grade credit rating or are unrated. Such firms currently account for about one-third of that debt.

Leveraged loans outstanding also remain at a high level and have seen a notable deterioration in underwriting standards, and downgrades to these loans from B ratings have increased notably since the middle of last year. To date, the default rate has been relatively low,

but market participants increasingly expect defaults to move up to levels close to historical averages. The expectation on the part of market participants for a sustained period of accommodative monetary policy and easy financial conditions tends to create incentives for firms to take on more debt and risk and reduces banks' net interest income. Low-for-long rates can also reduce the solvency of pension funds and insurance companies that have substantial fixed future liabilities.

Historical experience and economic research point to the risk that financial imbalances, including overvaluation and excessive indebtedness, could amplify adverse shocks to the economy. And one theme that has emerged from several of the comments today is that vulnerabilities can interact in unpredictable ways that affect financial stability, as well as amplifying the cycle—in particular, often moving from valuations to leverage. For instance, yesterday we saw a presentation of work by System staff, under the auspices of the Conference of Presidents' Committee on Financial Stability, that highlighted how an adverse shock to today's elevated commercial real estate valuations could lead to an adverse feedback loop for highly indebted, nonfinancial businesses.

In recognizing the feedback loop between financial imbalances and the macroeconomy, it is important to build macroprudential buffers to temper the cycle. Banks should have been reinforcing their buffers countercyclically by retaining some portion of their earnings when profits were high. We have chosen, so far, not to turn on the countercyclical buffer, despite these conditions. It's a vote that I lost around this time last year. And I, too, have a quotation. This one is for me, as consolation—"Success is going from failure to failure with no loss of enthusiasm." [Laughter] And that quotation is attributed to Winston Churchill.

In fact, common equity buffers have been declining at our largest banks, and payouts continue to exceed earnings. Several of my colleagues pointed to the QS figure 9-3, which shows that payouts over the past few years have exceeded 100 percent of earnings, and figure 9-4 that shows after we have already seen a decline to just a little above 12 percent in the third quarter, the QS report shows that publicly-announced common equity tier 1 targets mean that capital ratios are projected to move down to 10.9 percent. That is well short of what Federal Reserve staff research suggests is a prudent buffer. And, as President George mentioned, that would leave banks' buffers above the capital conservation buffer at historically low levels, which could be breached in the event of an adverse shock, and that, in turn, would serve to amplify rather than absorb shocks.

Finally, our capital requirements have to be calibrated to the particulars of our legal framework, and it's our statutory responsibility to ensure that even the largest institutions can be resolved without taxpayer support. And, for me, that is the most important principle as we think about what is the appropriate level of capital.

So, finally, I would just say that, obviously, we have tools, but we also have communications. And I certainly believe that, as financial imbalances start to extend, it is important for us to just be public and direct about what we see as potential risks in the economy. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. And thanks, everyone, for comments. We'll take a break now, and we'll resume at 3:45 promptly. Thank you.

[Coffee break]

CHAIR POWELL. Okay. Thanks, everybody. Let's begin our economic go-round with President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. We continue to receive quite positive news about the economy. The U-6 unemployment rate is at a series low. The U-3 unemployment is at a 50-year low. Core PCE inflation is expected to jump to 1.9 percent, once the weak March 2019 reading drops out, and last year's Q4-over-Q4 real GDP growth looks to be somewhat above 2 percent, about what was expected at the start of 2019. The Tealbook and my own forecast expect the positive news to continue this year, with real GDP growing faster than potential, the unemployment rate falling to 3.3 percent, and the inflation rate close to our 2 percent target.

Despite the positive outlook, the phase-one agreement on China trade, the more positive development on Brexit, and the 75 basis point cut in rates last year, the opening paragraph of the Tealbook describes the risks to its projection as tilting to the downside. Certainly, downside risks are present, as they almost always are. For example, trade agreements appear to be fragile, and recent Administration pronouncements suggest no decline in the enthusiasm for using tariffs as a negotiating weapon. In addition, the recent outbreak of the coronavirus in China highlights the challenges facing a highly global and mobile world, and geopolitical risks remain elevated, as was highlighted by the recent tensions with Iran. I continue to be concerned about such economic and geopolitical risks. But these risks do not seem to have generated nearly as much investor concern, as a wide variety of assets here and abroad have seen significant price appreciation.

Since we began easing at the end of last July, the S&P 500 index is up roughly 10 percent, and the Euro Stoxx index is up roughly 7 percent. Equity prices are not the only asset prices showing ebullience. Credit spreads, which should reflect the likelihood of negative

outcomes, have narrowed. Residential real estate prices also continue to outstrip per capita income growth in many developed countries that exhibit low interest rates.

While the optimistic outlook reflected in asset prices cannot be pinned to any one source, recent asset price movements do not seem consistent with risks tilting to the downside. Moreover, respondents to the Survey of Professional Forecasters assess the likelihood of negative GDP growth for 2020 at less than 10 percent, a decline from the previous quarter's survey. Similarly, recession probabilities from financial models are suggesting less likelihood of a recession than in late summer and early fall. The lower assessment of tail risk with a pretty good modal forecast could be one motivation for the significant rise in asset prices. However, when I discuss the issue with financial market participants, their focus is on financial conditions. They highlight the current highly accommodative monetary policy, in combination with the presumption that the FOMC has a high hurdle for raising rates and a low hurdle for lowering rates, particularly if stock prices decline. This presumption is a disincentive to "risk-on" behavior in financial markets.

Moreover, this is in an environment in which the unemployment rate is quite low, and real GDP is still growing above its potential rate. Encouraging appropriate risk-taking is one way in which monetary policy affects the economy. But I worry about the perception that monetary policy is unduly targeted at supporting financial conditions, rather than responding to the condition of the real economy. This problem is exacerbated by the fact that many commentators are suggesting that our objective function is primarily financial in nature.

My own sense is that risks are well balanced. Trade and geopolitical risks imply downside concern. However, fully-priced financial markets and very tight labor markets suggest that imbalances are likely building in some areas of the economy. A risk-management approach

would balance both the upside and downside risks—a matter I will discuss further tomorrow.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. Before I begin my outlook remarks, I'd like to compliment the three briefers that we had today. I thought all three briefings were both timely and focused on the issues that we need to think about as policymakers. In particular, I thought Joe's briefing on the international side certainly answered a lot of questions that I had about what has been a very turbulent period in global markets. So thank you, Joe and team, for putting together a great briefing.

In terms of the U.S. economy, I'll say something creative. The U.S. economy begins the year in a good place. [Laughter] The unemployment rate is at a 50-year low. Inflation is close to our objective, and real GDP growth is solid and resides in the neighborhood of its estimated trend pace—and I'll talk more about trend in a moment. At present, and as has been the case for most of the past eight years, PCE inflation is running somewhat below our objective. Although, in the SEP, we project that, under appropriate policy, inflation will rise to our 2 percent objective, the staff's projection is for core PCE inflation to peak at 1.9 percent and to remain there.

Although I reside in Washington, D.C., now, I grew up in the state of Illinois. And as the late Senator Everett Dirksen said, "A tenth here and a tenth there, and pretty soon, after eight years, you're talking about a potential challenge to our symmetric 2 percent objective." And so I am in the camp that does care—

VICE CHAIR WILLIAMS. That wasn't an exact quote. [Laughter]

MR. CLARIDA. It wasn't—close enough. Close enough to Senator Dirksen.

[Laughter] Although the unemployment rate is at a 50-year low, wages are rising broadly in line with productivity and underlying inflation. We're not seeing any evidence to date that a strong labor market is putting excessive "cost-push" pressure on price inflation. Average hourly earnings growth is running about five-tenths below the pace of a year ago. There may be some temporary factors there, the staff tells us, but certainly it's not flashing red. And labor supply continues to surprise private forecasters and me on the upside, with prime-age participation and the employment-to-population ratio at cyclical highs and yet still below levels reported in the 1990s. So this is prime-age. This is not getting into the demographic factors. In my judgment, there's still some room to run on the supply side of the labor market, and, as we've heard from the *Fed Listens* events, these are not just statistics. This is a real effect on real people in a fully employed economy.

As I indicated in December, the revised national income data show a noteworthy and, to me, welcome increase in labor's share of national income. And empirical work shows—and you can see it in the charts—that historically in the United States, there is a cyclicality to the labor share. It does tend to rise toward midcycle. And so this is not unusual, but I would say it's welcome. And importantly, in those past cycles—at least after, thanks to the efforts of Paul Volcker, inflation was subdued—midcycle increases in labor share have historically not been inflationary. What has tended to happen is that profit margins compress, and that's indeed what we're seeing in this cycle. Now, of course, it is general equilibrium that matters, and if wages are going up, profits are shrinking a bit, and, obviously, that's potentially a factor in the investment outlook. But that macro trend is returning, and I think it's important. Indeed, by the measure of labor share that I prefer, the labor share of income is back to the level that we last

saw in 2006. So it's actually quite a climb up. It had fallen about 3 percentage points in the Great Recession.

Relative to the December Tealbook, the staff has made some sensible upside revisions to the baseline outlook and now projects real GDP growth in 2020 to run at 2.3 percent, and this is up two-tenths from the December Tealbook. Importantly, this is driven by upward revisions to the projections of both business fixed investment and exports—two sectors, of course, that were a drag on growth in 2019, and we saw some good insights on this in the briefings. To the extent that trade policy uncertainty and the global slowdown were responsible for at least some of this drag in 2019, a reduction in trade policy uncertainty and the pickup in global growth that is projected would be supportive of this rebound.

And just as an aside, one thing I would note is, although we oftentimes tend to talk about net exports, it's really important to break the two out, because exports are a source of aggregate demand for the United States and imports are a source of supply. Exports in the United States are about \$2.8 trillion. They're bigger than business fixed investment. They're six times bigger than residential investment. So, as we are talking about our outlook, it is important to pay attention to the global outlook. Some of the export demand is met by imports and other factors, but swings in exports are actually quite important. And the staff memo pointed out last year that the slowdown in growth in our trading partners hit exports and was a headwind to growth.

Now, I recognize that real GDP growth at a pace of 2.3 percent is above most estimates of trend. It's actually one-tenth above my estimate of the trend rate. But I'd like to argue right now that, regardless of one's supply-side view, this is an outcome that we should welcome for this year. If you're a supply-side pessimist, you welcome above-trend growth to generate excess demand required to push inflation above its underlying trend and up to 2 percent. We are

targeting 2 percent inflation. And, through their Phillips-curve dynamics, our models actually require above-trend growth to generate that inflation. If you're a relative supply-side optimist, as I am, you welcome 2.3 percent growth to prevent inflation from falling further below 2 percent by absorbing new entrants to the labor force, as well as the pickup in productivity that we've seen in the past three years. Now, of course, there are risks to this outlook, but I judge them to be somewhat less tilted to the downside than I did in the fall and with somewhat more potential for an upside surprise.

That said, I would like to make some observations about inflation expectations, and I can be brief because the story has not really changed since December. A range of measures of inflation expectations have been drifting down for the past several years. We don't directly observe inflation expectations. But, for example, the staff's recent index of inflation expectations has clearly been drifting down. I don't think you should look at any one measure, but when you combine financial market data with the surveys with our own staff models, inflation expectations are at the low end of the range that I consider consistent with our objective.

Finally, on the inflation objective and our inflation target, an important insight in the economic literature on monetary policy, to which many people around this table have contributed, is that policy should aim to keep expected inflation anchored over some medium-term horizon, not realized inflation period by period. Of course, actual inflation will always fluctuate in response to shocks within some range of the target, so a central bank's monetary policy, especially a central bank with a dual mandate, should not be evaluated based on its record of minimizing the variance of inflation outcomes relative to target, but rather it should be evaluated based upon its record of keeping inflation expectations on target. It would seem to me

that, in view of the challenge of measuring inflation expectations, a practical way to support this objective would be to conduct policy with the intention and, I hope, outcome of keeping average inflation over some medium-term horizon equal to target. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. Despite ongoing weakness in the District's manufacturing, energy, and agriculture sectors, our District contacts report sentiment at a 50-year high, as the Kansas City Chiefs advance to the Super Bowl. [Laughter] It is the first time since 1970. We are hopeful for positive spillovers to the regional economy.

In the meantime, the 10th District economy enjoys historically high levels of employment. Housing has picked up, and our contacts report strong retail sales over the recent holiday shopping season. In contrast, weakness in manufacturing continues to weigh on District growth, with declines in activity for seven consecutive months, primarily related to durable goods. Our contacts in Kansas and Oklahoma report that Boeing's decision to pause production of the 737 Max airliner is resulting in layoffs now. This has led one large manufacturing firm in the region to lay off nearly 25 percent of its workforce.

Our recent energy survey indicates that the District's energy activity dropped further in the fourth quarter of 2019 and that expectations for future activity continue to decline. Firms reported that oil prices need to be, on average, \$65 per barrel for substantial increases in drilling to occur—down slightly from six months ago, but higher than both current prices and prices expected over the next year.

Finally, despite some recent optimism surrounding trade prospects with China, Mexico, and Canada, the region's agricultural sector is likely to remain under stress, as large supplies of grain weigh on prices over the coming year and keep farm income depressed.

With regard to the national outlook, the U.S. economy has once again shown resilience in the 11th year of this expansion. Despite meaningful headwinds ranging from restrictive trade policy to a weakening in the global economy, incoming data suggest that the economy last year grew modestly above its trend rate. As we look ahead, the economy again appears poised for growth near 2 percent this year as residential construction and durable spending recover from soft patches last year. Still, like last year, business investment shows few signs of breaking out of its slump, leaving the broad themes of the outlook largely unchanged. We will continue to lean on the consumer to carry the economy while business investment remains tepid.

While the overall tenor of data has improved of late, the rebound in residential construction is particularly noteworthy, in light of the tendency for contractions in that sector to signal broader downturns in the economy. While residential investment is a small share of GDP, my staff recently reminded me of Ed Leamer's 2007 Jackson Hole Symposium contribution titled "Housing Is the Business Cycle." The point he made in that paper was that residential investment is the single component of GDP that has reliably turned down ahead of recessions. This makes the recent firming in residential construction a welcome sign.

The next best indicator of the business cycle identified by Leamer's work was durables consumption, and, in this component, we see a similar firming. The fraction of consumers in the University of Michigan survey responding that now is a good time to buy large amounts of durables has reliably turned down ahead of the past three recessions and was on a downward trajectory through August last year but has since rebounded near its post-recession high. Taken together, a turnaround in both residential investment and household sentiment toward other big-ticket purchases suggest the economy is on a bit firmer footing than it was last year.

One component of GDP that remains weak is business investment. Ahead of the official data for Q4, monthly indicators of equipment spending in the advance report on durable goods suggests that investment growth remained subdued last quarter. The ongoing downshift in investment spending marks the third investment slowdown in this expansion, with one coming in 2012 amid the European debt crisis and then another in 2015 as the global economy slowed alongside China. The persistent waves of weak global growth and elevated uncertainty have weighed on the economy's longer-run growth prospects and contributed to the persistent weakness in productivity growth.

It is noteworthy that the private capital stock in the United States is now the oldest it's been since the 1950s. So, even as the cyclical position of the U.S. economy appears to have strengthened somewhat, the prospects for improvements in longer-run sustainable growth are worrisome. In this sense, I see our recent interest rate reductions, which have done little to lift business investment, as borrowing consumption from the future and in some sense masking some of the underlying issues connected to the longer-run health of the economy.

With potential growth remaining flat-footed while the cyclical position of the economy firms, it seems reasonable to anticipate some signs of modest price pressures. However, what I hear from my business contacts is that, while wages and input costs are rising, there is limited scope for them to pass cost increases on to consumers. Instead, my contacts report that margins are compressing across a number of industries, including hospitality, transportation, and health care. When coupled with the ongoing global developments—including range-bound oil prices and low global inflation, which is leading to ongoing deflation in nonpetroleum import prices—I anticipate that consumer price inflation will remain largely muted. Some might consider my

outlook for the national economy, in a word, as “Goldilocks,” but those using the analogy often fail to remember that the three bears eventually did come home. [Laughter]

While, on net, the economy looks to be in a better spot than it was last year, I continue to see risks to the outlook as tilted to the downside. Certainly, interest-sensitive parts of the economy have responded to last year’s rate cuts. But so have asset valuations. The prospect of persistently muted inflation has entrenched the notion that policy will remain in this accommodative position for some time, driving investors to take on more risk. In my view, the risks to the economy include not just the ongoing concerns surrounding global growth, trade, geopolitics, and sectoral imbalances, but also the growing threat that complacency in financial markets poses to the broader economy. Thank you.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. The new year started very, very well for me. The team I cheered for as a kid and the team I enjoy as an adult are both playing in the Super Bowl. I’d say sentiment is up everywhere, except on the East Coast. [Laughter] But they had their fill in the baseball season, so—

Now, if you’re wondering whether I’ll be cheering for the Chiefs or the Niners, I’d say it’s completely an impossible choice. [Laughter] I can’t say. But, of course, on a more serious note, football is not the only source of a cheerful mood. The economy entered the new year with good momentum and really strong fundamentals. Job growth remains solid, consumers are confident, and my business contacts feel optimistic about the outlook for 2020. The data and the sentiment, as others have said, remain positive despite a growing list of idiosyncratic or ongoing challenges, such as Boeing’s production issues, instability in the Middle East, and now a

dangerous virus in China, which have only added to the headwinds coming from weak global growth and continuing trade disputes.

The strength of growth, despite these headwinds, reflects in part the additional monetary policy accommodation we put in place last year, and this is confirmed by my contacts. It was my prior, but when I asked my contacts, they told me that favorable financial conditions have boosted both consumer and business spending. Specifically, they referred to mortgage refinancing activity, which has increased notably since the middle of 2019, reducing monthly housing costs and freeing up cash for other purchases. Credit card transactions and auto lending are up as well.

Even more encouraging and somewhat more surprising, is that my contacts in the manufacturing sector report that some previously-shelved projects that they had simply put on hold have been brought back to life, in part because of the reduction in trade uncertainty, which we heard about earlier, but also, in their view, because of the confidence they have in the outlook due to the fact that we have monetary policy accommodation that is going to lean against the headwinds. They also point out that easier financial conditions have helped boost their international competitiveness, offsetting some of the costs associated with ongoing trade disputes.

These are all examples of how monetary policy is supposed to work, and they reaffirm my confidence in our ability to stimulate the economy when needed. That said, so far the effects of our policy accommodation are really yet to show up in a material way in other wages or prices, which remain muted. This is something that Governor Clarida pointed out.

Growth in average hourly earnings continues to come in just around 3 percent, and it has been doing that if you smooth through the month-to-month fluctuations. And this is largely in

line with existing rates of productivity growth and inflation, but it is still—and this is the important part—a downside surprise, in view of the length of the expansion and the historically low unemployment rate. So, to my mind, the question remains, why aren't wages growing faster? If we simply did a spider chart that showed this time in an expansion and the unemployment rate as low as we estimate it to be relative to the natural rate, we would see nominal wages rising much more rapidly than trend productivity growth plus 2 percent. So why aren't they rising faster?

As many around the table have noted, a key reason could be that the labor market isn't as tight as we think. And, simply said, that would mean that the historically low unemployment rate that we see today does not mean that unemployment is low in today's economic environment—that we are simply not comparing apples to apples. To do this type of apples-to-apples comparison and make sure that we can smooth through these periods of history, Federal Reserve Bank of San Francisco researchers used detailed microdata on labor market flows. And these are movements from one labor market state—say, employment—to another labor market state—say, unemployment. So they can follow people along and compute these flow rates, and they do that to track the level of frictional unemployment in the United States, the churning that has gone on between these states since the mid-1970s. Frictional unemployment is a really useful gauge of labor market tightness, because it captures both the number of people looking for work—people queuing up to find work—and the time it takes for them to find jobs. So you get both things: the number and the duration of their search.

Their analysis that they do with this micro data documents a near-continuous decline in frictional unemployment since the early 2000s. This is a finding that's very consistent with those of other researchers who have done similar things. But the novelty of their analysis is that they

go on to show that the lion's share of this declining frictional unemployment is due to reduced numbers of people flowing into unemployment, either from employment—people losing their jobs and going back into unemployment and then having to find another one—or coming in from out of the labor force and having to first queue up in the unemployment space before they find a job. Both things are down. So there are just fewer people in this pool. This change appears to be an outgrowth, if you dig into it even further, of both demographics and changes in behavior. Let me start with demographics.

On the demographic side, it is actually not surprising that this would happen. Employment tenure—the length of time you stay employed without having to go in search again—rises with age. So an aging population is going to naturally extend the life of job matches or employment duration, and it just reduces the number of people in our society leaving employment, going to unemployment, and then coming back in. So that's a natural outgrowth of the fact of an aging population.

But the important part of this is that the behavior of individuals also seems to have changed. This you can document by looking at workers of all ages—not just the older workers—and what you find is, workers of all ages are entering unemployment less frequently than they used to. It's reducing the churn across the labor market states and reducing the amount of frictional employment. Now, there are a number of reasons that this could be going on. It could be better recruiting practices—it could be that employers are actually just better at finding good matches. It could be that we have a lot more information available to workers who can now see if the employer is right for them—you think of Glassdoor.com and other things that they can use. And you also have new compensation schemes that have arisen that try to reward tenure, as employers are trying to get retention up when it's so hard to attract new workers.

Whatever the reason, the data show that employment matches have become more durable over the past two decades, and this is resulting in the structural decline in frictional employment that directly translates into a structural decline in  $u^*$ .

Importantly, if you think about—you know, is this just a U.S. phenomenon? I always think it's useful to look at other countries. The United Kingdom has the same phenomenon. There has been a recently adopted terminology that they are using. It is called the “sticky millennials pattern”—that millennials are, just as a group, as a cohort, more likely to have longer employment durations than their predecessors, less churn.

This bears further watching, of course, but it really does put downward pressure on our concept of  $u^*$ . Overall, it reinforces my view that the unemployment rate is not as low as it seems when we simply compare it with history, and that we can sustain, more likely, a historically low unemployment rate without putting unwanted upward pressure on inflation. And this is in line with recent Board staff analysis that Bill Wascher mentioned in his briefing earlier. That analysis showed that the unemployment rate could go as low as 3.2 percent before we start seeing sufficient upward pressure on inflation to return it to target.

But, importantly—and I want to conclude with this because of something President Bullard asked—this is not just an issue of the inflation part of our mandate. It is also part of the full-employment part of our mandate. If structural factors are pushing down the natural rate of unemployment, then we stop short of our goal if we hang on to history as our guide. And it has—you asked, President Bullard, “Can those gaps converge?” Five years ago, 10 years ago, the labor literature said that the structural gap between, say, black unemployment rates and white unemployment rates was persistent, and almost all of it was due to discrimination. But what we found is, in a hot labor market, a strong labor market, these gaps can have material narrowing.

So I think this is not just relevant for the inflation part of our mandate, it's the employment part of our mandate as well.

So the bottom line, for me, is that the divine coincidence of being able to use one policy to achieve both our price-stability and our full-employment goals is still operative. And our current stance of policy should push us forward in achieving both of these objectives. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. Reports from business contacts in the Fourth District indicate that conditions continued to improve in recent weeks, with economic activity expanding at a modest pace. Most contacts expect real GDP growth to be at its trend rate this year. There is little concern about a recession in the near term. They seem to have adapted to uncertainties and risks and are moving forward with expenditures and investment. Several contacts referred to this as “fear fatigue.” They have been numbed by the changing litany of risks and have chosen to move forward with their lives and their businesses.

The Federal Reserve Bank of Cleveland staff’s diffusion index of business conditions edged up again in January. At 24, the reading is significantly higher than levels seen last summer. Manufacturing is stabilizing, but several firms reported weak growth in China and Europe as holding back demand. And because of the tariffs, some Chinese firms are opting to buy domestically rather than from U.S. firms. Manufacturers with ties to the aviation industry are concerned about additional delays in the production of the Boeing 737 Max, but some have been able to shift production into components for Airbus planes. And recent increases in defense-related work are also helping to mitigate the negative effects from Boeing.

District labor market conditions remain strong. The District's unemployment rate was 4.3 percent in December. This is up from the 4 percent trough seen last summer but is still well below the Federal Reserve Bank of Cleveland staff's estimate of its long-run normal level. Year-over-year growth in payroll employment in the District was little changed in December at 0.4 percent, a pace about equal to the Federal Reserve Bank of Cleveland staff's estimate of its longer-run trend. District contacts view the labor market as tight. Many contacts continue to report that it's difficult to find the employees they need. A banking contact noted that conversations with commercial clients are dominated by the effects of the tight labor market, with many clients noting that they would grow more if they could attract and retain the employees they need. Nonetheless, we are not seeing broad wage pressures. According to District contacts, annual wage increases remain around 3 percent, with higher increases for those jobs for the bottom of the wage distribution. Price pressures at District firms remain moderate.

With regard to the national economy, incoming information suggests little change to the outlook. In my view, the most likely outcome over the forecast horizon is that output growth will be near its trend rate of 2 percent; that labor markets will remain strong, with some slowing of employment growth toward trend and the unemployment rate below 4 percent; and that inflation will gradually move to 2 percent as the expansion continues. The mix continues to be of strong consumer spending and weak investment.

Consumer spending softened a bit in the fourth quarter. But solid fundamentals, including the strong labor market, high levels of consumer confidence, and healthy household balance sheets, should buoy consumer spending in the period ahead. Housing activity has begun to pick up, reflecting lower mortgage rates. Business investment, manufacturing, and exports remain soft.

On the positive side, the recent phase-one trade deal with China has reduced some uncertainty. The direct effect is likely to be small, but the reduction of uncertainty may be a positive for business spending. We will have to wait and see. Offsetting the positive news on trade are the continuing problems of Boeing. The economy can continue expanding at its trend rate, so long as consumer spending remains healthy. But this low level of investment is troubling for the economy's longer-run growth potential.

The labor market remains strong. Payroll gains averaged over 180,000 over the last three months of last year and just over 175,000 per month in 2019. The upcoming benchmark revisions will lower these numbers, but even so, job growth will be well above trend. The unemployment rate stood at 3½ percent in December, down 40 basis points from its year-ago level. And the broader U-6 measure fell to 6.7 percent, its lowest level since the start of the series in January 1994.

Despite demographic forces putting downward pressure on the overall rate of labor force participation, the participation rate has been basically flat since mid-2015. But the prime-age participation rate has risen to its highest level over the expansion. The rate for women has risen about 2 percentage points over the past two years, while the rate for men has edged up. So the strength in the labor market has drawn more people into the labor force, but wage growth hasn't picked up very much, even though firms continue to report difficulty in finding qualified workers.

Some of our business contacts tell us that they don't believe raising wages will attract qualified workers and are not willing to go that route to fill positions. It really remains to be seen how much longer that situation can last. The behavior of the labor market over the expansion underscores the fact that the natural rate of unemployment changes over time, and that, even

using the best available techniques, there is considerable uncertainty associated with estimates of this rate. I am very open to the possibility that the natural rate of unemployment is lower than the 4½ percent estimate that I have in my December SEP for the longer-run unemployment rate, and I think the work that the Board staff is doing and the Federal Reserve Bank of San Francisco staff is doing is helpful in helping us resolve some of the puzzling aspects in the labor market.

There has been little change in the inflation outlook over the past few meetings. Core and headline inflation rates have been stable at levels below 2 percent, and higher levels are the median PCE inflation measure published by the Federal Reserve Bank of Cleveland’s Center for Inflation Research and the Federal Reserve Bank of Dallas’ trimmed-mean PCE inflation rate. Inflation expectations have been stable. The most recent readings of the survey-based measures from the University of Michigan and Federal Reserve Bank of New York are little changed from their previous readings, and the Federal Reserve Bank of Cleveland’s five-year, five-year-forward measure of inflation expectations, which combines market and survey data, stayed at 1.8 percent in January. The forecast suggests that inflation will move to our 2 percent goal, but that this will be a gradual return.

Now, some of the risks that we have been discussing over the past few meetings have eased a bit, but new risks have emerged. The United Kingdom is moving toward a more orderly Brexit, and the United States and China signed the phase-one trade deal. But geopolitical tensions in the Middle East and the spread of the coronavirus have the potential to dampen U.S. growth.

The wealth effect arising from elevated prices in the stock market and other asset markets is a positive for growth; however, the potential for a significant decline in equity prices poses a risk to the outlook. Bank capital targets are falling, and the planned transition to our steady-state

level of reserves has some potential for creating a taper tantrum if it is viewed as a policy tightening, which would be a catalyst for a repricing in the stock market. I hope at some point soon we'll return to a discussion of the possibility of setting up a standing repo facility, which might serve as an automatic backstop for providing adequate liquidity and avoiding some of the problems we saw in the short-term funding markets in September.

In summary, despite the risks, overall, I think the economy is in a good place, and monetary policy seems well calibrated to achieving our dual-mandate goals. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. Federal Reserve Bank of Dallas economists expect 2020 real GDP growth to be approximately 2½ percent. Our expectation is that global growth will be sluggish but will stabilize consistent with the Board staff analysis. We expect manufacturing again to be sluggish but also stabilize, and we think business fixed investment should remain, again, sluggish but stabilized from 2019 levels. In this forecast, it is assumed that the first-half-2020 Boeing-related weakness will likely start to rebound in the second half of the year, although we may well not get a full recovery from the first half to the second half, depending on the timing.

Contacts tell us that the phase-one deal with China plus USMCA ratification on the one hand won't substantially affect their businesses, but they also note that they are much better off than under the alternative, which would have been continued escalation of trade tensions. And this should help contribute to some increase in confidence and stability. This, combined with a strong consumer, should lead to solid growth in 2020. And I'm also forecasting the Chiefs to win the Super Bowl. [Laughter] Just thought I'd slip that in.

We expect the unemployment rate to drift lower during the year, and we expect a gradual move of the inflation rate toward 2 percent. This is indicated by the Federal Reserve Bank of Dallas trimmed-mean measure, which is currently running at 2 percent. We note that estimates of recession probabilities have diminished, and this is reflected in our discussions with contacts and also in our Federal Reserve Bank of Dallas surveys—the index of uncertainty in our most recent survey declined, and trade-policy stabilization was cited most frequently as the reason. We do expect business fixed investment in the energy sector, though, to decline by as much as 10 to 15 percent in 2020. This is driven by a number of factors—number one of which is capital discipline imposed by capital providers.

We expect crude oil production growth, therefore, to be less than 400,000 barrels a day in 2020. And while this won't supply the world, we expect growth in supply provided by the rest of the world to at least meet or exceed global consumption growth. As a consequence, we expect oil prices to remain in the \$50 to \$60 range. In this scenario, we expect—and we're already starting to see it—substantial job cuts in the oil field service sector and across the sector. A number of companies have already announced restructuring charges and layoffs, and we expect that to continue.

If this all wasn't enough, we've also run estimates about the effects of the coronavirus, mainly based on the SARS experience, and our estimates—and checking with others—suggest that, depending on how this unfolds, it could negatively affect global oil consumption by as much as 250,000 to 500,000 barrels a day. We think this scenario is unlikely, but you are already seeing some effect on prices. They're down about 9, 10 percent as of yesterday, so that helps explain why. People are worried about lower demand, particularly from China and emerging markets.

On the other hand, we would note that because its net imports of crude oil and petroleum products are close to zero, the U.S. economy is less vulnerable to oil price increases than in the past. Further, due to capital discipline pressure from capital providers, it is our view and those of our contacts that it would take a significant rise in oil prices, more than we've seen in the past, in order to spur growth in rig count and material increases in net drilling activity.

Looser financial conditions including tightened credit spreads should provide a tailwind to 2020 growth at least in the first half of this year. The biggest threat to this whole scenario would be some event that would create a tightening in financial conditions. This could come from one or more sizable triple-B debt downgrades, potentially in the energy sector. Other threats could be unexpected escalation in trade tensions or some geopolitical event. Obviously, the coronavirus would have implications, if it spreads. But absent all of this, our base case is that 2020 should be a year of solid growth.

Our contacts continue to report wage pressure at the low end of the wage scale and for skilled workers. On the other hand, as we have said in previous meetings, contacts report ample supply of workers and only modest wage pressure in the middle—and I was interested to listen to President Daly. What we are hearing more and more from contacts is that the stability of the employer, job sustainability, and promotion opportunities are major factors in shaping people's decisions to stay where they are currently—particularly in a world in which technology and technology-enabled disruption is creating more vulnerabilities for workers and companies. If you believe you work for a company in which your job is secure, that carries a lot of weight today and is affecting behavior, we think, of workers, particularly those in the middle.

Our contacts continue to report challenges in pricing power and maintaining their margins. And we started asking a special question a few meetings ago: As of our previous

survey, 40 percent of our survey respondents report their margins are declining. Interesting. Contacts continue to find ways to integrate technology into their businesses to cut costs, reduce head count, and improve their customer service and their pricing. But, increasingly, they also discussed the need for greater scale in order to afford these investments. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. Overall, my contacts' description of economic activity was a bit softer than in December, but the change is not large and could reflect the fact that my call list is overweighted toward manufacturing these days. Demand in that sector is soft, and this year it is expected to be flat to down modestly compared with 2019.

The passage of the USMCA and the signing of phase one of the trade deal with China were not seen as game-changers. Uncertainty surrounding trade policy and foreign growth continues to weigh on supply chain decisions and cap-ex. The auto sector is looking for 2020 sales to be down a touch in the United States but is still running at about their trend pace—not a cause for concern. There's more unease about weaker vehicle demand in China, which is an important market for many U.S. parts suppliers and original equipment manufacturers.

Most of my contacts' reports about labor markets were little changed from recent rounds. I continue to hear about firms having a tough time finding and keeping workers, and that they are responding with wage increases—although I suppose those aren't supposed to be working, from what we've heard from contacts, right?—and training programs to move workers up the job ladder.

In terms of cost pressures more broadly, there was some scattered talk of labor costs weighing on construction activity, some transitory increases in steel prices as steel service

centers restock, and higher drug prices. These costs are likely being absorbed in margins, other than some modest increases in health-care prices. So, overall, nothing here hints at building inflationary pressures.

We heard some interesting commentary this round from our financial market contacts. At least the first time I heard it, I thought it was interesting—now these things have already been mentioned many times. At any rate, with regard to equity prices, everyone agreed that there had been positive news about fundamentals. Specifically, there's been some improvement in growth prospects here and abroad, and tail risks have been attenuated for trade and other global developments.

In addition, with long-term interest rates remaining low, a number of contacts noted that dividend yields looked attractive relative to bonds. Some traders seemed to be taking on board the likelihood that long-term bond rates will likely be low for a long time: Three is the new four. There's perhaps a sign that markets are adapting to a lower- $r^*$  world. But other contacts disagreed, thinking instead that markets' outlooks for dividends were too rosy for a low-trend-growth economy.

We also heard commentary that markets are on vacation from uncertainty, and that Federal Reserve behavior might be influencing this attitude. Apparently, some traders think the Federal Reserve is committed to stamping out market volatility. It is distressing to hear them cite our response to the volatility in repo markets as evidence for this theory—though that it's distressing to hear them say this doesn't make them right. Similarly, when looking ahead, Wall Street economists appear to be coming up with reasonable estimates for the evolution of the Federal Reserve's balance sheet, while some traders think those numbers will be much larger. They also expect the Federal Reserve will remain active in repo to avoid potential volatility in

money markets. And some traders apparently are linking our balance sheet adjustments to asset valuations. We heard about algorithmic trading programs that bet on the empirical correlation between the size of the balance sheet and risky asset prices.

My “takeaway” from these reports is that our public commentary needs to push back harder against these characterizations of the Federal Reserve as a facilitator of exuberance. And I think that’s consistent with the commentary earlier today. I thought that Lorie’s chart 21 of the financial market development charts was very good at laying out the expected evolution of our balance sheet. And, as the Chair and others have mentioned, the increase in the SOMA balance sheet has already taken place: From here on out, it should be flat. So I think those messages will be very important for all of us to take on board and communicate. I know we’ve already said it, but we need to continue explaining clearly and loudly how our plans for the balance sheet and open market operations are aimed at confidently controlling the federal funds rate and supporting the policy transmission process. As was mentioned, keeping the funds rate near the IOER rate will be important for reminding everybody that this is monetary policy—this is what we do.

I’ll now turn to the national outlook. My forecast for growth is broadly in line with that in the Tealbook. We, too, have boosted our projection a bit in light of the sustained strength in underlying fundamentals and more accommodative financial conditions. We’ve also adjusted our path for the unemployment rate down one-tenth or two over the projection period.

Our inflation outlook has not changed materially. As you know, I think some overshooting of 2 percent inflation will be necessary in order to boost inflation expectations to 2 percent and thus sustainably deliver on our inflation goal. This intentional overshooting is clearly consistent with our symmetric 2 percent objective, in my opinion. My forecast has core inflation reaching target in 2021 and overshooting by two-tenths in 2022. To get there, I assume

a federal funds rate path in line with the median SEP. I also assume that we communicate a desire to get inflation moving up with enough momentum to ensure inflation expectations increase and center on 2 percent.

Now, I just want to say one word. I didn't get a chance to compare notes with Vice Chair Williams on his thinking for the Super Bowl. I kind of tried to ask him, but he cagily didn't tell me. So I just wanted to potentially anticipate a different viewpoint. It does seem that one possibility is, 50 years ago, apparently, when Kansas City won the Super Bowl in 1970, that was about the time when inflation started picking up, and so perhaps if Kansas City wins [laughter], we can meet our inflation objective. We can always hope. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I see an economy continuing to perform above trend. Consumer fundamentals remain sound. The labor market is healthy. Lending markets are open. Savings are strong. Equity markets are near all-time highs. Confidence remains elevated. Residential investment is rising. My District's consumer contacts report momentum continuing through the holiday and into the first quarter. We spent most of last year talking about headwinds, but, with fingers crossed, they seem to be abating. Trade deals have closed. The path to Brexit seems clearer. The yield curve has steepened.

In the Richmond-Atlanta-Duke CFO survey, economic uncertainty as a pressing concern declined significantly in the last quarter. That makes me more hopeful we will see some rebound in business fixed investment. Sentiment is improving. Valuations and earnings remain strong. The investment indicators in the recent Federal Reserve Bank of Richmond manufacturing and services surveys rebounded notably this month, as did the Duke University survey's expectations on capital spending. But with all that said, my contacts still sound cautious. As I parse their

comments, I believe we will need sustained stability, without European trade disputes and extended conversations about coronaviruses, to unlock a meaningful upturn.

Wage growth is flat in December and up 2.9 percent for 2019. We often point to muted wage growth as an indicator of slack in the labor market. In contrast, I certainly remember the sizable pay increases my previous employer gave our staff in the tight labor markets of 1999 and 2007. But I wonder if our debate on this topic properly accounts for how today is different. I may be looking at the data differently than President Daly, and I have plans to reconcile our views in the hotel lobby tonight. [Laughter]

In rough numbers, trend productivity growth was 1½ percentage points higher in 1999 and 1 point higher in 2007 than it is today. Inflation was 1 full point higher in 2007. As a consequence, the similar level of tightness supported higher wage growth in those years than it does now. In my mind, 3 percent wage increases today are consistent with 4½ to 5 percent increases then. All three represent really tight labor markets, and that's how I see today's labor market.

More broadly, I remain patient on inflation. Our rate cuts will take some time to work into the economy. Rounding over last year's weak first-quarter numbers will help. I would note that we had sustained less than 2 percent inflation with low unemployment in the mid-1960s and the late 1990s, and, eventually, inflation moved up. In the spirit of optimism, I would note that not one of our Tealbook scenarios had more than 2 percent inflation in any year between now and 2025. As Super Bowl week is always a good time for prop bets, I'm happy to take the upside there and look forward to settling when those transcripts are published. [Laughter]

Thank you.

CHAIR POWELL. Governor Brainard.

MS. BRAINARD. Thank you. I'm going to comment first on the balance sheet, and I want to start by congratulating our Federal Reserve Bank of New York colleagues for managing through the year-end seamlessly. The approach we adopted in October, combining bill purchases at a pace of about \$60 billion per month with term and overnight repurchases, has served to achieve the critical objective of our ample-reserves regime, which is to maintain effective control of the federal funds rate and smooth transmission to other short-term funding markets. In coming months, we will gradually reduce the large amount of term and overnight repurchase operations, and, in steady state, such operations should become the rare exception and not the norm.

As Lorie Logan and President Kaplan have noted, there is a narrative suggesting that our bill purchases have been positive for prices of risk assets. I don't think there is much value in engaging in a debate about the boundaries between the stance of monetary policy and the technical implementation of our operating framework. If equity market traders are convinced that the correlation is meaningful, that belief is likely is having some effect. Neither does it argue for altering our policy. Instead, we should indicate that the process of reserve restoration is working as intended and provide further clarity on our plans. We should keep in mind that the necessary communications are likely to be very market sensitive. On the one hand, we want to be clear we'll carry through with our plan, which will require continued bill purchases through the first half of this year. On the other hand, we want to communicate the fact that the augmentation of reserves will run its course by the middle of the year—implying that, first, repurchase operations and, ultimately, Treasury bill purchases will slow to a significantly smaller pace.

It'll be important, starting in the minutes and continuing in future meetings, to clarify the principles underlying our assessment of what constitutes ample reserves in the steady state when we transition to organic balance sheet growth. The steady-state supply of reserves will need to include a time-varying cushion that's sufficient to accommodate foreseeable large swings in nonreserve liabilities, without breaching a target steady-state baseline. The fluctuation in the buffer should ensure reserves will be restored to meet foreseeable peak levels of demand, without maintaining unnecessarily high levels of reserves on average.

And I think that is shown, at least in the short term, in figure 14. The buildup in reserves—I think it's in gray and blue in that figure—will soon start to reach the level that will allow term and then overnight operations to be reduced. And then the anticipated decline in the level of reserves associated with tax payments in April will require some additional repurchase operations to restore the necessary level of reserves in advance of the June tax dates. But it will subsequently be possible to slow our bill purchases.

As we reach steady state, we would expect a baseline level of reserves to grow at some trend level, perhaps in line with GDP or other liabilities, and periodically rebuild that to ensure that reserves are restored to meet the anticipated peak levels at—I think Lorie has a six-month horizon. Once reserves have been restored to the projected level of demand, I favor starting to push up the minimum bid rate on the overnight repo operations to widen the spread over the IOER rate. That will ultimately allow us to operate the overnight repos as a “ceiling” tool, and it will ensure that the reduction in repurchase operations is calibrated to market demand as the price rises. I think that will also help the Desk assess the likely level of usage of a standing repo facility, if we decide to go in that direction, and the accuracy of the estimated baseline level of demand.

I don't favor starting to push up the minimum bid rate early in this process, as that might muddy the message that we're simply restoring the necessary level of ample reserves, especially because we expect repurchases to be necessary to meet projected demand through the April tax date. Rather, I support raising the IOER rate and the ON RRP rate 5 basis points at this meeting, in order to keep rates closer to the center of our range, as Patricia suggested.

Let me turn very briefly to the outlook. Developments since we met in December have been broadly positive. Incoming data suggest the U.S. economy remains robust, bolstered by confident consumers, a strong labor market, and financial conditions that are notably accommodative. The balance of risks has improved somewhat, with the commitments in the China trade deal introducing some upside risk. And although foreign growth remains weak, there are some signs of a turnaround. By contrast, inflation remains below target.

In terms of the labor market, it has already been noted that payrolls continue at a pace that is well above that needed to provide jobs for new entrants. The unemployment rate remained at a 50-year low, and the employment to population (EPOP) ratio for prime-age adults has now surpassed its pre-crisis peak by just a little. Although wages continue to grow at the same moderate pace, initial claims for unemployment insurance remain at very low levels—which is reassuring.

Financial conditions have eased further and are now notably accommodative by historical standards, according to just about every index that I consult. Spending indicators also point to a robust underlying pace of increase in economic activity, despite the slowdown in consumer spending in the fourth quarter. Against this backdrop, inflation indicators have come in about as expected but at a disappointing rate of 1.6 percent. Market-based measures of inflation compensation and survey-based measures of inflation expectations are little changed, overall.

On the international front, foreign growth weakened further in the fourth quarter, but the staff's assessments and my contacts expect a pickup this year based on recent signs of stabilization, diminished trade tensions, abatement of political unrest in some areas, and easy financial conditions broadly. A variety of indicators, as Joe showed, suggest that the tech cycle may have begun a turnaround. Manufacturing PMIs and a variety of large economies also appear to be making an improvement. And the IMF, in its update of the World Economic Outlook (WEO), has recently circulated estimates suggesting that global monetary stimulus will increase the level of global real GDP by 1 percent by the end of 2020.

As others have noted, the risk picture is mixed. The outbreak of the Wuhan coronavirus is already having a heartbreakingly human cost, and this could grow. It's hard to estimate the potential economic effects. As President Kaplan noted, the SARS outbreak was assessed to have had significant but short-lived economic effects on China and economies in its region, but only a small effect on the U.S. economy. On the opposite side of the risk ledger, upside risks have appeared. First and perhaps most notably, the agreement by China to increase imports from the United States by \$200 billion, if implemented faithfully, could imply a  $\frac{3}{4}$  percentage point boost to our GDP. Of course, the actual amount of purchases could come in somewhat below that. Over the past few months we have taken significant action to buffer the economy, and it may take some time for us to see the full effect of this shift. I look forward to discussing the stance of policy tomorrow. Thank you.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. Eighth District economic conditions have improved somewhat during the intermeeting period. According to District business contacts, reports on consumer spending were generally positive. District banking contacts remain

cautiously optimistic. Activity in the manufacturing sector declined, but there are signs of stabilization. Labor market conditions are generally unchanged, and the District unemployment rate remains at 3.6 percent. We continue to hear many anecdotes about firms searching for ways to attract marginally-attached workers into the labor force.

Nationally, I see some potential for the U.S. economy to achieve a soft landing during 2020, with both growth and inflation ending the year at 2 percent. Last year's policy rate cuts will take time to have a full effect, and we can wait and see how the economy develops during the first half of 2020, provided we are not forced to react to an important shock. One such shock could be the developing situation in Wuhan, China, which has caused global financial markets to price 10-year U.S. Treasury securities to yield below the current level of the Committee's policy rate in recent days. A sustained return to an inverted yield curve would be an unwelcome start to 2020, in my view.

However, my staff looked at past large-scale viral outbreaks, including Ebola, H1N1, H7H9, and SARS, as they appeared to affect 10-year Treasury yields in past events. A straight read of these data might lead us to expect a 20 to 60 basis point decline from the key date of the outbreak to a point about 21 days later. At that point, provided that it's clear that the outbreak is under control, we may see a rather sharp rebound in yields to previous levels. There are far too little data to be sure of anything in this area, but that's the experience we have, and I will be looking for this development in the days ahead.

I see global trade as possibly being less of an issue for the United States during 2020, for two reasons. First, this will be a period of implementation of recent trade agreements with China, Mexico, and Canada. It will take time to implement those agreements, and it's uncertain how that implementation process will proceed. Second, adjustments to higher levels of trade

policy uncertainty are being made in the corporate sector. I still expect there to be high trade policy uncertainty. The staff charts that we just saw a little bit ago bore this out. But I think trade policy uncertainty will not have the same “shock value” in 2020 that it did in 2019, because it’s already widely anticipated. So, again, I think the corporate sector is making adjustments to cope with a world with higher trade policy uncertainty than what was the norm in the postwar era.

I wanted to close with just one comment on equity prices in 2019, because several people have brought this up. I guess my main point is that, if you just look at the year in equity prices, it looks like a 30 percent gain, which certainly sounds like an outsized gain. But we did have a large drop in equity valuations during the fourth quarter of 2018—these actually bottomed right about December 31, 2018. So that’s making the year-to-year comparison look extremely large. The previous high was approximately October 1, 2018. So I think you have to take the big picture into account when you’re looking at equity markets. Average gains over the past two years are about 9.5 percent, depending on the index that you use. That’s strong, but more manageable than 30 percent.

I think the larger question is, what’s the right value of the U.S. corporate sector, considering corporate tax reform, which alone might have revalued the U.S. corporate sector by 10 percent; the deregulatory agenda, which probably increased profitability of these firms; and world-leading technological innovation, which, if anything, is widening for the United States, not narrowing?

I do agree with President Kaplan that the equity-valuation-to-GDP ratio might be a better metric. It is at a historical high—I guess around 190 percent. I think we should be cognizant of risks built on high valuations. I think we should be looking for market discipline, especially on

these privately-held entities that are trying to come to market. How much market discipline is there really with regard to those kinds of valuations? My main concern is that market discipline may be missing in some parts of the asset markets, and that might have ramifications elsewhere if we get into a downturn.

And, finally, I do support President Mester in suggesting that we should be doing more to get the standing repo facility going. I'll talk more about that tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. As usual, I have little disagreement with the staff forecast. The most likely economic outcome is for the economy to grow at or around its near-term trend and for inflation to return to target in the not-too-distant future. I also think that some downside risks have abated of late. But that view could be reversed in 128 characters or less. For now, trade policy, while still concerning, is less so.

One area that my staff has been monitoring for several years now is the state of the consumer and the state of consumer finance. While the consumer remains a strong suit in the economy—one might argue, *the* strong suit in the economy—a few potentially-concerning signals are emerging. In that regard, in the past four years we have seen some modest deterioration in the performance of credit card loans. Specifically, since 2016, there has been an increase in subprime borrowing, and, currently, one-eighth of borrowers are making only minimum payments. As of October 2019, that is the highest fraction recorded since 2012.

Also, over the past year to October, there was a sharp increase in the number of accounts carrying a credit card balance, and the number of accounts 90 days and 120 days delinquent has increased over the past few years. This deterioration is being met, understandably, by more caution on the part of lenders. Surveys indicate that lenders are recalibrating their lending

standards by cutting back on subprime originations and decreasing the number of credit lines receiving line increases. This is reassuring in that the deterioration in credit card loans appears well contained at the moment. But we intend to continue monitoring this situation.

In the Third District, growth continues to be modest, and employment growth has picked up noticeably. After a slow summer, the pace of hiring has accelerated, and employment growth rates have almost converged to those of the nation. That is an unusually good performance, as the District normally underperforms the nation. We are also witnessing an increase in labor force participation. The residential real estate market is also improving, with most of the gains being in the multifamily sector. Additionally, auto sales have been brisk, and our service-sector survey improved in January.

Regarding regional manufacturing, our regional index bounced back significantly in January, and respondents are expecting modest growth in 2020. Nearly twice as many firms see a modest increase in 2020, as opposed to a decline in activity. One of our contacts recently returned from a small business conference for which about 150 companies were in attendance. He indicated that most companies intend to expand both capital expenditures and hiring in 2020, and they anticipate that this year will be better than 2019. As I've reported in the past, there is little sign of any price pressures, as others have said, but we are hearing renewed concerns of rising health-care costs. In one case, one of our contacts reported an increase of 50 percent in insurance premiums this year. That's an outsized level of increase, but it is another concerning trend we're starting to pick up from anecdotes.

To summarize: The District's economy is growing modestly, with growth driven largely by the consumer. The most recent data indicate that the economy will continue to expand at a trend-like pace and that inflation will most likely return to target. Both the economy and policy

seem to be in a reasonably good place. Lastly, with respect to a question the Chair asked earlier about the Desk report, I am comfortable with the plan that was presented therein. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chair. Overall, my assessment of the economy has not changed significantly since our previous meeting. The U.S. economy continues to be in a good place, to steal Governor Clarida's words.

The labor market is still remarkably strong and the pace of job creation has remained healthy, with the unemployment rate having moved down further in the past few months. I'm especially pleased to see that labor force participation has strengthened again, defying expectations that it would begin to edge down toward its long-run trend. As long as job openings remain near the current high levels and layoffs stay low, I expect that labor force participation will remain elevated. In fact, I think it's possible that we could see more strengthening in the participation rate this year, as the ongoing strength in the economy encourages some individuals to reenter the workforce and others to delay retirement.

Fourth-quarter data suggest that consumer spending growth has stepped down. However, the soft pace in recent months should be viewed in the context of the unusually rapid rates of spending growth seen in the second and third quarters of 2019. And, averaging over last year's quarterly data, the staff now estimates that consumption growth was around 2½ percent, a solid increase similar to 2018. In looking ahead, I expect that ongoing gains in labor income and wealth will lead to moderate consumer spending growth again this year. Consumer confidence surveys have remained very upbeat, a pattern that supports a favorable spending outlook over the next few months.

I'm also pleased to see several indications that the housing sector turned up again after a slump in 2018 and in the first half of 2019. Both new and existing home sales have moved up strongly in recent quarters, and traffic of prospective buyers, new homes for sale, and expected sales within the next six months have approached all-time highs. Permits for new residential construction, which were weak early last year, recently moved up to highs for this expansion. In all, national indicators suggest a positive growth outlook for the housing sector over the next several quarters. Very low mortgage rates have undoubtedly played a role in the improvement of housing activity, and I should note here that I'm optimistic about this sector, despite some recent reports indicating a possible slowing.

Since our previous meeting, data pertaining to the domestic business sector have remained subdued. However, positive recent developments in trade agreements will likely ease the economic headwinds faced by domestic producers, especially those heavily reliant on export demand. In addition, the indicators of economic activity abroad have brightened somewhat in recent weeks, raising expectations of a recovery in export demand this year. Of course, this will depend upon developments abroad, including in trade policy and other global factors, among them public health concerns.

Trade uncertainty in the agricultural sector has been greatly reduced with the signing of the phase-one agreement with China and the passage of the USMCA by the Congress, and further good news is that aggregate farm income, bolstered by USDA farm payments, increased last year. As a result, loan demand decreased in late 2019, with many producers able to continue operations without acquiring more debt. One further USDA farm payment has been announced for 2020. But even with this support—as President George noted earlier—financial conditions will likely remain challenging for many in the industry. In recognition of this, at a recent

roundtable, one large farm equipment manufacturer noted plans to restructure their approach to consumer purchase and lease financing for high-dollar machines, citing persistently lower long-term projections of farm income and, specifically, cash flows affecting equipment-repayment ability.

I now turn back to the broader economy. My baseline outlook is similar to that of the December meeting. I still expect real GDP growth to be greater than 2 percent and the unemployment rate to move a little lower. I am optimistic that the resolution of some trade-related uncertainties will support this outlook. With regard to the price stability side of our mandate, both wage and price inflation developments still warrant careful monitoring. In my view, the strength in the labor market is expected to continue, and wages will also continue to grow, with inflation moving closer to our 2 percent target later this year.

In all, I remain optimistic that, as my “flag-side” colleagues have already noted and made very clear, the Chiefs will win the Super Bowl, and that, with the support of the additional monetary policy stimulus provided by the Committee last year and the easing in downside risk from 2019, the economy is well positioned to continue expanding at a moderate pace in 2020.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. Sentiment of Sixth District contacts and directors is largely unchanged from December. Most saw 2019 as a strong year for growth, and they expect growth in 2020 to be on par with, or only slightly less than, the 2019 performance. Most of these firms did not report any significant concerns over the pace of consumer spending for the period ahead. Our retailers suggested the holiday season was fairly strong but not strong enough

to spur them to increase the pace of hiring, bolster inventories further, or change their pricing plans.

Much like in the past several cycles, my contacts continue to view labor market conditions as tight. Firms plan to add to head counts in 2020, although many expect to add fewer workers than in 2019 and instead invest in technology to enhance productivity and temper the need for additional staff to support growth. Attracting and retaining qualified, and quality, talent remain challenges that employers continue to address, largely through creative hiring practices and adjustments in the nonwage portions of compensation packages. And, as with the overall wage picture, we're picking up significant wage pressures only in select industries.

Regarding the risks to the outlook, there were a few interesting developments to note. On the positive side, a dominant theme at this time last year was an elevated concern about downside risks, with many positioning for the possibility of an outright downturn in the economy. Those concerns appear to have largely abated. On the other hand, we have not picked up any signals that would support an expectation of any significant pickup in economic activity. In particular, recent trade developments and easing of tensions are being met with a collective shrug among my directors and contacts. For most, this news served only to lower some of the downside risks but did not unleash any upside growth potential. I think the reasoning behind this asymmetry is interesting, so let me elaborate a bit.

First, the progress made so far is not viewed by my contacts as enough to eliminate all of the uncertainty surrounding the trade picture. It was noted, for example, that no sooner was progress toward a phase-one deal with China announced than potential disputes with Europe over digital taxes hit the headlines. In a real sense, for the majority of firms affected by tariffs and trade tensions, the uncertainty regarding trade remains squarely on the table.

Second, the initial agreements with China included only minor concessions on tariff rates on a relatively small tranche of goods. Domestic manufacturers are still affected by large tariffs on primary metals and other inputs.

Third, large structural adjustments in trade were already well under way for most firms, especially with regard to reconfiguring supply chains out of China. My contacts who are engaged in these adjustments tell me that the decision to move manufacturing suppliers away from China is permanent, and so costs will continue to be incurred. Moreover, as noted by President Evans, sentiment regarding the North American trade deal is being met with a similar blasé reaction by my contacts. One of my directors, who represents a large global auto manufacturer, noted that provisions of the USMCA will require a significant ramp-up in costs related to compliance—crowding out potential productivity-enhancing investment for his firm.

Last—and I suspect this topic will increasingly be top of mind for firms as the year progresses—is that uncertainty over the upcoming election cycle has replaced trade as the risk topic *du jour* around our board table. Many of my contacts are already highlighting this uncertainty as the main reason that they are not entertaining any significant expansionary plans that aren’t already in the works. So, at this point, I am not penciling in any significant rise in the trajectory for business fixed investment.

Let me now turn to the topic of inflation. Here, perhaps it’s appropriate that Groundhog Day is around the corner because I feel a little like Bill Murray’s character in that movie, as I will be reiterating the points I’ve been making for several meetings now. But I will risk being repetitive, and I’ll try to use different words and arguments so I can stay interesting. [Laughter] I think the core PCE inflation decomposition in the Board’s nonfinancial briefing, a version of which appears as exhibit 11 of the U.S. Outlook briefing material, is really informative. Setting

aside whether the anchor is at 1.8 percent or at 2 percent, I'll note a couple of interesting developments.

First, early in the expansion, it is easy to explain the shortfall in core PCE inflation with an abundance of resource slack. But, as the expansion unfolded, slack diminished and softness in import prices became the primary driver behind a softer-than-target trajectory. From 2015 through 2018, core PCE inflation—alongside various other underlying inflation measures—firmed up—as the Phillips curve might suggest that it should. And by 2018, 12-month core PCE inflation hit 2 percent. Last year, core PCE inflation was pulled down by unexplained residual factors. So part of the exercise for me is trying to figure out what to make of those residual factors.

Now, I'm struck by the fact that virtually every other underlying inflation metric we track or produce suggests that inflation has remained at least as firm as in 2018. The 12-month growth rate in the Federal Reserve Bank of Dallas's trimmed-mean PCE measure remained at 2 percent in 2019. The Federal Reserve Bank of Cleveland's trimmed mean CPI accelerated from 2.2 percent to 2.4 percent. The Federal Reserve Bank of San Francisco's cyclically sensitive core PCE inflation measure accelerated 40 basis points to 2.7 percent. And even the core CPI inched up one-tenth, to 2.3 percent. This suggests to me that those unexplained residual factors in the core PCE inflation decomposition are, in fact, idiosyncratic to that particular measure.

My point here is that a broad collection of underlying inflation measures show, if anything, a modest acceleration in the inflation trend in 2019. Yet much of the conversation last year was on how underlying inflation might be moving *away* from the target. That position holds core PCE inflation in somewhat rarified air, and I'm not sure that this is justified. In my view, we have been putting too much focus on what appear to be transitory movements in core

PCE inflation, rather than focusing on a broader set of underlying inflation statistics that, to me, are signaling we are well on track toward our objective.

I strongly support the sentiment expressed by many during the framework go-round this morning that we should acknowledge multiple measures of inflation, and I hope that the Committee seriously considers this. There remains, of course, the question of inflation expectations and whether they are plausibly anchored at 2 percent. I think they are, but I will save that part of my *Groundhog Day* presentation for next time. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. Let me just begin with an aside. I got so carried away with my panegyric to bank capital in the previous round that I omitted an important corollary—which is that, if you view bank capital as adequate, then it's important to look at the nonbank sector as opposed to rigid bank capital. That's what's important for financial stability. And, over the next two years, I intend to make that a significant focus of the FSB. At meetings in Basel two weeks ago, there was actually a material breakthrough against what had been institutional resistance to much discussion of that matter at the FSB, and I expect that the discussions of that will be more positive. The outlook for some outcome will be more positive over the next couple of years. So I just wanted to note that, because without having noted that, some around the table might have viewed my comments as excessively Alfred E. Neumanesque, which would fill me with grief.

Just so that I don't forget, the first thing that I would want to say is, I completely subscribe once again to everything that President Bostic just said about inflation, including the merits of looking at a number of inflation measures. And, apart from that, I would simply say, "What he said."

From listening to Bill Wascher's presentation, I think it's apparent that a significant portion of the staff's optimism is resting on the continued strong performance of the labor market. And the labor market is strong: sizable monthly job gains, near-record-low unemployment, a participation rate that continues to surprise to the north. But in areas beyond the labor market, some other indicators look less positive, although the staff projection or assessment appears not to have taken much signal from them.

The shortfall in private domestic final purchases (PDFP) is pretty steep, in part because consumption disappointed at the end of last year. Manufacturing still appears to be weak. Growth overseas looks fragile, even more so with what seems to be the growing reaction to the coronavirus outbreak—which people seem to be reacting to as if it were the Andromeda Strain. It's also hard to get excited about domestic growth that is boosted by an outsized decline in imports.

In markets, at least, there seems to be a lot of optimism regarding trade, and clearly—as Joe mentioned in his presentation—there have been positive developments, particularly in regard to U.S.–China relations. But for all the excitement about the China deal and China's promise to increase purchases of U.S. goods by \$200 billion, it's not clear how that commitment is going to be implemented or even if it would be positive for a fragile global economy, as higher exports from the United States to China are likely to result in lower exports from somewhere else to China. And then also, as I think I said before and as a number of people have commented around the table, the threat of a reescalation of trade tensions is a significant risk. This is, again, a view that's shared not only by participants around the table, but also by many market participants, as Lorie described.

In summary, I viewed myself as one of the most optimistic members of the Committee over a couple of years when it came to growth. And even so, the market's recent optimism—if you set aside the reaction to the coronavirus—makes me nervous. I do see some troubling signs in the data. I have doubts about how much the risks regarding trade have actually declined, and as a consequence, I'm comfortable with the current stance of policy. I'm comfortable with the wait-and-see positioning we've established for the future rate path. That said, I would note that, as I was born in San Francisco but was appointed to the Board from the 10th District, I have a conflict that would make it inappropriate to express a preference [laughter] or even a prediction about this weekend's outcome, but I think I can say appropriately that there is reason to believe that America will get a strong boost to sentiment on Sunday. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. Let me start with the most important matter. I stand with my colleagues on supporting the Chiefs. [Laughter]

I'll start with the local economy. Growth in the Ninth District is characterized as modest. The District economy broadly seems to mirror the national picture. More firms are reporting adding to their payroll than reducing their payroll. But initial unemployment claims are up in most of our states in my District year on year. Manufacturing was roughly stable in 2019, but survey respondents are more optimistic about 2020. Construction starts were strong toward the end of the year. This is very positive, and I think it was in large part a response to monetary policy. The agricultural sector continued to be under pressure, with low prices. And I agree with Governor Quarles—we'll see what the trade deal actually means for the agricultural sector. I think it's really unclear right now.

For the national economy, Q4’s GDP is looking stronger than we expected at the previous FOMC meeting, but this mostly reflects weak import growth. Domestic demand looks pretty weak—which is somewhat surprising, as there is still some fiscal and some monetary stimulus, low unemployment, and a booming stock market. Residential investment nationally is a bright spot.

Where do we stand relative to our dual mandate of maximum employment and price stability? Regarding labor markets, employment is expanding at a solid pace. Both the payroll survey and the ADP numbers came in at about 190,000 for November and December, which is very strong. As others have noted, the employment-to-population rate has also risen steadily over the past six years, and there’s no evidence that this rise is slowing. This is true for both prime-age and 15-to-64-year-olds. Prime-age LFP has risen steadily over the past four years—more than 2 percentage points. Recent wage data show no evidence of wage growth picking up. In fact, growth in average hourly earnings declined slightly over 2019. The fact that firms continue to be able to hire a lot of workers—despite saying that they’re out of workers—without paying higher wages strongly suggests to me that we have not yet reached maximum employment. And I expect businesses are going to continue to whine and yet continue to hire.

With regard to inflation, for more than 10 years into the expansion, it remains below our target, with core PCE inflation still running at 1.6 percent on a 12-month basis. It seems likely, as the staff has noted, that the 12-month number will bump up in the next few months, as some of last year’s low numbers roll off. But that doesn’t tell me that we’re necessarily going to get back to 2 percent on a sustained basis. Survey measures of inflation expectations remain near record lows. Market-based measures also remain low and point to future inflation below

2 percent. Overall, I'm not especially confident that we are going to get to 2 percent on a sustained basis.

So, while the more optimistic Tealbook forecast hinges on the staff's assessment that the economy is operating well above potential, with all due respect, the staff has been saying that for years. I don't see any evidence that the economy is operating above potential. And with regard to the chart in the presentation that showed why inflation has ended up where it has ended up; part of that results from assuming that there has been a positive output gap the whole time for the past several years. If you eliminate those positive output gaps, then you are going to have bigger unexplained variation on why inflation is running low. But, as I said, I'm skeptical that there is a positive output gap right now, in view of the combination of rapid job growth and tepid wage growth. And last week's Board briefing suggests that even if the staff estimate of slack is correct, we might need much lower unemployment to bring inflation back up to 2 percent.

In summary, I see the U.S. economy as still not having reached maximum employment or our 2 percent inflation target. Again, under optimal monetary policy, those two should be in tension. They have not been in tension for the entire recovery. My baseline forecast is for moderate growth to continue. The risks to the outlook appear tilted to the downside. Global growth remains weak, especially in Europe and China, and the coronavirus is a new threat that is a big wildcard right now. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. The economy remains in good shape. Real GDP growth last year is likely to have clocked in above 2 percent. The labor market is strong, as many have commented. Trade tensions have de-escalated, at least for the

time being, and there are some signs that the slowdown in global economic growth has bottomed out.

Our policy actions over the past few years seem to be paying off, with the rebound in the housing market as households take advantage of low mortgage rates. That said, the weakness in manufacturing has persisted. Investment remains soft, and the outlook for global growth remains muted. My outlook for GDP growth in 2020 is a bit stronger than it was back in December, reflecting a further easing in financial conditions over the intermeeting period, which reflects a combination of investors' assessment of reduced downside risks and expectations of continued accommodative monetary policy stances globally.

I expect consumption growth to rebound from its Q4 doldrums, and investment spending should finally start to recover in light of diminished policy uncertainty. I see some further strengthening of the labor market, with the unemployment rate declining a few tenths this year and labor force participation remaining near its current level despite the downward drag coming from demographic trends. And I agree completely with President Kashkari's remarks regarding whether a 3¼ percent unemployment rate is a tight labor market. I think that whether you take the Board staff model's view that you need a 3.2 percent unemployment rate to get inflation back to 2 percent, or whether you just take the view that that is what maximum employment is—either way, however you slice the data, I think seeing unemployment in this 3¼ percent range is definitely consistent with our dual-mandate goals.

Trade policy developments and signals of stabilization in the global outlook suggest some reduction to major sources of uncertainty, and downside risks have persisted through last year. Nevertheless, significant concerns remain, and here I agree completely with President Bostic about this idea that trade uncertainty has evaporated. First of all, you gave a great example about

how issues regarding trade with Europe popped up in the news immediately. We had news today of widening or broadening of tariffs on steel and aluminum-based products. So, despite some improvements and sentiment around trade, I don't think that trade uncertainty is going to go away anytime soon.

Continued weakness in manufacturing points to still notable downside risks, and the contraction of imports may represent a downward shift in consumption demand, rather than a change in consumption and its composition. Despite the signs of a rebound in global growth, the Tealbook again marked down its foreign growth forecast for 2020, maintaining the pattern over the past year. And continued low long-term sovereign yields and a flat U.S. yield curve still signal a risk of future cyclical weakness. If such an outcome occurred, a resulting correction in asset prices could amplify this weakness.

Finally, a remaining prominent risk is the slim chance that the Kansas City Chiefs could win a second Super Bowl trophy. [Laughter] As I'm sure I do not need to remind anyone here—although there seems to be some confusion at the end of the table regarding the history, so I will clarify—the last time the Chiefs won a Super Bowl, which was a half-century ago, the economy fell immediately into a recession. We had a decade of stagflation, the productivity slowdown, double-digit inflation. And that is not what we are looking for, President Evans. This is a past that we must not repeat. Now, I understand kind of wanting your home team to win, but we are better than that. [Laughter] We are here to support the U.S. economy, and, in light of this evidence from 1970, I really think we need to think again about which team we're supporting for this Super Bowl. Okay. You knew that was coming. [Laughter] We are better than that.

On the inflation front, the basic picture is unchanged. Recent inflation data have been lukewarm. A number of measures of inflation expectations remain at relatively low levels. I expect inflation to pick up to just below 2 percent as those transitory low readings of early last year drop out of the 12-month calculation. But continued downside risks for inflation remain, I think, a significant challenge.

I will shift gears a bit. There's been much talk recently, especially at the American Economic Association (AEA) meetings, about whether sustained fiscal expansions could provide the additional policy space in a low interest rate environment. Basically, can we get fiscal policy to solve this problem of a low  $r^*$  for us? My staff has analyzed this question using a variety of empirical and theoretical approaches. Their analysis finds that fiscal policy can affect  $r^*$  in the medium to longer run. This is, I think consistent with previous views expressed. But they find that these effects appear to be more muted than often had been found earlier and claimed by some proponents of this. In other words, achieving a meaningful, sustained increase in  $r^*$  would likely require *enormous* fiscal actions, huge increases in the ratio of government debt to GDP, or very large increases in the ratio of government spending to GDP.

This analysis also just suggests that the biggest “bang for the buck” in terms of increasing  $r^*$  would be through a redistribution of resources toward people with the highest propensity to spend—for example, through a tax-financed increase to Social Security payments. To be clear, I'm not arguing that fiscal actions—such as investments in education, infrastructure, and science or strengthening social programs—are not beneficial for the long-run health of the economy. Quite to the contrary. However, I think, here, at this table, we need to be realistic. Fiscal policy is unlikely to ride to our rescue by significantly increasing  $r^*$  over the medium term. We have

the onus of fulfilling our dual mandate and making sure that inflation expectations remain well anchored in a world with globally low  $r^*$ . It continues to rest primarily on our shoulders.

With regard to the plans that Lorie laid out for the transition to a durable and ample-reserves framework: Obviously, I completely agree with those plans. I think that the key words, when I think about this, are “communicate our plans,” along the lines of President Kaplan’s remarks, which I agree with. We need to effectively communicate our plans. We need to do this in a smooth and, I think, flexible way. I think the plans laid out make a lot of sense, and, of course, as always, we will be ready to adjust those as circumstances warrant. Thank you, and go, Niners. [Laughter]

CHAIR POWELL. Thanks, everyone. Thanks for your comments. What I hear around the table is pretty broad agreement that the economy is performing well and remains on track for another good year—subject, as always, to various risks, known and unknown. The risks do seem to me to be somewhat more in balance than I felt they were for most of last year. We’re seeing moderate growth overall, as a strong household sector balances out weak manufacturing, business fixed investment, and exports. The labor market continues to be strong, inflation continues to run below our target, and the outlook is for more of the same.

In the household sector, low unemployment, strong job creation, rising wages, a rebounding housing market, and strong confidence levels should support continued growth. The manufacturing sector has struggled with the global growth slowdown and waves of trade uncertainty. There’s tentative evidence that global growth is bottoming out after a year and a half of slowing, with data from China and Europe supporting that view. The tech cycle in Asia seems to be turning up. While Q4 was another very weak quarter for global growth, many forecasts call for it to move up this year, albeit to still modest levels.

On the trade front, the signing of the phase-one deal and the pending passage of the USMCA have probably limited downside risks for now, and they present, perhaps, upside risks. I have to say, the challenge in communicating about the trade situation is a significant one. I do think you have to start with the fact that the phase-one agreement is a positive thing, and it does reduce tail risk.

I also think that the agricultural purchases are a positive thing and, in all likelihood, will continue in some form, which should support growth. We'll see how that works out.

On the other hand, I'm very well aware that there's still high trade policy uncertainty. We're hearing about cars. We're hearing about digital taxation. There's news on the primary metals front. So, how to not sound giddy about this, but also not sound too downbeat? I don't think it behooves us to sound really downbeat about the trade deal. You know, we're seen as being fairly critical of what's happened with trade, even though we *haven't* criticized trade policy at all. So that's a challenge, and I want to be balanced in what we say.

I think the same thing about global growth. You're seeing signs of global growth bottoming out. You're seeing positive signs. At the same time, we're very far from seeing a strong, dispositive move upward.

In any case, inflation should move closer to 2 percent this quarter, as the low readings of 2019:Q1 drop out of the 12-month calculation. I do think that our best shot at achieving inflation at or above 2 percent this cycle is to remain patient in a modestly accommodative stance, which should put upward pressure on inflation over time.

The full effects of increased monetary accommodation have yet to be felt. I see it as appropriate to stand pat at this meeting, while signaling that future decisions remain, as always, data dependent. Policy is clearly in a good place. If, as expected, solid growth continues, with a

strong labor market and inflation rising over time, I would not see a good case for moving policy in either direction for some time. And I look forward to hearing views on monetary policy tomorrow.

Since our decision on monetary policy is widely expected, a key part of the messaging tomorrow will be an update on our plans for purchasing Treasury bills and conducting repo operations. So I plan to make the following points. The plan we announced back in October to purchase Treasury bills and conduct repo operations has proceeded smoothly and has been successful at providing an ample supply of reserves to the banking system and effective control of the federal funds rate. In light of that success—should we decide this—we decided to make a small technical upward adjustment to administered rates to ensure that the federal funds rate trades well within the target range, reversing the small downward adjustment that we made during the period of money market volatility in September.

Over the first half of this year, we intend to adjust the size and pricing of repo operations as we transition from their active use in supplying reserves. This process will take place gradually, and we expect to continue offering repos at least through April to ensure a consistently ample supply of reserves. We expect that the underlying level of reserves will durably reach ample levels sometime in the second quarter of this year. As we get close to that point, we intend to slow the pace of purchases and transition to a program of smaller reserve-management purchases that maintains an ample level of reserves without the active use of repos.

I will emphasize that these technical measures are designed to support the effective and efficient implementation of monetary policy and do not represent a change in the stance of monetary policy. We are committed to a smooth and predictable transition. We'll continue to

monitor conditions in money markets closely. And we'll adjust these plans as conditions warrant.

That's roughly what I plan to say. I'm sure I'll get a lot of questions on that. That'll be fun.

And with that, let's go to Thomas for his monetary policy briefing and Q&A, before we break for dinner.

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

Several of you—and I should note that this is not yet an attempt at a minutes count, but a common-language use—have observed that financial conditions have eased notably since your most recent policy adjustment three months ago. Broad equity price indexes have risen around 8 to 9 percent on net, corporate bond spreads have continued to narrow, equity price volatility is compressed, and Treasury term premiums remain near all-time lows. As John Schindler noted in his briefing, the staff now sees asset valuations as elevated: While no individual market appears to be blazing hot, the pressures across markets appear fairly widespread. Many observers have argued that, in addition to diminished downside risks associated with trade developments and global growth, accommodative monetary policy coinciding with a strong labor market has been an important contributing factor to this broad-based easing in financial conditions. To the extent this is true, you could be facing a situation like the one that Beth described in her briefing, in which you may be confronting a tradeoff between concerns about persistently low inflation, on the one hand, and signs of excessive risk-taking in financial markets, on the other.

As the framework memo on financial stability was careful to point out, it is challenging to isolate the marginal contribution that monetary policy is making to financial conditions. The upper-left panel illustrates this point by plotting the staff's estimate of the equity risk premium, the blue line, alongside the value of the equity premium predicted from a simple regression of the equity premium on the unemployment rate, the red line. Since the early 2000s, the equity premium and the unemployment rate have moved together fairly closely. This suggests that the cyclical position of the economy is an important factor driving risk premiums. Despite the recent decline, the equity premium does not appear particularly low once one takes into account the strength of the labor market—casting some doubt on the view that accommodative monetary policy has been a major independent driver of current financial conditions.

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<sup>6</sup> The materials used by Mr. Laubach are appended to this transcript (appendix 7).

Nonetheless, it is historically unusual for monetary policy to be moderately accommodative, as is likely the case currently, when the labor market is as strong as it is now. And hence any assessment of monetary policy’s contribution to current financial conditions is necessarily uncertain. When valuations are elevated, a shift in investors’ expectations toward a less accommodative path of the policy rate could plausibly trigger a strong market reaction. The upper-right panel focuses on one facet of the risks implied by current asset valuations. It shows the historical relationship between the level of the equity premium, on the horizontal axis, and the realized stock market returns over the following 12 months—the vertical axis. In general, and consistent with intuition, when the level of the equity premium is low, subsequent equity returns also tend to be low. The red line shows the median stock market return over the following year for various levels of the equity premium, with the current equity premium shown by the vertical black line. The intersection of these two lines predicts positive returns over the next year. However, the historical distribution of equity returns is wide, and, as shown by the circles toward the lower left corner, outcomes could be worse when valuations are stretched. The green line shows how equity prices have generally fared at the lower end of the historical distribution, specifically the 10th percentile. Conditional on the current equity premium, this adverse outcome would be a stock market decline over the next 12 months of about 15 percent.

Of course, you have communicated that one reason for the current stance of policy is that inflation pressures remain muted. While financial market exuberance by itself might suggest moving to a less accommodative policy stance, tightening policy would likely prolong a situation of inflation running below your objective. The middle-left panel shows several market-based measures of far-forward inflation expectations, as well as the Michigan measure of inflation expectations, over the next 5 to 10 years. Although 5-by-5 inflation breakevens, the black line, have edged higher over the past 3 months, the estimates of inflation expectations derived from two versions of our term-structure models, the red and green lines, have so far not retraced their roughly 25 basis point decline earlier last year. The Michigan measure recorded its all-time low in December, although it bounced back in the preliminary January reading. Under these circumstances, a signal of a forthcoming less accommodative policy stance would run the risk of further eroding inflation expectations.

One piece of evidence concerning the risks of unanchoring of inflation expectations comes from a recent experiment that the Federal Reserve Bank of New York staff conducted in a special module of the July 2019 Survey of Consumer Expectations. In this particular module, about 1,000 respondents were asked for their inflation expectations 5 years ahead. They were then presented with a counterfactual scenario in which, over the past 3 years, inflation ran, on average, either 1 percentage point higher or lower than was actually the case, and they were asked how, if this had occurred, they would revise their expectations for inflation 5 years ahead. The middle-right and lower-left panels present the distribution of respondents’ revisions to their original inflation expectations. As the blue bars in each panel show, almost 40 percent of respondents didn’t change their expectations. As shown by the green bars

in the middle-right panel, when presented with the higher inflation scenario, the majority of respondents who revised up their expectations did so by no more than  $\frac{3}{4}$  percentage point. In contrast, the red bars in the lower left show that, in the downside scenario, the majority of those who revised down their expectations tended to make larger revisions. The authors' conclusion was that the risk of unanchoring seems to be somewhat larger in response to lower than to higher inflation readings.

While the three alternative policy statements for this meeting are in agreement on this meeting's policy decision, the differences could be seen as balancing, in alternative ways, potential risks to the attainment of your objectives.

Under alternative B, the Committee would affirm that the current stance of policy is appropriate for supporting a favorable economic outlook. It would underline the Committee's resolve to bring inflation to its 2 percent objective by removing any ambiguity regarding whether current inflation readings are regarded as consistent with intended outcomes.

If you thought it was appropriate to—even more forcefully—express your determination to return inflation to 2 percent, alternative A offers an option by providing forward guidance indicating that the Committee will not raise the target range above its current level “at least until inflation has returned to 2 percent on a sustained basis.” This conditional commitment would strengthen communications, but possibly at the risk of sacrificing some flexibility.

Alternative C might serve as candidate statement language for a situation in which the Committee were to become concerned that the current degree of accommodation is no longer warranted. Alternative C offers language appropriate when the case for some reduction in the degree of monetary accommodation has materially strengthened, so a rate hike would likely be imminent.

Thank you, Chair Powell. That completes my prepared remarks. Pages 2 to 7 of the handout present the December statement and the draft alternatives and draft implementation note. I'll be happy to take questions.

CHAIR POWELL. Thank you. Questions for Thomas. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I'm trying to understand figure 1 here. I interpret the blue line above the red line as comforting: Markets are asking for a higher premium to take on equity risk than what the model—a simple model, anyway—says that they need to ask for. Is this correct?

MR. LAUBACH. Correct. I mean, as I would underline—

MR. BULLARD. So that, in the graph—the disturbing part of the graph is around the year 2000, when even they had a negative premium, and the model said they should have been at least at 2 percent.

MR. LAUBACH. Again, it's a very simple model.

MR. BULLARD. Yes.

MR. LAUBACH. But I guess it's appealing in looking at—that, broadly, the movement since 2000 in the equity premiums seems to be reasonably correlated with the cyclical position, as measured by the unemployment rate.

CHAIR POWELL. Other questions for Thomas? [No response] Seeing none, I think our work is done here for the day. If there are no further questions, then I'd like to remind you about the reception and dinner downstairs in the elegant West Court Café. All FOMC participants and all of the staff attending this meeting are invited to attend. Thanks. See you at 9:00 tomorrow morning.

[Meeting recessed]

**January 29 Session**

CHAIR POWELL. Okay. Good morning, everyone. So, any economic news to speak of overnight, yesterday, or this morning?

MR. GRUBER. Yes, this morning, the BEA did release the advance indicators before the NIPA release that comes out tomorrow. So we received our first read on December trade, in addition to some other data points. December trade basically came in as we expected, so there's confirmation that there is going to be this big decline in imports in the fourth quarter. So we haven't changed our story there.

If there was any news, it was that exports were actually a bit stronger than we expected. We still have a decline in exports in the fourth quarter, but a bit less so than we did before. And then—

MR. WASCHER. That release also contains information on inventories. And they actually came in a little weaker than we were expecting—so, roughly an offset, in terms of GDP growth. So we're still projecting 2.1 percent for GDP growth in the fourth quarter.

CHAIR POWELL. Okay. Great. Thanks. Any questions? [No response] If not, let's go ahead and get started with our policy go-round, beginning with Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. Before I begin, please indulge me on the Super Bowl commentary. It has been 50 years since the Chiefs won the Super Bowl. And I'm a Jets fan, and it's been 51 years. We may never get there in my lifetime, so I'm going to live vicariously through the Chiefs, and I wish you well. Sorry, Vice Chair Williams. I've got my little sign here. I can't have a Jets sign, so: Go, Chiefs! [Laughter] Thank you. Okay, so now to serious things.

Well, thank you, Chair Powell. I support alternative B as written and the policy decision to maintain the target range for the funds rate: 1.5 to 1¾ percent. I also enthusiastically support the new language in the statement that was suggested at the last meeting by President Evans, which says that we believe our policy is calibrated for inflation to “return to,” and not just be “near,” our 2 percent objective.

And I do support the technical adjustment of 5 basis points to the reverse repo rate and the IOER rate. While I’m on this topic, let me take this opportunity to commend not only Vice Chair Williams for his leadership in navigating the choppy waters that we’ve experienced in repo markets, but also Lorie Logan and her team for executing our October plan flawlessly. I believe the plan presented yesterday for transition to ample reserves is a sound one and will retain for the Desk the flexibility they will need in coming months to execute the transition.

I do believe that our current target range for the funds rate is delivering a somewhat accommodative policy, and that our well-timed, 75-basis-point adjustment in the policy rate last year should be sufficient under my baseline outlook to provide, over time, the policy support needed to offset muted global inflation pressures and return core inflation to 2 percent. The question then becomes: If core inflation does reach 2 percent, how long should policy remain accommodative, when and if that milestone is achieved?

We each are entitled to our own reaction function. Speaking for myself, given the history of inflation we’ve discussed, given my read of the evidence on inflation expectations, and given little evidence of excessive “cost-push” pressure from wages to prices, my baseline view today is that appropriate policy will be such that the public comes to expect that rates are on hold until and unless PCE inflation not only reaches 2 percent, but for some time also modestly exceeds our 2 percent objective.

Given our initial conditions, if indeed 2 percent is not a ceiling and we want our symmetric 2 percent objective to be credible, we should be able not only to accept but also to conduct policy that aims *ex ante* to achieve a modest overshoot of our target. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. At our board meeting last week, our chair said that things were quite boring. Of course, I explained to her that, yes, boring may be bad for your marriage, but it's really fantastic for the economy. [Laughter]

So based on my assessment of incoming economic information, my outlook, and the risks associated with the outlook, I support “no change” in the funds rate at this meeting and the statement as written in alternative B. The economy is in a good spot, and policy seems well calibrated for achieving our dual-mandate goals. We have the luxury of continuing to assess economic and financial conditions and the effects our flatter policy rate path is having on the economy.

Now, according to the median path in the December SEPs, total and core PCE inflation rates are not expected to rise to 2 percent until 2021. If that turns out to be the case, then we won't be seeing inflation hit 2 percent this year, and we won't see PCE inflation return to 2 percent sustainably until further out in the forecast horizon. I think the question for the Committee is whether we see this as an acceptable outcome, given our dual-mandate goals. To me, it is—taking into account the fact that interest rates are already quite low—but each of us may have a different answer depending on how we evaluate the risks surrounding the outlook and how we view the intertemporal tradeoff between generating stronger conditions today and the potential cost of generating weaker outcomes tomorrow. It isn't a question of wanting to

forgo getting more people to work. It's a question of whether trying to do that at this point in the cycle—and with interest rates already low—might set up conditions for a deeper downturn tomorrow.

Given the low level of the funds rate in the outlook, I'm comfortable with taking an opportunistic approach to support inflation moving back to 2 percent. This entails leaving policy settings at current levels for a time, refraining from taking deliberate policy action at this point to try to reinflate the economy, but also refraining from taking deliberate action to curtail an inflation overshoot of reasonable size.

This policy rate path is flatter than what's implied by the typical monetary policy rules, which are based on what the Committee typically behaves like, and you can see that on the Federal Reserve Bank of Cleveland website, which calibrates a number of rules. So I view that policy rate path being flatter than what we typically do as supportive of a commitment to achieve our policy goals. And I think that if we explain that to the public—that, given our outlook, this is the approach we're taking—that would help reassure the public that we are committed to both parts of our dual mandate.

Now, as we move closer to a conclusion of our framework review, I've been thinking more about the communications we'll need to wrap around the release of a revised consensus statement of our policy goals and strategy. One question I've been asking myself is whether the revised statement will represent a clear explanation of how the Committee has been setting policy for some time or whether it will represent a change in our policy approach. I think understanding which of these it is will be important for thinking about how we're going to communicate, when we do release a new consensus statement. Even if it's just a better explanation of how the Committee has been approaching policy, we might expect to see some

change in markets' expectations about our policy rate path—for example, if the market thinks we're now more committed to achieving our 2 percent goal sustainably.

As we contemplate the draft consensus statement language that we'll soon be getting, I think we need to be thinking about this. One question I imagine we will get on release of the revised statement is, what would our policy rate path have looked like in recent years under the revised strategy, compared with the current strategy? Of course, that's a hard thought experiment to do. It means “unlearning” all of the things we've learned over time about the underlying structure of the economy—for example, the full-employment unemployment rate  $u^*$ , inflation dynamics, and  $r^*$ .

Now, one thing that might be easier to do is to look forward. By the time we'll fill out our next SEP submission, we're going to know what the draft consensus statement changes look like. So I plan to ask myself whether my policy rate path that I'm penciling in over the forecast horizon would look different under the revised strategy. If it turns out that there is no change in the policy path, that suggests that the revised strategy document should be viewed as a better explanation of the Committee's current behavior. If there is a change in the policy rate path, then the change in strategy represents something new. Knowing which of these is the case should inform our communications when we conclude the framework review later this year.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I support alternative B as written for this meeting. While I think a good case could be made that we have more insurance than we need against risks that have clearly abated, I'm willing to be patient as we accumulate more evidence on the trajectory of wages and prices. It is also worth observing the growing economic and

human cost of the coronavirus. I have some concerns that this is a greater risk than is currently priced in by markets.

There are also risks, however, to the upside. While I, too, want to see maximum employment, I want it to be a sustainable maximum—not an evanescent one, attainable briefly before the economy comes crashing to the ground. This is similar to the concerns raised by President Mester. Running labor markets too hot for too long has historically often created economic and financial imbalances that either move forward the next recession, or make it worse, or both. Indeed, some of those individuals who have most benefited from our probing the limit of tight labor markets will be the ones most likely hurt if the next recession is made more severe due to the unraveling of economic and financial imbalances.

It is, of course, true that financial imbalances do not always occur in every episode of low interest rates. However, running an accommodative monetary policy when labor markets are already unusually tight is a risky strategy, particularly when doing so leaves us little policy space to react, should the economy actually falter.

Our communication and, ultimately, our actions need to push back against the commentary that there is now a “Fed put” in place. When we’re stuck at the lower bound, it may well be necessary to provide strong forward guidance that will bring some investors back into the financial markets. But that is not the case now. The bigger risk is that investors become too confident that, despite stock prices being near all-time highs, the Federal Reserve will set policy to prevent any significant asset price declines. Following such a policy will likely serve only to further inflate asset prices well beyond sustainable values and, eventually, leave little room, or no room, for interest rates to support the economy when it is most needed.

At this point, a risk-management approach needs to match both upside and downside risk. With GDP growth expected to exceed its potential rate, stock markets buoyant, and unemployment rates already at cyclical lows and likely to fall further, we should be carefully considering the need for both upside and downside insurance. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I'm comfortable with alternative B. More broadly, I'm pleased with the pause we declared and how it's "landed" with the public. I think it's prudent to give our recent rate cuts time to take hold and am patient with what may well be a slow process of returning to 2 percent. I see no rush to normalize rates. I also see no need to race to zero. We should resist the temptation to signal an ever-lower rate path—say, in an effort to further boost inflation. As we all know, the essence of accommodative policy is that rates are transitorily, rather than permanently, low.

I want to take a second to discuss alternative C. As in December, it's structured not as a "live" option for the current meeting, but as candidate language for a future meeting when the balance of risks has shifted. There's certainly value in vetting language in advance. However, it seems to me it would be good process discipline for us to grapple with live options on either side of alt-B at every meeting.

Alternative C wouldn't need to make the case for a rate increase at every meeting—and, indeed, to be credible, it couldn't. While I'm not arguing in support of a "live" alternative C at this meeting, one is conceivable. It might well have explicitly stated that policy remains accommodative, and that we see some of the headwinds that supported our rate cuts as abating. Just as alternative A provides a tilt toward lower for longer, in this way, alt-C could have provided a tilt toward normalization. Thank you.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I support the policy decision in alternative B, and I'm fine with the suggested language adjustments.

As I noted in my economy-go-round statement, we see broad-based expectations that the economy will continue to expand at a moderate pace this year. The trajectory of downside risks, which had increased over the course of last year, has stopped increasing. But despite that, downside risks are still very real and continue to damp business investment plans. This suggests that a sharp increase in economic activity is unlikely.

On inflation, I am reasonably confident that PCE inflation will move closer to our 2 percent long-run objective. But, as I said yesterday, looking at a wider set of measures suggests we're already basically meeting this objective. As an aside, I am fine with overshooting this objective for a time to demonstrate to the public our comfort with symmetry, and I think it's important that we continue to consider that.

So, in sum, all signs for 2020 point to an economy that will continue to grow slightly above its long-run trend rate and a level of inflation that will be at target or very close to it. Given this, there is no need to adjust the stance of policy at today's meeting. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I support alternative B as written. I expect solid growth in 2020. But it's early in the year, and we have a number of upside as well as downside risks. So my views on the economy certainly are going to firm over the next several months, based on economic developments.

I do believe monetary policy today is accommodative. And there is a strong—and, I might argue, maybe too strong—view that the bar is very high for future removals of accommodation. But we can have that conversation down the road.

In this context, though, I’m glad for, and I think we will be very well served by, a clarification and clear articulation of our philosophy regarding the Federal Reserve’s balance sheet growth, in order to tamp down what may be unrealistic expectations in the markets and in the economy about the willingness of the Federal Reserve to grow its balance sheet in the future at a rate greater than that of economic growth.

I’m committed to the FOMC achieving its 2 percent PCE inflation target, and I am, as others have mentioned they are, willing to tolerate an overshoot for a time. However, over the next several months, as we see how the economy develops, I will be asking the question: How accommodative, and for how long, do we need to be in order to reach our dual-mandate objectives? Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. The 10-year Treasury rate was trading at 163 basis points at the close yesterday. That’s one of the lower levels in recent years. I think this shows that our narrative that “the economy is in a good place” is vulnerable to shocks. I think it’s probably wise *not* to use that phrase right at this juncture. The bond market is not seeing a lot of growth or inflation in the future for the U.S. economy right now.

The vulnerability to our narrative in the very short term is the coronavirus. As I said yesterday, if the past is a guide, this’ll be scary, but temporary.

But in the medium term, we do have risks to our narrative. The slow growth going on globally could just continue, instead of recovering. There could be a failure of U.S. business

investment to return to a robust growth trajectory. Some people yesterday cited political risk inhibiting investment in the near term. There could be a failure of global trade policy uncertainty to abate in the way we think it is going to.

So I think these are very tangible and real. We're predicting all of these things are going to turn around. They might not during 2020, and the bond market might be right. The two-year Treasury rate was trading at 144 basis points yesterday—suggesting markets believe another easing may be required at some point. I don't think the Committee at this juncture is mentally prepared to go further in that direction. So I think the bottom line is that we're on hold for now. But we have to remain vigilant. The world doesn't always cooperate with our outlook. We could easily be in a situation in which we need to take further easing action in the not-too-distant future.

Concerning short-term funding markets, I'd again urge the Committee to step up efforts to set up a standing repo facility. The efforts to control where the federal funds rate is trading are spilling over into monetary policy messaging of the Committee in an inappropriate way, in my opinion. The standing repo facility would end this. It meets an international standard. It means that the FOMC can run monetary policy, potentially, with a much lower level of reserves than we have today. That's what happens in foreign countries.

In my mind, this is critically important strategically for the Committee, because it would create room on the balance sheet, should we need to return to quantitative easing—that is, the real thing, genuine quantitative easing—in the future. I think it's becoming more urgent that we get this project going sooner rather than later, and I'd like to see us make more progress on that faster.

I do support alternative B for today. I do like the change, with “returning to” replacing “near” in paragraph 2. I think that is an important change.

Of the three options, alternative C is considered contingent, but alternative A is the more likely contingency as we sit here today, and I think alternative A should have contingency language that contemplates a further rate cut during the spring, should some of these vulnerabilities turn out to be more tangible than they seem right now. What language would we use in that case? The way we’ve got alternative A today, it puts more commitment language, which is of a more strategic issue, but the likelihood or the possibility for the Committee is that we might face a situation in which we have to cut rates in reaction to global developments. So, what would we do, in the event of a garden-variety rate cut this year? Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. I support alternative B as written. Like Governor Clarida and President Bullard, I like the change in the language from December, as the insertion of inflation “returning to” our symmetric 2 percent target acknowledges that we are not satisfied with our current outcomes.

I do have some sympathies for President Bullard’s caution about the risks to the economy and the way that we communicate about that. I have used the construction, “I think the economy is in a good place.” I do think the economy is in a good place. But I think monetary policy is in a really good place today—and that the path of the funds rate in the SEP median, along with communication of our intent to attain our symmetric target expeditiously, should move inflation up with enough momentum so that we see a modest overshooting of 2 percent later in the projection period. This should also bring inflation expectations back up in line—symmetrically about 2 percent. That’s what’s in my forecast.

I would also note that the SEP dot plot is moving. It's proving its usefulness at the moment. It communicates how long we think the current rate setting is likely to remain appropriate. Furthermore, when teamed with the inflation histograms, it indicates that nearly all of us see inflation at or above target before we raise rates. This looks like an effective representation of an outcome-based policy plan that should support the return of inflation to our symmetric target on a sustainable basis.

I also think the SEP makes it easier for us to be seen as data dependent, flattening out the SEP dots if inflation disappoints us or moving rate increases forward if we generate overshooting sooner than I expect. It's now up to us to follow through on this approach. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I support alternative B as written. As others have said, monetary policy is in a good place, and I believe there's an equal likelihood of a future change in the funds rate being in either direction.

I also support guidance indicating it will take a material change in circumstances to generate a policy response. For now, I think we should just watch and wait. And I can't wait to watch the Chiefs and Andy Reid reign victorious [laughter]. Sorry, John. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. I support alternative B as written. In assessing the proper stance of monetary policy, it seems prudent to take some time to assess the effects of our past policy easings on the balance of risks to the outlook.

Over the coming year, it seems likely that we'll continue to face concerns about global growth, trade, geopolitical issues, and a potential pandemic. At the same time, although our

statement points to a return to 2 percent inflation under the current policy stance, we might well see inflation continue to run slightly below the 2 percent target, as global factors outside our control may be driving the dynamics of inflation. Year-over-year core PCE inflation peaked at just over 2 percent in the middle of 2018, supported by robust, above-trend growth; expansionary fiscal stimulus; strong global growth; and a less-than-4-percent unemployment rate. Since that time, inflation has weakened steadily over time, despite the labor market continuing to tighten. This suggests to me that there are other things in the global economy that may be important for inflation dynamics.

With accommodative policy settings likely to persist in the face of low inflation and other downside risks, it will be essential that regulators and supervisors use the full range of authorities granted to them to address evolving financial vulnerabilities and, by doing so, secure this Committee's flexibility to pursue its employment and inflation mandates in a sustainable manner over the long term. Thank you.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chair. I, too, think policy is in a good place, and I support alternative B as currently written. My baseline expectation for the U.S. economy is little changed from my December SEP. The job market is still extremely strong, and I expect the U.S. economy to continue to perform well in the coming year.

Prospects for consumer spending remain promising, and I'm not taking much signal from its estimated slowing in the fourth quarter of last year. Plentiful jobs, rising asset prices, and favorable consumer sentiment should continue to support consumption in the period ahead. And, due to the strong job market, I remain optimistic that inflation will move up closer to our target this year as well.

With an outlook that is mostly unchanged, I agree that we should keep changes to our policy statement to a minimum. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. I support alternative B as written. I see the current stance of policy as being appropriate, especially in light of an uncertain economic outlook and still-elevated risks. Although the staff's economic outlook is little changed, there has been some concerning data of late. I think this morning's update is entirely consistent with that view.

And although markets have responded favorably to the diminution of trade policy risk, my own assessment is less sanguine, and I fear that the recent good news could reverse rather quickly. I'm completely supportive of the comments the Chair made yesterday about public communication on that—I completely understand and support that. Nonetheless, I think that the market is overly sanguine on current trade policy, and, given those uncertainties, I think the message that we've communicated—that policy is on hold—is the correct stance to be signaling.

For these next comments, I wasn't sure whether the previous go-round or this go-round was the right one. I didn't do it last time, so I have to do it this time. Desk operations since September have been effective in calming repo market turbulence. The staff has done wonderful work in monitoring year-end conditions, and, obviously, we navigated that hurdle successfully. I thought one part of Lorie's discussion that I found particularly interesting was the description of the enhanced preparations that large cash borrowers and lenders had taken ahead of year-end, including an increased willingness and capacity by large holders of reserves to lend into the repo market.

So, apparently, as one would expect, the market is learning and reacting to the signal that came from September's price spike. That's behavior that I think we should encourage, so I do worry a bit that our actions, though they were a necessary "firefighting" measure, might be smothering the incentives for the private market to deal with what is essentially a reserves-allocation problem. And in that regard, I think that increasing the minimum bid rate on our operations would be a step in the right direction—and perhaps before April.

Purchase operations since October are growing us back to a reserves level that's sufficient, given some of the current structural frictions that we discovered. The market's fixation on whether we're doing QE is concerning. And in the end, to a certain extent, it doesn't matter if it's true or not. The market's perception can still cause problems. I won't repeat my allegory of the priests and the dragon, but we may have an analogous situation here. In that regard, I wonder if our signaling that we're willing to move up the yield curve away from bills purchases could have made that problem worse.

As Lorie and the transition memo point out, the best we can do in regard to the market is clearly communicate our policy and reaction function in order to prevent surprises and market disruptions. And, again, as mentioned in the memo, that communication includes our views on what "ample" means in relation to the definition of levels of reserves. It is currently assessed at September 2019 levels. Although this issue has not recently had the public prominence that it once had, I do still think that it is an important substantive issue, and I retain a preference for operating with a smaller balance sheet as a percentage of GDP. So I'm concerned about potentially locking us into a framework that precludes the option of ever exploring lower levels of reserves—again, relative to GDP—and, in particular, I remain interested in exploring mechanisms for reducing reserve demand, including the possibility of a standing repo facility.

So, given all of that, my preference would be for continuing to maintain some ambiguity regarding our target for reserves, rather than locking into a hard numerical target for reserves.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. I prefer alternative A in this meeting but will support alternative B. I think no rate change is appropriate today. I'm comfortable with a pause.

As I said yesterday, we're still below target on inflation and, in my view, have not yet reached maximum employment, so some accommodation is appropriate. The current federal funds rate is close to the inflation rate, with both around 1.6 percent, implying a real rate of almost zero. The staff's view is that the neutral rate is 50 basis points. Therefore, that would suggest 50 basis points of accommodation. I think neutral is probably a little lower than that, so we're providing a little less accommodation. In my view, this might not be enough, but there are signs that the past rate cuts and the shift last year are boosting the interest rate-sensitive sectors of the economy. So I think it's appropriate to be patient and let this play through into economic activity. Therefore, I can support alternative B. I have to tell you, it was tough for me, because alternative A was so appealing that it was hard for me to say, "I'm going to support alternative B," when alt-A was so good.

I've been advocating for some time that we should commit not to raise rates until inflation has returned to our target on a sustained basis. Communicating this plan would signal to markets that we're serious about reaching our inflation target and help reset inflation expectations, without actually cutting rates further. This language might seem unnecessary to some, given the staff's forecast that inflation is going to return swiftly to our 2 percent target. But we've repeatedly overforecast inflation and underestimated the economy's ability to create

jobs. That's led us, in my judgment, to overtighten in 2017 and 2018, slowing economic growth and job gains. A commitment not to raise rates until it's clear that we've really reached our inflation target would reduce the chance of making that mistake again.

Thomas said yesterday that this forward-guidance language would provide us with less flexibility. That's true, but if there's an inflation upside, there's the safety valve. We're free to then go ahead and release ourselves from this constraint. So the only real constraint that this provides us, I think, is on the financial vulnerabilities sector: Inflation is not climbing but we think there are financial vulnerabilities. It wasn't unanimous yesterday, certainly, but I heard a lot of consensus that monetary policy is not the right tool to respond to that scenario. So I see very little downside in adopting forward guidance, but it could really help us on inflation expectations. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. With regard to the balance sheet, the approach we adopted in October has served to achieve the critical objective of our ample-reserves regime, which is to maintain effective control of the federal funds rate and a smooth transition to other short-term funding markets. It's important to provide a public update on where we are in the process of restoring an ample supply of reserves, while recognizing that any such communications will be highly market-sensitive, because of market narratives that our bill purchases have been positive for equity prices. I support clarifying that the process of reserve restoration is working as intended, and that we will carry through with our plan, which will require continued purchases through the first half of this year.

I also support the plan presented by Lorie yesterday whereby the augmentation of reserves will have run its course by the middle of the year, such that, first, repurchase operations

and, ultimately, bill purchases will taper and slow to a significantly smaller pace. Once reserves have been restored to the projected level of demand, I favor starting to push up the minimum bid rate on the overnight repo operations, to widen the spread in relation to the IOER rate, and to transition repos to being a “ceiling” tool.

With regard to the outlook, the labor market is strong, consumer fundamentals remain strong, and the economy’s momentum is solid. Risks remain, but the balance of risks has improved, and model-implied recession probabilities have declined substantially—in some cases, to very low levels. Foreign growth is showing tentative signs of a turnaround. Inflation remains below 2 percent, and both survey- and market-based measures suggest inflation expectations are running somewhat below our target.

Last year, the Committee took significant action to ensure against the risks associated with trade conflicts and weak foreign growth, against a backdrop of muted inflation. Since last summer, we have lowered the target range  $\frac{3}{4}$  percentage point, and the federal funds rate is now well below the Committee’s median estimate of the long-run neutral rate. Market expectations assign a quite high bar for a rate hike, and markets see our reaction function as quite asymmetric.

Given the necessity of providing accommodation over a prolonged period to nudge average inflation back to target after a sustained period of undershooting and with a flat Phillips curve, the expectation of prolonged easy financial conditions, with growth running above its potential rate, can be expected to fuel risk appetite and leverage. Because I support our monetary policy stance and our balance sheet policy, I strongly believe a necessary corollary is that we must acknowledge the risk of financial imbalances rising in this late-cycle environment, particularly given deregulatory pressures. Indeed, since we met in December, financial conditions have eased notably. Every financial conditions index I consult is in the very low end

of its historical range. If financial conditions remain at highly accommodative levels, I would support adding a reference to financial conditions in the statement next meeting, to indicate that the Committee is paying attention.

I support alternative B with the change, as well as the proposed changes to the Desk directive, extending repurchase operations through April and raising the administered rates by 5 basis points in order to move the federal funds rate closer to the middle of its target range.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. I support alternative B as written. Now, I'm going to use the formulation "The economy is in a good place" despite the cautions about that. But I am going to double down on what President Evans said—I think this is largely because policy is in a very good place. The labor market remains solid, real GDP growth is a touch above its trend rate, and underlying momentum appears sufficient to power through the current and expected headwinds. Of course, there could always be shocks that we might have to reconsider, but for now, I see policy as well positioned to keep us moving in the face of the shocks we have right now.

So I am cautiously optimistic that, with the modest policy accommodation we have in place, inflation will return to the 2 percent goal sometime next year. But I've been cautiously optimistic before, so I have a lot of cautiousness on that optimistic part. And inflation has failed repeatedly to achieve 2 percent sustainably. As we discussed yesterday, I think there was a forming consensus that there are costs to being below our target, and that includes credibility about our ability to reach it, as well as reduced policy space. It is therefore important, in my view, to maintain our commitment to not just approaching, but also achieving, our 2 percent

target. For that reason, I actually preferred the original language that was in alternative B. I like the “returning to,” but I would like to add the word “sustained” as well, because I think “returning to it on a sustained basis” actually gives us even more, while stopping a little short of alt-A.

If we said we were going to achieve it on a sustained basis, I actually think that could have the extra boost to inflation expectations that we would have to wait for when we realized inflation. One way to get inflation expectations up is to have realized inflation move up or have opportunistic or intentional overshooting. Another way is to just tell people what we’re going to do and get a little boost to that, which I think is important. So I hope that we talk about all of this as part of our long-run framework discussion and how best to communicate that.

Now, I want to end my remarks on this part before the balance sheet just by saying that I think a lot of our discussions, mine included, have really focused on the shortfall in inflation, because we clearly aren’t hitting our target as we’ve described it, and that’s a good reason to have the level of current accommodation. But, as many noted yesterday—and I have talked about it—and as President Kashkari has said many times, the employment side of our mandate is not yet met, either, in my judgment. So whether you consider the fall in the natural rate of unemployment, the decline that I described yesterday, or continued surprises in labor force participation, the fact that we really didn’t see this coming—there were no forecasts five years ago that labor force participation would rebound as it has, as these differences had been largely attributed to structural factors, but they now have become seen as more cyclical responses—or the absence of tension, as President Kashkari noted yesterday, between unemployment and inflation, whether you pick any one of those, it looks like we have more “room to run” on the labor market than we thought.

And though I'm not trying to increase financial instability or run the economy too hot, I actually want us to ask—I'm asking myself—Do we really know what “full employment” means, or is learning it experientially very helpful? I think, in this case, we've proven that millions of Americans are benefiting from our learning. So, on that front, I think it's important for us to continue to think of both sides of the dual mandate, not just the inflation side.

Let me say one thing about the Desk briefing and related things. One of the things that I found very helpful, and I was wondering if we could do it again, is, when we decided on the response to September and how we were going to manage it, the Open Market Desk and John—president, Vice Chair, San Francisco person, or whatever [laughter]—gave us talking points. And it takes the Desk survey, and it takes all of the information and says, “Okay, here's, on one page, what we are talking about and what the plan is.” The reason that's helpful is, if we all communicate roughly an aligned message, then the clarity about whether this is QE or not QE can be improved.

We can't eradicate what markets think—they're going to think what they think. But I personally would benefit from some talking points. We got those last time, and I felt they were very helpful. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I support alternative B as written. The new language indicating that our baseline view is one of inflation returning to target usefully provides greater clarity on the location of the goalpost in the context of the current low level of inflation. I think that's good and an improvement.

Our policy actions last year have been part of the reason the economy has stayed on track despite considerable headwinds. And in reassessing the three main factors that contributed to the

case for easing of policy—heightened uncertainties, slowing global growth, and persistently below-target inflation—only the first has moved in a more positive direction. Recent trade agreements and greater clarity on Brexit signal some improvement regarding trade and geopolitical uncertainty. These uncertainties remain elevated, as we discussed yesterday, and they do not appear likely to exit from the stage fully anytime soon. And the coronavirus has added a new layer of uncertainty onto the global landscape.

Regarding global growth and inflation, the data have not been that encouraging. Even the recent signs of stabilization in the global economy have to be seen in context, as the slowdown that we were worried about has already occurred.

In view of these developments, I see no reason to adjust the stance of policy unless we see a material change in the outlook. Despite the overall positive picture, I don't want to take anything for granted. I still view the primary risks to the outlook for our dual-mandate goal variables as being tilted to the downside. The rebound in global growth may not materialize. Weakness in manufacturing may spread to household spending and the rest of the economy, and inflation may remain below target. So this is not a time for complacency. As the coaches for both teams in the Super Bowl know from experience, a big early lead does not mean the game is decided. [Laughter] Similarly, we shouldn't try to convince ourselves that all of the risks are behind us and there'll be smooth sailing from here on.

Let me reply to a couple of comments and give my responses on the balance sheet and monetary policy implementation. I agree with President Daly. That's a great point. We, I think, have learned that providing talking points, Q&A, and things like that has been helpful, and we'll take that message very much to heart.

One comment that Governor Quarles said threw me a little bit. We don't have any plans to say that we're doing anything but buying bills right now. We're not going to say anything, officially, about going and buying short coupon securities. I mean, the idea that if we needed to do that is out there, because of comments we've made and in the minutes—but we, right now, have no plans to do that, and we're not going to ask for a change in the plans regarding bill purchases.

In terms of the technical adjustment, when we think about this adjustment plan, there are a lot of pieces of this plan to get us from today to the middle of the year, including raising the minimum bid rate and reducing the size and the number of auctions.

There are a lot of pieces to that. I am very much in a “do no harm” mode when I think about all of these pieces and how we communicate them. So I think that we want to take it step by step. It's kind of like what an econometrician does. You don't want to throw lots of variables all at once on the right-hand side of your regression equation. Instead, you would like to make maybe a few modest steps along the way. We've already done one of those steps, by reducing somewhat the term repo offering that—we've proceeded in that way.

I think the technical adjustment on the administered rates is a nice, good next step in that sequence, and I support a 5 basis point increase in those rates. Again, I think that's showing to me a sign of success in the execution of the plan that we announced in October. Money markets are operating very smoothly. The funds rate is trading right at the IOER rate. Therefore, it makes sense to have the IOER rate closer to the middle of the funds rate range. And, again, my view is that we should make each of these adjustments along the way and try to, in some way, manage an approach that is both smooth and flexible, but also one that market participants can understand, and they see where we're going and the general contours of it.

In terms of a standing facility—President Bullard and others, including President Kaplan, I know, have brought that up—I do think that's a conversation we need to have. I am not a believer, as we discussed at Monday's meeting of the Committee on Supervision and Regulation, in the position that setting up a standing facility is going to have a first-order effect on its own in reducing the demand for reserves. And this is why I think that comparisons with Europe, which my European colleagues have also brought up, are not exact. I think that really there are differences in our supervisory framework, and there are aspects of how we do things in the United States that are different from those in Europe, specifically with regard to the institutions' views of their ability to access facilities under stress. So I think that, although there are good arguments for a standing facility based on implementation of monetary policy. It could help in terms of the demand for reserves over the longer term.

I do think, however, that this is a more complex set of issues, and that we really do need to think about all of the reasons why banks choose to hold enormous amounts of reserves with the Federal Reserve, rather than hold more Treasury bills. So I think that's a very healthy discussion. It's not a "silver bullet," in my mind, that can alone deal with a very high level of reserves. But, clearly, this is something that we need to be thinking about in coming meetings.

And the last thing I'll say on this is that I think that the Federal Reserve's mission has been served very well by staying out of the political fray. I worry that we have now entered into a period in which we're taking on "Super Bowl favoritism" here. [Laughter] And I feel, for the Federal Reserve's mission and our independence, this swelling support for the Kansas City Chiefs should not be part of your press conference statement. I think we should just stay out of that debate. [Laughter] And I hope that it will not be in the minutes and—

MR. KASHKARI. Doesn't it have to be in the minutes? Because we all discussed it, it has to be.

MR. QUARLES. I think "virtually all" has to be there [laughter]—

CHAIR POWELL. A two-hander from President Evans.

MR. EVANS. Well, Mr. Chair, if I could, an important part of our communications coming out of a meeting like this is the minutes and what they say. And we had a number of very important comments that I thought were made toward the end of the commentary, which, if I'd had a chance to pile onto, I would have agreed with. If I could very quickly just mention that I think President Daly, when she says that the language about the sustained improvement to 2 percent—I would definitely have supported that. I thought that could have been very important.

I think that President Kashkari's suggestion that if alt-B had actually included the funds rate being held where it is until we got to 2 percent—I would have been quite supportive of that. And I think Governor Brainard's comment about having strong sympathies with our commitment to the funds rate being held lower and our balance sheet policies is important. But it might require us clarifying financial-stability concerns, to make sure everybody understands our commitment to that. I think that could be important, too, so I just wanted to mention that. Thank you.

CHAIR POWELL. Great. Thank you, and thanks for a great round of comments. I'm going to offer a couple of thoughts on communications. I do think it's important that we adjust market expectations to the extent necessary. We don't know how out of line they are, or if they are, but we'd like to adjust them to be aligned with what our plan is. I think we've also learned, going back to the taper tantrum and ever since, that when the balance sheet is in play, it's

important to be careful, to be sensitive, and to be gentle—to be all of those things. For example, we taper. I'm well aware that tapering is macroeconomically insignificant. The models are clear on this. Nonetheless, it works, so we keep doing it. That's how I think about tapers.

Anyway, more generally, we do need to be careful. So, what I propose to do today—what I will do today—is to explain clearly what our plans are, such as they are, today regarding the balance sheet. First, we expect purchases to bring reserves to durably-ample levels by the second quarter, and we expect to be gradually reducing purchases after that. As the underlying level of reserves rises to an ample level, we expect to reduce repo gradually, and also to raise the minimum bid rate, which will have the effect of reducing repo. I'll stress that we're willing to adjust our plans as we go and as we learn.

I will explain, no doubt carefully and nicely, the differences between this program and QE. On the question of whether, nonetheless, this is providing some support to markets: If I get the question, I will demur.

I would think of this, though, as a step, and I think it's a step in the process of letting the markets understand clearly where we're going and why. And I think we'll all learn what the reaction—I think the reaction is fairly highly uncertain on this. I expect it to be *de minimis*. But I do think that market participants are going to come to understand—and, really, already are coming to understand—what this is. And you're starting to see people pick up the thought of the fact that the balance sheet has already experienced its growth.

So I think people—I would encourage us to move forward with further communications, to the extent the door is open. But, again, I think the gradual rolling-out of this is a healthy way to go, in a situation in which we may or may not be looking at agitated market perspectives.

With that comment, let me now ask Jim to make clear what the FOMC will vote 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 6 and 7 of Thomas's briefing materials.

Chair Powell	Yes
Vice Chair Williams	Yes
Governor Bowman	Yes
Governor Brainard	Yes
Governor Clarida	Yes
President Harker	Yes
President Kaplan	Yes
President Kashkari	Yes
President Mester	Yes
Governor Quarles	Yes

CHAIR POWELL. Now we have two sets of related matters under the Board's jurisdiction: corresponding interest rates on reserves, and discount rates. May I have a motion from a Board member to take the proposed actions with respect to the interest rates on reserves, which implement the technical adjustment discussed earlier, as set forth in the first paragraph associated with policy alternative B in Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. 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 in Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Our final agenda item is to confirm that the next meeting will be on Tuesday and Wednesday, March 17 and 18, 2020. And that concludes this meeting. Thanks to everyone. And a delicious buffet lunch awaits those of you who eat lunch at 9:50 a.m. [Laughter] Thanks very much. Travel safely.

END OF MEETING