Meeting of the Federal Open Market Committee on December 10–11, 2019

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, December 10, 2019, at 10:00 a.m. and continued on Wednesday, December 11, 2019, at 9:00 a.m.

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

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

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

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

Rochelle M. Edge, Eric M. Engen, Christopher J. Waller, William Wascher, Jonathan L. Willis, and Beth Anne Wilson, Associate Economists

Lorie K. Logan, Manager, System Open Market Account[1]

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

[1] The Committee appointed Lorie K. Logan to serve as the manager of the System Open Market Account at the conclusion of the meeting.

Eric Belsky,[2] Director, Division of Consumer and Community Affairs, Board of Governors; Matthew J. Eichner,[3] Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Michael S. Gibson, Director, Division of Supervision and Regulation, Board of Governors; Andreas Lehnert, Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve, Deputy Director, Division of Monetary Affairs, Board of Governors

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

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

Brian M. Doyle, Wendy E. Dunn, Joseph W. Gruber, Ellen E. Meade, and Ivan Vidangos, Special Advisers to the Board, Office of Board Members, Board of Governors

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

Shaghil Ahmed, Senior Associate Director, Division of International Finance, Board of Governors; Diana Hancock, Senior Associate Director, Division of Research and Statistics, Board of Governors

Antulio N. Bomfim and Robert J. Tetlow, 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 K. Kiser, Associate Director, Division of Research and Statistics, Board of Governors; Elizabeth Klee, Associate Director, Division of Financial Stability, Board of Governors; David López-Salido, Associate Director, Division of Monetary Affairs, Board of Governors

Glenn Follette, Patrick E. McCabe,[4] and John M. Roberts, Deputy Associate Directors, Division of Research and Statistics, Board of Governors; Matteo Iacoviello and Andrea Raffo,[5] Deputy Associate Directors, Division of International Finance, Board of Governors; Jeffrey D. Walker,[2] Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Etienne Gagnon, Assistant Director, Division of Monetary Affairs, Board of Governors; Paul Lengermann, Assistant Director, Division of Research and Statistics, Board of Governors

[2] Attended through the discussion of the review of the monetary policy framework.
[3] Attended through the discussion of developments in financial markets and open market operations.
[4] Attended Tuesday's session only.
[5] Attended through the discussion of developments in financial markets and open market operations, and from the discussion of current monetary policy through the end of the meeting.

Penelope A. Beattie,[2] Section Chief, Office of the Secretary, Board of Governors; Seung J. Lee,[6] Section Chief, Division of International Finance, Board of Governors

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

Michele Cavallo and Kurt F. Lewis, Principal Economists, Division of Monetary Affairs, Board of Governors; Laura J. Feiveson,[2] Principal Economist, Division of Research and Statistics, Board of Governors

Nils Goernemann,[2] Senior Economist, Division of International Finance, Board of Governors

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

Becky C. Bareford, First Vice President, Federal Reserve Bank of Richmond

David Altig, Michael Dotsey, Jeffrey Fuhrer,[2] and Sylvain Leduc, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Philadelphia, Boston, and San Francisco, respectively

Todd E. Clark, Marc Giannoni,[2] and Spencer Krane, Senior Vice Presidents, Federal Reserve Banks of Cleveland, Dallas, and Chicago, respectively

Jonathan P. McCarthy, Alexander L. Wolman, and Patricia Zobel, Vice Presidents, Federal Reserve Banks of New York, Richmond, and New York, respectively

Thomas D. Tallarini, Jr., Assistant Vice President, Federal Reserve Bank of Minneapolis

Karel Mertens,[2] Senior Economic Policy Advisor, Federal Reserve Bank of Dallas

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

Scott Davis, Senior Research Economist and Advisor, Federal Reserve Bank of Dallas

Julie Hotchkiss,[2] Research Economist and Senior Advisor, Federal Reserve Bank of Atlanta

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[6] Attended the discussion of economic developments and the outlook.

Transcript of the Federal Open Market Committee Meeting on December 10–11, 2019

December 10 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 get started, I'd like to say a few words about Paul Volcker, who, as you know, died earlier this week. Paul served as Chair of this Committee from 1979 to 1987.

He accomplished many things during his long and distinguished career here at the Fed and elsewhere. Of course, he's best known for leading the fight to tame the double-digit inflation that he inherited as Chair, thus laying the foundation for the prosperity and price stability that we enjoy today. But what is perhaps most admirable about him, more than his many accomplishments, is his character. He believed that there is no higher calling than public service, and he dedicated the lion's share of his life to it. With courage, integrity, and tenacity, he always pursued the policies that he believed would ultimately benefit all Americans. And I know we all draw inspiration from his example. The nation owes him a debt of gratitude. And now I invite you to join me in a moment of silence to pay our respects to this most distinguished member of the Fed family. [Extended silence]

CHAIR POWELL. Okay. Thanks, everyone. Our first agenda item is the fourth installment on our strategic review of the monetary policy framework. Let's get started with the staff briefings from Karel Mertens and Ellen Meade. Karel, would you like to begin?

MR. MERTENS.[1] Thank you, Mr. Chair. I will be referring to the "Material for Briefing on Review of Monetary Policy Framework" handout.

Over the past few decades, wealth and income inequality in the United States have increased. Although this is primarily due to structural forces beyond the influence of monetary policy (such as technological change, demographic trends, or globalization), as noted on the first slide, rising inequality may contribute to the challenges posed by the effective lower bound. For example, some research suggests that inequality trends contribute to lowering *r**, as the higher concentration of wealth among high-saving households increases the net supply of savings, thereby lowering the required return. In addition, if greater inequality means that more households are living paycheck to paycheck, aggregate consumption is more sensitive to fluctuations in aggregate income than it would be if inequality was lower. This dynamic amplifies the effect of declining aggregate income, worsening economic downturns, an effect that is especially pronounced once the policy rate hits the ELB.

The memo illustrates the latter point in simulations of two versions of a New Keynesian model. The first is a representative agent new Keynesian—or RANK—model in which households are perfectly insured against all individual earnings risk, and inequality plays no role in macroeconomic dynamics. The second model is a heterogeneous agent new Keynesian—or HANK—model. This model recognizes that households cannot perfectly insure against earnings risk and that, because of liquidity constraints, spending decisions are sometimes constrained by available income. In principle, there are many aspects of wealth or income inequality that might be important for macroeconomic dynamics and welfare. In this model, one aspect of inequality that matters in particular is the share of people at or near the point of being liquidity constrained. A larger share of liquidity-constrained households makes aggregate consumption more dependent on current income. In the HANK model, the share of constrained households, and, thus, the aggregate dependence on current income, increases endogenously in recessions and makes the economy overall more sensitive to shocks.

Away from the ELB, traditional interest rate policy remains relatively effective in the HANK model, because the increased dependence of consumption on current income also makes the stabilizing effects of monetary policy stronger than in the RANK model. However, as suggested a moment ago, economic outcomes are significantly worse in the HANK model once the policy rate hits the ELB, because monetary policy is less effective in offsetting the decline in income during a recession. The stronger multiplier effects associated with binding liquidity constraints thus exacerbate downturns. For example, the average unemployment rate in the HANK model is 0.6 percentage point higher than in the RANK model, and the standard deviation of unemployment is almost twice as large.

While we focus on the role of liquidity-constrained consumers in this model, the share of households that are liquidity constrained is likely correlated with standard

[1] The materials used by Mr. Mertens and Ms. Meade are appended to this transcript (appendix 1).

measures of inequality. To the extent that this is the case, models such as HANK suggest that the costs of the ELB are likely larger than estimated in more traditional models.

The success or failure of monetary policy in stabilizing economic fluctuations also affects inequality, because, as noted on slide 2, the costs of cyclical fluctuations are not borne equally by all households. In practice, unemployment rates for minorities, the young, or the less educated rise disproportionally during recessions.

Those who are hit the hardest in a downturn tend to also benefit disproportionally in a strong economy. Based on past economic expansions, however, the evidence is that these benefits mitigate, but not fully offset, the negative effects of recessions. For these reasons, monetary policy strategies that succeed in reducing the frequency and severity of recessions are, all else being equal, likely to decrease economic inequality in the long run.

Monetary policy also has short-run distributive effects, and these effects may influence the breadth of public support at the time of implementation of specific strategies. Policies that deliberately seek a mild overshoot of the longer-run inflation goal—such as average inflation targeting—may in theory lead to better macroeconomic outcomes by providing additional stimulus through lower expected interest rates and higher expected inflation in a downturn. Such policies would lead the Committee to be at times more accommodative than would be the case under a "let bygones be bygones" strategy.

The memo provides an overview of some of the main distributive effects of looser policy following a downturn for working age and elderly households at different levels of income. Many factors help determine the effect of monetary policy on individual households. Important dimensions include differences in the composition of income, of net worth, and of consumption baskets. As detailed in the memo, looser monetary policy in the short run likely benefits most working-age households—in particular, borrowers and the working poor—but may be less popular among many upper-middle-income retirees because of losses in interest income.

Finally, turning to slide 3, we reevaluate the performance of the inflation makeup strategies that were considered in the memos discussed at your August meeting, comparing the model in which inequality is irrelevant for aggregate dynamics with that in which inequality matters because of liquidity constraints. In these makeup strategies, the policy rate depends on the output gap as well as on the average of inflation over some horizon.

In the wake of a severe adverse demand shock, each of the inflation makeup strategies succeeds in reducing the rise in unemployment and the drop in inflation. These strategies remain effective in the economy with liquidity-constrained households, largely through the same mechanisms as in the standard model—by raising inflation expectations and lowering real interest rates. However, the stabilization gains are larger in the model with liquidity constraints, especially when the policy rate hits the ELB. This is primarily because additional spending by the more interest-rate-sensitive consumers raises incomes of constrained households, which prevents sharper and self-reinforcing reductions in spending and employment through multiplier effects. In the simulation results, inflation makeup strategies reduce the long-run average unemployment rate by approximately 0.4 to 0.5 percentage point, which is substantially more than in the model without liquidity constraints. In practice, such a reduction in aggregate unemployment would almost certainly be larger for particularly vulnerable subgroups—the historical average suggests roughly twice as large for black men or high school dropouts. As noted in the memos discussed at the September meeting, the potential for gains from such policies depends on several important assumptions—including that the public understands, believes, and reacts to policymakers' commitments. But we conclude that, overall, a number of distributional considerations are likely to reinforce the beneficial effects of makeup strategies.

MS. MEADE. Thank you, Karel. My presentation begins on slide 4 of your briefing handout.

Between the end of February and mid-October, the System hosted 14 public events as part of the *Fed Listens* initiative, the outward-facing piece of your review of monetary policy strategy, tools, and communication practices. These events engaged the public directly on issues pertaining to the dual-mandate objectives. While the System already devotes substantial resources to community engagement, these events were seen as employing a somewhat different focus, in that you were more directly seeking input from diverse communities and constituencies on the effects of your policy actions. The staff background memo provided detail about the events themselves. In the remainder of my remarks, I will review the key "takeaways" discussed in that memo.

First, the representatives of underserved communities generally saw the current labor market conditions as providing significant benefits to their constituents—primarily employment opportunities for individuals who had experienced difficulty finding employment in the past. Many noted that labor market conditions in these underserved communities were far from "hot," in contrast to what the national statistics suggest. Participants at the events also expressed concern about the ramifications of the next downturn for these newly hired workers and whether the job experience they will have acquired by that time will allow them to sustain labor force attachment.

Your next slide provides perspectives offered by small business owners and representatives from business organizations who saw the current labor market conditions as presenting challenges in terms of finding qualified workers to fill available positions. We heard many stories at the events about businesses partnering with workforce development agencies or community colleges to devise training programs or specialized curriculums to prepare available workers to meet job demands. Relatedly, we heard about a greater willingness on the part of firms to employ individuals who would not have been considered in less favorable labor market conditions, such as the formerly incarcerated or those who could not pass a drug test.

In addition, business representatives generally did not report increasing wages as a means of attracting and retaining workers. Instead, they reported offering new training or education programs and adding or augmenting health care and other benefits. A growing emphasis on what was referred to as "workplace culture" may account for why more generous benefits and greater flexibility have become viable substitutes for higher wages.

Your final slide reports perspectives on interest rates, inflation, and Federal Reserve communications. While businesses and community-development financial institutions generally found the low interest rate environment beneficial, representatives of underserved populations and retirees conveyed different views. A good portion of the populations in lower- and middle-income communities generally have little or no access to conventional credit. As a consequence, they often do not benefit when the interest rates on conventional credit decline as a result of the FOMC's actions. And wealthier retirees have seen a decline in interest income on savings instruments.

There was distinctly less discussion about inflation at the *Fed Listens* events than there was about the labor market. Participants acknowledged that inflation is low, and representatives of small businesses or business associations emphasized the importance of stable and predictable inflation for planning and decisionmaking. Participants representing the retired mentioned the rising costs of health care and prescription drugs as posing challenges for retirees on fixed nominal incomes, while those representing low- and middle-income communities pointed to the costs associated with basic necessities such as housing, utilities, and food.

Finally, with regard to FOMC communications, participants in the events expressed appreciation regarding your willingness to engage with the public as part of the review and for the regular interaction that the community affairs teams around the System have on issues such as workforce development, education, and housing. However, we also heard that the Federal Reserve could do a better job in terms of tailoring its messages to different audiences and communicating with clear and simple language. When the possibility came up of making up for inflation below the Committee's 2 percent objective, as it did at some of the events, participants generally had little or no understanding of policymakers' concerns about too-low inflation. Thus, as you turn your attention to the communications leg of the review, you may want to consider how best to explain the outcome of the review to the broader public.

That concludes our presentations, and we'd be happy to take your questions.

CHAIR POWELL. Thank you very much. Are there any questions for Karel or Ellen? [No response] Okay. Seeing none, let's turn to Governor Clarida.

MR. CLARIDA. Thank you very much, Chair Powell, and a special thanks to the staff and the steering committee for the memos on distributional considerations and the review of our 14 very successful *Fed Listens* events.

I will have some specific comments on the memos in a moment. But please allow me right now to offer some general observations on where we stand in the review process. As we've understood from the start, this framework review is ambitious in scope—a scope that covers possible changes to strategy, toolkit, and communication.

In July, we heard staff presentations on a review of our existing monetary policy framework and also heard about that at the Chicago conference. In September, we had staff briefings on framework alternatives to inflation targeting and in October on possible additions to our toolkit.

In our October communications subcommittee discussions and in bilateral conversations with each of you since then, it has been suggested that before we begin to discuss specific potential changes to our statement on goals and policy strategy that we, as a Committee, would benefit from a staff memo on financial stability considerations that are most relevant to our framework review and, obviously, Committee discussion.

So, in response to that feedback, Chair Powell has asked the steering committee to prepare a memo on financial stability, relevant for the framework review, for us to discuss at our January meeting. As the Chair has indicated, after we have had this final staff briefing on financial stability considerations, over the first several meetings of next year we will need to work together as a Committee to come to broad agreement, based on what we've learned from the review and the revisions to our Statement on Longer-Run Goals and Monetary Policy Strategy. The importance of this effort is based on the feedback received from many of you during our subcommittee outreach efforts before the October meeting, which indicated that the review has made clear that our existing statement does not adequately reflect the challenges and tradeoffs that we face today as policymakers.

Now, this process of crafting a new statement will take time and needs to—and will—proceed in a patient and deliberate manner, informed by bilateral conversations with each of you and the Chair and with members of the subcommittee as well as discussions among all of us together at future FOMC meetings informed by staff memos. And this timetable for the first half of 2020 is entirely consistent with all of our public comments on the review that have emphasized the first half of 2020 as a time frame for its completion.

Turning now to the steering committee memos themselves, I would like to make the following two points. First, we as a Committee are charged in our mandate with maintaining maximum employment, and the *Fed Listens* events and the staff briefings reinforce the message that the benefits to achieving and sustaining maximum employment are substantial and seem likely, perhaps through hysteresis channels, to endure beyond the eventual peak of the present business cycle.

From the 1970s through the Global Financial Crisis and its aftermath, the U.S. economy has spent far more time operating below estimates of maximum employment than it did operating above maximum employment. As a consequence, we simply have fewer data points and episodes with which we can precisely estimate the benefits of operating in the range of maximum employment. Thus, there has been, and continues to be, an understandable tendency in the economics profession to focus instead on the potential inflationary cost of overshooting maximum employment.

But in year 11 of this expansion, with both inflation and inflation expectations running below our objective, those potential future costs seem today, at least in expectation, to be modest and manageable, compared with compelling benefits that we have learned about during our review, and in these memos, of sustaining employment in the range of its maximum level. More specifically, in the absence of any evidence that the labor market is a source of actual excessive cost-push pressures, a case can be made that our communication should focus on the wide range of labor market indicators that we review and not highlight just one measure of u* that we include in our Summary of Economic Projections (SEP).

Speaking of the SEP, in my projections I wrote down a core personal consumption expenditure (PCE) inflation path that rises modestly above 2 percent under optimal policy, and that keeps the policy rate below my estimate of r^* through the horizon. Of course, were there to emerge durable and compelling evidence that expected inflation was beginning to rise above our target, which is not in my modal case, appropriate policy would, of course, call for moving the funds rate into restrictive territory.

Second, we learned from the excellent memos on distributional considerations that costs of falling well short of maximum employment during recessions are much more substantial in models augmented with realistic heterogeneous agent—or HANK—frictions than are the costs implied by representative agent models, which are still prevalent in much analytical work.

It's fair to say that many of us, including myself, who have worked on these representative agent models have long known that they are likely to understate the cost of recessions, but this recent research summarized in the memo begins to quantify in a rigorous way the benefits of staying out of recessions in the first place and keeping the depth and duration of downturns modest and brief.

Of course, as the memo highlights, the effective lower bound (ELB) constraint overlays an additional friction, which in these models levies a higher cost than is typically the case in the simpler representative agent models. To me, this reinforces the importance of anchoring inflation expectations at our target before we hit the next ELB. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. And let me say at this point, thanks to everyone who worked on the framework review this year and the team who managed the 14 *Fed Listens* events. I personally think that this has been a great experience and a really important one for the Fed as a whole.

When I'm thinking about all of this, and in the memo specifically, in the context of our dual mandate, a perennial challenge is defining what we mean by "maximum employment." As Governor Clarida just said, in reaction to that, we tend to look for inflation pressures as the basis for a good definition, because we don't really have much more to offer in this role.

And I think this challenge is particularly relevant right now, as conventional wisdom has failed to fully explain the sustained concurrence of low employment and below-target inflation. In this context in particular, I found the *Fed Listens* events especially helpful, as they drew insights from a wide range of sources. And my key "takeaway" from these events is that the labor market may be much more elastic than we previously thought—and that we need to learn about its limits experientially, by seeing them in the data.

To this end, at the San Francisco bank, we took on the idea that there are costs and benefits of a "hot" economy, and we wanted to ask people specifically what they were. And we defined a "hot" economy as one in which unemployment is below the consensus natural rate. And, across the board, participants, including former Congressional Budget Office (CBO)

Director Doug Elmendorf, the current CEO of SkyWest, the past president of UPS Northern California, and the numerous representatives from workforce and housing development groups, all, to a person, talked about tradeoffs. And on the positive side, they started with the idea that tight labor markets draw in workers who otherwise would remain on the sidelines—what Ellen just talked to us about.

When workers are hard to find, firms intensify their recruiting, and they relax rigid hiring standards that they may not need in order to fill their positions. And this helps less advantaged workers get a hand up in the economy, as we've heard, and it also boosts income, consumption, and economic well-being for those workers and their families and, importantly, chips away at some long-standing gaps between more and less advantaged groups, such as racial and ethnic minorities.

These reports from participants actually correspond to recent research by myself and many others about the benefits of growth, so they were saying things that we had seen in the aggregate data, but they were saying them at the community level.

Perhaps most strikingly, though, Doug Elmendorf and many others at our conference noted that tight labor markets have broader social benefits. They emphasized that employment imparts a sense of dignity and purpose to individuals and their families and helps many avoid troubling alternatives, such as criminal activity or opioid addiction. Those were the ones mentioned.

Many suggested that these employment opportunities, even if not themselves permanent through the next recession, can have lasting effects. Parents who have jobs can provide more or better opportunities for their children and become a positive role model for what an inclusive economy or inclusive labor market means. And, extrapolating this, they acknowledge that these experiences can incent human capital investment in younger generations and ultimately lead to higher long-run growth in our economy. But, of course, a diverse set of factors ultimately affect labor market opportunities, and monetary policy is not a panacea for all societal problems. But the *Fed Listens* events highlighted the fact that monetary policy can and does do a lot of good by sustaining growth and probing to find the level of full employment, as long as offsetting costs don't emerge.

Now, turning to those costs, I actually was somewhat surprised to hear that across the board, of all of the individuals who participated that I described, at least in San Francisco, people take these costs very seriously. In fact, they had thought a lot about them—and that's workforce development individuals and housing advocates and private-sector businesses. We had very robust discussions about housing inflation, financial excesses, and talent misallocation—pulling people out of school or training programs to take short-term jobs. And, of course, we heard about the difficulty finding workers.

But when you push people and ask them, "What would you do if you were at the Fed?," the consensus was, yes, there are costs, and they should be on our watch list, but, net–net, a strong and lengthy expansion is very beneficial. And this is consistent with my own read of the research evidence and leads to my view that in a low-inflation environment, with a stable financial system, we should let the economy run and determine empirically the true level of full employment.

Now, in terms of question 2—"How do we explain to the public our concerns about persistently below-target inflation?"—I will return to my roots and a theme I've mentioned in many meetings. I grew up in Missouri, which, as many of you may know, is the "Show Me" state, so I think I've taken that on as a mantra for my life. And it informs me that we cannot simply talk about reaching 2 percent inflation and have people believe us or talk about 2 percent inflation and have people think that we really think it's important for the economy or for monetary policy.

We have to continually take actions, like the three rate cuts we took this year, to show the public that we are committed to achieving our target of price stability, defined as 2 percent inflation. But, of course, words can help, and here I think our current efforts to emphasize the danger of falling inflation expectations and loss of policy space are worth repeating and repeating and, as President Bostic said last time, repeating again. Ultimately, though, linking the importance of achieving the 2 percent inflation mandate to our ability to mitigate the effects of future recessions and taking actions that support that statement should resonate with the broader public, building credibility and, importantly, understanding.

Now, finally, on the third question, which is what the HANK and other models were about, on the distributional consequences of our policy, my view is that our first-order responsibility and where we can have the first-order effect is to lay the foundation for better outcomes. We need to be aware of how our policy actions affect different segments of the population, absolutely, and how distributional considerations affect the transmission of policy to the broader macroeconomy.

But, at the end of the day, our tools are best at achieving maximum employment and price stability in the aggregate. And, by executing on these goals consistently, we put the economy in the best position to allow fiscal and other agents to close long-standing structural distributional gaps. In other words, I came out believing that we can't do it alone, but we have to do our part. Thank you.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. Once again, the staff has set the table well for an excellent discussion of important issues here today, and, seeing Ellen, I want to thank Ellen Meade so much for organizing the *Fed Listens* conferences, working with us in Chicago so well, and attending all of the meetings. They worked out fabulously well.

I'll address each of the questions in turn. *Fed Listens* meetings, especially the less academic portions, brought home the multidimensional importance of our task as monetary policymakers. What we do matters significantly for people with many different attributes and characteristics, cutting across the distributions of income, wealth, education, job skills, and geography.

Delivering a strong economy with a robust labor market has substantial benefits in addition to helping us achieve our inflation objective today. *Fed Listens* events highlighted the experiences of individuals and groups that seemed almost perpetually mired in economically disadvantaged situations. These qualitative accounts are very important for us to hear. As data-oriented analysts, we've been told by experts that it is difficult to establish rigorously the quantitative importance of hysteresis. But the experiences shared at our events suggest that a prolonged period of labor market strength could have lasting positive effects on the employment and earnings prospects of many people. This seems especially true for those disadvantaged individuals who are far from the middle-of-the-income and middle-in-skill distributions that our models typically focus on.

We heard many powerful stories. Let me recount just one we heard at our Chicago event. It was from the leader of an organization that helps the formerly incarcerated reenter society. The strong labor market was making his organization's work much more effective. Starting two or three years ago, more employers began to contact them with offers to collaborate. As a result, many former prisoners who never before had a strong connection to the labor market were finding productive employment and building skills that should greatly improve their chances for success over the long haul. The speaker also stressed that long-run success didn't depend on the labor markets strengthening further, say, to an unemployment rate of 3 percent, but it was essential that employment opportunities remain vibrant. His clients are just stepping onto the bottom rungs of the job ladder and are likely to be the first people let go in a downturn. They need time to build skills through on-the-job experience. So continuing the expansion was critical for their long-term labor market success.

As I said, there were many such stories at *Fed Listens* events, and the bottom line of these accounts is that many people need exposure to continuing job opportunities in order to cement their long-term attachment to the workforce.

In a world of considerable uncertainty about the natural rate of unemployment and in which inflation has been less than 2 percent for some time, these considerations make me even more inclined toward policy that is true to our symmetric inflation objective. These job market gains for disadvantaged individuals are an important additional benefit of providing enough accommodation to move inflation above 2 percent in order to deliver on symmetry.

This brings me to the second question of how we can best convey to the public the benefits of raising inflation to our 2 percent goal, but this is not an easy task. There isn't enough time to discuss this important topic today. We could go on for hours, and everyone knows this is a credible threat on my part. [Laughter] But here are a few sound bites for much longer arguments I would use. First, standard microeconomics tells us that competition and free markets should deliver a real wage that is consistent with workers' skills, labor availability, and firm demand. Inflation doesn't enter the equation. Second, instead, most of the costs of inflation are not about its level, but about its variability and surprises relative to expectations. In today's world, surprise 6 percent inflation would be bad, and surprise minus 2 percent inflation would be even worse. Third, when policymakers promise to deliver an economic outcome, they have a responsibility to do so. For us, that is 2 percent inflation. There are real costs when we fail to deliver.

The example that I give is about the American dream of owning a home. Borrowers stretch to buy houses, financed with fixed-rate mortgages, with the expectation that their payments will become less onerous as their wages grow because of both real income growth and inflation. These expectations make sense under the terms of the contract of the fixed-rate mortgage. Failing to deliver on the expected inflation underlying this market mortgage rate and investment strategy thus has real implications.

The risks of failure also show up in a mortgage rate with an excess inflation risk premium that is meant to compensate lenders for offering 30-year fixed-rate contracts at the Fed's 2 percent target inflation rate. The lender's excess windfall is at the borrowing family's expense and probably alters future home-buying abilities or increased mortgage distress.

Another example is the brutal costs to the ELB if inflation runs too low. We've spent countless hours discussing these problems, so there's no need to say more about them now. But if you don't want to punish savers with lower-for-longer zero interest rates, then a useful preventive measure is to manage inflation better through the cycle. All this said, educating the public on the virtues of maintaining 2 percent inflation is not a one-and-done communications job. There is no simple way to do so. It is virtually human nature to suffer from money illusion.

The obituaries for Paul Volcker were particularly poignant, and I noticed one story about how, when he was going to Princeton, his mother was offering him only a $25 monthly additional stipend or something, and this was the same $25 that had been offered to his older sisters. And he asked for more, and he thought he needed more as a male as opposed to his sisters or whatnot, but she insisted, only $25, even though it didn't buy what it used to. And as he said, "She suffered from money illusion." [Laughter]

Money illusion is a problem for so many people. Most people think that a dollar is a dollar and that receiving 3 percent interest is always better than 1 percent interest, regardless of inflation. My staff didn't want me to read the next line, because it's so obvious to economists: Real interest rates are tough for the public to appreciate. Their eyes glaze over if you talk about real interest rates in speeches, much as our students. [Laughter]

Finally, on the last question, let me end up with some more traditional monetary policy commentary. I found the discussion of HANK models very interesting. These models suggest that aggressive monetary policy in the vicinity of the ELB is even more effective and important than we've otherwise assumed. I don't know the answer. This is still a new and exciting area of research. I applaud everybody doing this very interesting work. We have a lot to learn about these models.

In any case, I was already convinced that we need to be aggressive when the ELB is an issue. Inspired by Governor Quarles's fondness for quoting the movie *Trading Places,* I will paraphrase two iconic lines from the Tom Cruise movie *Jerry Maguire:* "You had me at aggressive monetary policy"—[laughter]—and "Show me the inflation." I'm with Mary on that one.

Ultimately, the HANK discussion reinforced how I was already thinking about our monetary policy strategy. Where ELB risks are prominent, we will want to follow outcome-based policies that take strong actions to demonstrate our commitment to achieving our dual-mandate goals. There are many ways we can communicate the rationale for these actions. We can talk about the general benefits of committing to rates that are lower for longer without getting into exactly who benefits the most.

I don't have an aversion, however, to noting that heterogeneity may make such policies even more beneficial, but the key point is that we make the commitment up front and follow through aggressively on the policies needed to achieve our goals.

In sum, the *Fed Listens* events underscored the importance of our actions for the broader public. A commitment to strong policy actions is needed to deliver on both parts of our dual mandate in the presence of the ELB. This might generate additional benefits because of heterogeneity, but I do not think that we have to rely on distributional arguments to make the case for following a monetary policy strategy that truly delivers on our dual-mandate goals. We already knew that was the right answer. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Chair Powell. I'll also follow the three questions in order. On the first question, I thought the *Fed Listens* tour was a good opportunity to have a two-way dialogue, albeit with an emphasis on listening to the public about our monetary policy framework and the effects of our policies on a wide array of populations.

Three points were reinforced in these discussions. First, not surprisingly, the employment part of the mandate is very important to the public. Furthermore, the benefits of even a very tight labor market are not evenly distributed across different populations. We clearly heard that recent very tight labor markets have benefited many potential workers who do not benefit from a normal expansion.

Second, periods of high aggregate unemployment differentially affect people and communities, creating scars that linger for those individuals and communities. Hence, these populations tend to see the cost of unemployment as higher than may be reflected in many of our models.

Third, the public seems quite indifferent to small variations in inflation around 2 percent despite all of the passion in the previous discussion. The reasons for the FOMC's current concern about inflation being modestly below its target are, therefore, not well understood. This highlights a need to communicate more simply and clearly with the public about why low inflation is a problem and, in particular, why we should be concerned about the constraint imposed on monetary policy by the ELB. As we determine changes to the framework, we should keep these communication challenges in mind.

Regarding the second question, discussions about below-target inflation, particularly when the deviations are in a range that the public views as insignificant, will require making a clear connection between the attendant reductions in inflation expectations and the effect that has in reducing the interest rate space available to offset macroeconomic shocks. Given what I mentioned in my first point, achieving sustainable maximum employment, which the public wants, requires keeping inflation expectations anchored, providing us the room to react to adverse shocks with countercyclical monetary policy.

For the third question, the heterogeneity discussed in the memo highlights the need to react more aggressively when it is clear that the economy is in a downturn. This is an important point to remember. However, we will need to balance the concern with the likelihood that pushing rates too low for too long also has important consequences for the potential duration of an expansion as well as the severity of the subsequent recession.

Allowing inflated asset prices or, more generally, an economy with rising imbalances can increase the likelihood of incurring the high-unemployment periods that are so costly to communities we talked to in *Fed Listens.* Indeed, one of the most severe unemployment outcomes since the Great Depression occurred not when inflation was far from target, but when policy was arguably too sanguine about inflated asset prices and distortions in the financial sector.

I very much look forward to the discussion at the next meeting. Thank you.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I also want to thank the staff for really great work on this issue of heterogeneity and how it plays into business cycle disturbances that propagate through the economy. So I really want to thank you for that work. I believe that assessing the differential effect—economic effects—that these shocks have is an important element in the design of any monetary policy framework.

The key point is not solely based on the sound economic reasoning displayed in the memo, but is reinforced by my interactions with various groups in my region. One particularly informative interaction occurred from the *Fed Listens* event in Philadelphia. That conversation made abundantly clear that there are differential, cyclical economic effects felt by different segments of the population, as we've discussed before, especially those of lower income.

Because the HANK model explicitly includes these segments of the population, I find it especially useful for our framework discussions. As well as showcasing the importance of heterogeneity on the household side, our event in Philadelphia highlighted the fact that firms are also differentially affected by cyclical movements in the economy. So it's not just the consumer.

Although the memo concentrates on the effects that alternative monetary policies have on the cyclical effects of demand shocks, I would conjecture that the optimal inflation rates and optimized Taylor rules would look different in the two classes of models, RANK and HANK. So perhaps the staff could revisit these issues, because I think they're fundamentally important to our framework discussions.

The severe hysteresis-type effects that occur in the ELB events are a particularly poignant reason why we should have a positive inflation rate and perhaps one that is somewhat higher than 2 percent. As well, the possibility of downward nominal wage rigidities could exacerbate poor labor market outcomes that occur as a result of negative demand shocks. Such possibilities suggest an additional reason for a positive inflation rate that would help grease the labor market wheels. Although not all models of downward nominal wage rigidity arrive at this conclusion, such an outcome does remain a theoretical possibility.

One of the drivers of negative hysteresis in HANK models arises from interactions with consumer credit. When individuals have a negative credit history, it often makes finding a job more difficult, as potential employers often use the credit history as one factor in their hiring decisions. Work done by the Philadelphia bank staff documents the increase in default rates during a recession. So, HANK models may have implications for regulations surrounding consumer credit and, perhaps, employment that are beyond the monetary policy tools that we have.

Another policy-related aspect arising in HANK models and that seems relevant in the current environment is the deleterious effect of maintaining low rates for a long time that arises through asset prices, as President Rosengren just mentioned. A persistent low-rate policy could inflate prices of both financial and housing wealth, which exacerbates income inequality. Higher house prices make it more difficult for new home buyers to enter the housing market. This hypothesis is consistent with the recent stagnation in home ownership rates despite the current vibrancy in labor markets.

So the results from the HANK literature highlight the relevant concerns pertaining to the disparate effects that are felt over the business cycle, especially when they involve an ELB event. To me, they indicate that we should adopt some form of makeup strategy once inflation exceeds 2 percent. The potential for dampening the pain of a recession felt by the lower portion of the income distribution makes for a compelling argument to that approach. Of course, exactly how to implement such a makeup strategy that is credible remains a challenge.

To me, the best approach for now is one in which we continually reemphasize that 2 percent is not a ceiling on inflation and then, as President Daly said, "walk the talk" by letting inflation run above this target for a period of time. The revision of our statement language will be an important step in communicating this strategy, and I look forward to next year's discussions. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. Let me comment first on the *Fed Listens* events. I think I agree with everyone around the table here that these were generally very good and welcomed—very successful. In St. Louis, we brought together all of our various councils all at one time to do our *Listens* event, and it seemed to come off quite well.

One remark I would have on this process is that I think that our message should be that we listen all the time, not just once in a while. All 12 Reserve Banks do have extensive outreach programs in the 12 Districts, as mentioned in the staff presentation, and I think we should play that up when we're talking about this kind of issue.

The types of comments that were made were certainly very interesting, as always, and are also well summarized in the staff report here. But they also built on commentary that we get through our continuous listening programs: aspects of labor market stresses, access to credit markets, pricing and inflation, and feedback on Fed communications.

I want to use the bulk of my time to outline my own view on heterogeneous agent macroeconomics following the very nice staff memo by Feiveson and others. My main messages and "takeaways" on this topic are as follows. First of all, I think heterogeneous-agent macroeconomics is the future of macroeconomics, and the Fed needs to have models that are conversant on these issues.

The second "takeaway" will be that the current literature—the so-called HANK versus RANK models—is certainly fascinating but, in my opinion, is insufficiently mature to use for policy purposes at this juncture. Accordingly, I think our position should be that we will work more on this issue and more on heterogeneous agent models, but we'll also recognize that actual policy recommendations coming from the current generation of heterogeneous agent models, such as what policy rule to employ, will depend heavily on model details. Policy recommendations might easily be reversed as a result of small changes to the model. But that just reflects the fact that the literature isn't completely mature at this point. We've got a ways to go, both inside the Fed and in academia, on these issues.

What I think we can do as a Committee is be prepared to clearly delineate what we see as appropriate macroeconomic policy responsibilities in a world with substantial inequality. That is, we can be conversant on these issues versus silent on these issues. I think that, historically, when this kind of topic has come up, we have said things like, "It's not in our model," "We don't have anything to say about that," or "We're not sure what the implications are of that." I think we're not going to be able to get away with answers like that again. We're going to have to be conversant. We're going to have to be able to say, "We looked at this, and here's what we think about it."

So I'm going to give you my take on how these models work. Just a few comments here, because I have been thinking about this a lot. I have a talk called "Classic Policy Benchmarks," if you want to see it, on my webpage.

I think the structure of, and the desire in, these models is to get more granular so that we can better understand the disparate effects of monetary policy on different households in the actual economy. The models have five ingredients, in my opinion. They have a set of aggregate shocks that are the usual aggregate shocks that we would talk about to total factor productivity or demand or labor supply. They also need to have life-cycle aspects, in my opinion, to be credible.

The life-cycle aspect, above all, means that there is something like peak earning years for households that is a feature of the world that, unfortunately, macroeconomics typically abstracts from but is very important in the real world. Certainly, people between the ages of, let's say, 40 and 60 are going to earn the bulk of their lifetime income in that phase, and you have to have that as part of the model. So what that does is, it creates a natural credit market in which middle-age people want to save for retirement and young people want to pull consumption forward in the life cycle.

That natural credit market is quite large. If you look at mortgage-backed securities and mortgage credit generally, it's about $14 trillion today in the U.S. economy. So it's not a small market. It's not something that really should be ignored when we do macroeconomics. Also, as was mentioned earlier by President Evans, there are important nominal frictions in these credit markets because people are assigning nominal contracts at nominal interest rates, and they have an expectation of inflation, but actual inflation might not come up to meet that expectation. So, in the jargon of macro, that's a nominal friction that could be quite important.

So you have this natural credit market, and then you have two more ingredients. This is going to get very complicated, because you also want to have personal shocks to your own life, so-called idiosyncratic risks or shocks to employment opportunities. You could think of that as an unemployment shock, maybe a health shock as well. That's the kind of thing that's very important in individual lives but generally gets abstracted from in the kinds of macroeconomic models that we use.

And, finally, there's a very important beginning-of-life human capital assignment that goes on in the economy, whereby we come into the economy and make decisions when we're 20 years old. We have some amount of parenting behind us, some amount of education behind us, and now we're going to go out there in the real world, and we're going to make our own economic decisions. That is super uneven in the U.S. economy, and we know that that predicts the bulk of lifetime earnings for various people in the economy. So you'd like to have that in the model.

If you put all of these things into one model—believe it or not, you can do it—you can get the GINI coefficients for the U.S. economy about right. And just to fix ideas here, the consumption GINI in the United States is about 0.32, the income GINI is about 0.51, and the financial wealth GINI is about 0.8. So a model of this type that has all this stuff in it is going to be able to talk coherently about the inequality that we observe out there in the data.

Now, the question is—boy, this is a beast—what should policymakers do? And I think there is a simple way to think about this that will dovetail with what we often say about this issue. I'm going to posit four different types of policymakers: a monetary, a fiscal, a labor, and an education policy. And acting in concert, these four types of policy can actually get you back to the very best allocation of resources in this economy. That's why I called this "classic policy benchmarks."

So the monetary policy guys, like us, would meet often, assess aggregate shocks, and adjust interest rates just like we do and just like would be done in a New Keynesian RANK or a New Keynesian framework or in the HANK model. There'd be a fiscal authority that sets taxes for the long term. They set a tax policy that raises the right amount of revenue to fund the government. You'd have a labor market policy that provides unemployment insurance—or you could possibly think about that as health insurance as well, but social insurance that's providing insurance against idiosyncratic risks faced by households and the economy. And, finally, you have some kind of education authority that is doing something about whatever is happening to people before they start their decisionmaking process in the economy—so, before age 20 or 25, how is that process working out nationally?

What you want is all four of those types of policies working perfectly together in this big, complicated model. And if you do that, then you can get a very good outcome. So what are the messages from this parable that I'm telling you? One is that this set of policies actually looks like what is being attempted in OECD economies. You go across all of these economies, and you will see policies of these different types. Another message would be that these policies are very poor substitutes for one another. Whatever is going on in the education process, us moving interest rates around isn't going to fix that or change that very much. So I think that you have to have that in mind, that even the very nature of these different types of policies is very different.

So I certainly think that heterogeneous-agent macro models are the wave of the future. They are able to address interesting facets of the data at more granular levels. The Fed needs to be conversant. As this research wave continues to gather momentum, I think all papers will be written like this in the future. The key question would be, is the nature of monetary policy practice going to be altered by this trend toward more careful consideration of microeconomic data in macroeconomic models, or is it essentially the same as what we do today?

The RANK model's core finding based on Clarida, Galí, and Gertler (1999) or Woodford (2003) is that monetary policy should strive to get the correct short-term real interest rate in the economy that would occur if there wasn't anything wrong in the economy. I think this is still likely to be true in the heterogeneous-agent world as long as you have these other policymakers that are doing what they're supposed to be doing.

The point is that the larger heterogeneous agent model just has many more moving parts and many more frictions, and so it's going to require types of policy other than just monetary policy in order to achieve a good outcome for the macroeconomy. I think this is a great message, because I think a lot of times when this Committee is asked in public about this issue, we often give this answer that these things depend on other types of policies. So this is just a formalization of that kind of argument.

These other policies include labor market policies in particular, unemployment insurance, tax policies, and education policies. The story that I have told here may provide one way for this Committee to conceptualize the role of monetary policy as our models get more and more granular and try to confront additional microeconomic facts. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you. Before I start, I want to say a few words about Marvin Goodfriend, who, sadly, passed away last week at the young age of 69. Marvin built the research group in Richmond and, as our long-time research director, inspired our team with his passion and uncompromising commitment to quality. He would have loved being a part of this monetary policy framework discussion, even if that required speaking up from the back row. [Laughter] It's a pity he can't be here with us.

Regarding the questions for today, the *Fed Listens* events were consistent with what I hear as I travel the Fifth District. The labor market is tight, bringing both benefits and challenges, and inflation is stable and not a big concern in either direction.

The Chicago conference was great and actually provided me more insight, in particular the discussion by Sharon Kozicki of the Bank of Canada. Canada and most other inflation-targeting countries use a range in addition to their point target. We don't. Canada explicitly monitors multiple core inflation measures. We don't. I think we ought to make sure our review explicitly discusses potential best practices like these from other central banks, and I'm not sure we've fully done that yet.

On the second question, I do agree it's hard to communicate our concerns over inflation somewhat below target; 1.7 percent versus 2.0 percent doesn't resonate with the public. If we do feel the need to focus more on the risk of lower inflation expectations and potential deflation, again, a range is a useful tool to call out deviations beyond normal levels.

Concerning the effects of heterogeneity, the HANK models may well provide improved assessments of the effects of monetary policy. And to the extent they do, I agree with those who say they should figure in all of our analysis.

As far as the conclusions go, before reading the memo, I believed that makeup strategies had modest effects. And the analysis didn't move me from that view. I do recognize that recessions affect low-income households disproportionately. I might note that logic doesn't necessarily convince me that we should attempt to run the economy even "hotter." Doing so has, at times in the past, actually led to recessions when we reversed policy abruptly or has, arguably, enabled financial instability. Thank you.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. I appreciate the opportunity to discuss the review from the perspective of households that are in different parts of the income distribution. I want to touch briefly on four points.

First, the notable increase in inequality in America is troubling for the health of our nation and has important implications for our work. With a large majority of American households relying primarily on wage income and with limited liquid savings, our focus on achieving maximum employment, buffering the economy against adverse shocks, and safeguarding a stable financial system is more important than ever. Not only low-income households, but also households at the middle of the income distribution have been negatively affected. If we look at the one-third of households between the 40th and 70th percentiles of the income distribution, staff calculations based on the distributional financial accounts show that middle-income families hold only 13 percent of all wealth—and that's down from 19 percent three decades ago—while the top 10 percent has seen their wealth expand from 47 percent to 57 percent.

The gap is also large in absolute terms and has grown. The average middle-income household has wealth of about $340,000 in comparison with the top 10 percent average of $4.5 million, and that gap has increased from 7 times three decades ago to 13 times today. That is compounded for some minority groups by large and persistent gaps in wealth. In 2016, the average wealth of white households was 7 times that of black households and 5 times that of Hispanic households. Differences in educational attainment don't account for those disparities.

With relatively low net worth and financial assets, the livelihoods of most lower- and middle-income families other than retirees depend primarily on compensation from working. Because the robustness of labor income over time is central to their well-being, the substantial strengthening of the labor market over this extended recovery has been a critical benefit to many people.

The maximum employment leg of our dual mandate is serving the country exceptionally well, and this was a prominent theme we heard in our *Fed Listens* events. Even so, we heard from many of our speakers that the national employment statistics are not representative of their communities. Various groups, including minorities, out-of-school youth, formerly incarcerated, and the less educated continue to struggle. As Juan Salgado (the Chancellor of the City Colleges of Chicago) told us, "When I hear 'full employment,' that is not our reality." While the national unemployment rate has been near 3½ percent for several months, the rate for African Americans is 5½ percent. The jobless rate for persons aged 25 and over with less than a high school diploma is also 5½ percent, and for persons aged 16 to 24, it's 8 percent. Those groups also tend to have lower participation.

Moreover, unstable earnings and disruptions associated with negative shocks are especially hard on households that have thin financial buffers. That turns out to be a strikingly large share of our population. Research based on the 2016 Survey of Consumer Finances (SCF) shows that only about 4 in 10 middle-income households have enough liquid savings to cover three months of expenses. So the majority of middle-income households don't have sufficient liquid savings to weather a typical disruption associated with a job loss or illness or severe weather event. Even modest unexpected expenses associated with an out-of-pocket medical expense or a car repair could set many households significantly back—and you are all familiar with the statistic from the Survey of Household Economics and Decisionmaking (SHED) that nearly 40 percent of adults would have to borrow, sell something, or not be able to pay an unexpected expense of $400.

Moreover, research has shown that disadvantaged groups generally experience much greater-than-average increases in their unemployment rates during recessions. Indeed, *Fed Listens* participants expressed concerns about what will happen in the next downturn to those who have only recently started to benefit from the strong job market. As we heard, it's great we have jobs, but we need to make sure we have sustainability. In addition, the current higher levels in inequality could exacerbate the severity of recessions, as was pointed out in the papers. This is because the larger the fraction of households that live paycheck to paycheck, the more sensitive consumption is to changes in earnings—which makes aggregate demand more sensitive to adverse shocks. These sobering realities underscore the importance of what our long-run statement made clear—that we are firmly committed to actively employing our full array of tools so that the effective lower bound is not an impediment to providing accommodation in the face of significant economic disruptions.

However—and this is my second point—we also need to emphasize that robust countercyclical fiscal policy is vital, given the compression and conventional monetary policy buffers and the ability of such fiscal policies to be more targeted. Here I'm echoing President Bullard but from a less model-based perspective. The reduced conventional monetary policy space makes the importance of fiscal support even greater than it has been in the past, and the case for fiscal support is especially compelling, considering the low long-term interest rates that we are seeing.

Monetary policy is a powerful instrument, but it is blunt. Fiscal policy can be more targeted in its effects, which is especially important in today's environment of great inequality and the vulnerability of a large majority of households with low liquid savings to a downward spiral from spells out of work or higher-than-expected medical or housing expenses. As Pat Dujakovich (the President of the AFL-CIO in Kansas City) told us, it's like a Slinky. If you pull from the top, it takes a whole lot to get the bottom up off the floor, but if you can get underneath it and move the bottom, it's going to move a lot quicker, and you can change lives.

Third, our regulatory and financial stability policies are also vitally important in safeguarding the financial resilience of low- and moderate-income groups, and here I think I'm echoing points made by Presidents Daly, Evans, and Harker. While the trends in inequality predated the Great Recession, they were greatly exacerbated by the scars of the financial crisis, which disproportionately destroyed wealth among lower- and middle-income groups.

While the wealth of the top 10 percent of households is more than one-fifth higher than before the recession, the wealth of middle-income families still has not returned to its pre-crisis level, and lower-income families have a wealth shortfall to this day of 16 percent. As you know, the accumulation of equity in a home is the primary form of wealth building and economic security for many middle-class families. That's why it was so damaging that home equity for an average middle-income household declined by almost two-thirds in the first part of the recession and recovery, and by the end of 2018, the home equity of the average middle-income family was still below the pre-recession level.

For black households, the declines during and after the recession erased a decade of increases in homeownership. So we have to remember, the regulatory safeguards we put in place since the crisis are vitally important for protecting the financial security of middle- and lower-income American households. And I'm pleased that we are going to be able to discuss financial stability in our framework discussion in January.

Finally, as many others have said, the *Fed Listens* roundtables highlighted yet again the great value we derive from the community affairs networks that our Reserve Banks have built with such great care around the country. Our presence in communities across the country is based on our responsibilities in community reinvestment as well as in community bank examinations and payments, but it also provides us with critical insights into the health of our communities—both rural and urban—that are informative for purposes of monetary policy. I am really pleased that this network was invited to be an integral part of our policy review, and I also want to express appreciation for all of the work that Ellen Meade did to make that possible.

One message we heard clearly is that while everyone who knows the Federal Reserve appreciates the work we do, our communications are not well targeted to these communities. So I hope that, in addition to the changes we make to our long-run strategy and toolkit, we undertake a review of our communications to make sure we're not gearing our communications only to the most sophisticated Fed watchers, market participants, and media intermediaries, but also putting intentionality into communicating in different modalities and mechanisms with other groups. The Bank of England has undertaken such a review that might serve as a good example. Thank you.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I want to thank Karel Mertens and the entire team who worked on the memo on inequality and distributional considerations. And, again, like everyone else, I'd like to also thank Ellen Meade and the entire team that worked on these *Fed Listens* events. I think the *Fed Listens* events, like others have said, have been a great experience for all of us at the Fed. It has been healthy for the Fed, and I think it's important that we continue to do these regularly and be seen to do these regularly, particularly discussions with, in my view, disadvantaged or underrepresented communities, and I'll come back to that.

I'll start with the *Fed Listens* events. The two or three things that struck me were, number one, they reinforced the view about the benefits of running the economy "hotter" than we might have historically and the benefits of drawing in and retaining underrepresented workers into the workforce. And I think these events helped reinforce that further.

Number two, like others have said, I think the concept of price stability is not well understood out there not only in at-risk communities, but also among businesses and small business owners. In particular, the risks are not well understood, as many others have said, of low inflation below our target. Most people out there I talk to in small business think we do have price stability now. And I do believe that once you introduce growth or the concept of nominal GDP growth into the conversation, it could further explain and amplify what the risks are of low inflation.

We may have to brainstorm more on this, but I think we do need to do more work. And there's a little bit of suspicion by some out there. As we seek to get inflation back to target, they wonder about the reasons behind it, including the benefits—this may inflame some people—to those who own risk capital and, particularly, the benefits when you're running a very highly leveraged economy. I think we may need to explain more why it is not on our agenda to help those groups, but it is on our agenda to help make sure we've got more policy space and that we have more stable growth in the future. So as I've said before, I think we need to do more work on this.

The third thing that struck me from these *Fed Listens* events is, as we've talked about many times before, significant structural changes are going on in the economy. And the Fed needs to be fluent in talking about these structural issues away from monetary policy, as I think President Bullard and others said, and some of the structural policies that may have an effect on that.

In this regard, as has been said, and I think Governor Brainard just said, our Community and Outreach (C&O) groups are particularly useful to us, and we found that here in these *Fed Listens* events. Issues about the digital divide; access to financial services; the need for improved early childhood literacy; improved pre-K; investment in public schools to improve math, science, and reading; the need to beef up skills training—I think those subjects really came to the fore when we visited the Fifth Ward in Houston and went to St. Philip's School and Community Center in Dallas. I think the more we can be fluent on these issues—which I think we are, because of our good C&O work—and are willing to talk about them in an apolitical way, the better it would serve us. I learned that from these *Fed Listens* events.

Last comment on the distributional heterogeneity memo: Clearly, I believe that severe downturns—it makes sense—are going to affect those living paycheck to paycheck most, and it makes sense to try to manage the economy to avoid severe recessions. However, this raises the dilemma, which I'm sure we will continue to debate: How far do you go to avoid a recession? How far should this Committee go to get inflation to our 2 percent target or a 2 percent average? What are the risks of creating excesses and imbalances that make the next recession maybe more distant but likely more severe than it would have been otherwise?

In what comes out of the framework review, I hope that we'll keep some concept that relates to a balanced approach, the ability to make tradeoffs and weigh various factors, and that we will take into account financial stability in our monetary policy decisions. But I thought these memos were very, very useful, and I'm glad that we're focused on these.

And a last comment, though, when we talk about inequality, and I can't help but reiterate again: Monetary policy—and I think we should be willing to say this when it comes to inequality—is not a substitute for these other structural reforms, which are likely to have even a bigger effect on improving the inequality or addressing inequality in this country. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chair. First, as everyone else has, I'd also like to thank the staff for their work on these memos. Both were very interesting and helpful for preparing for this discussion.

The first memo on distributional considerations looked at how model-based assessments of different monetary policy strategies might change if we relaxed certain model assumptions that don't correlate well with reality. In this case, the authors present us with an alternative model that takes into account the fact that some individuals have very different income experiences from others. Using their model with income inequality, they show us that the potential benefits of employing makeup strategies, like average inflation targeting, are larger than in the more traditional model in which everyone is the same. This result makes good intuitive sense to me. I appreciated this analysis, because I think it's important to consider all of the different ways that the macroeconomic models we rely on for making policy decisions might lead us astray.

But in the end, I wasn't sure how much guidance to take from their analysis, because it leaves aside the important question of whether it's likely or even possible that we could successfully commit to a makeup strategy, communicate it effectively, and maintain full credibility throughout its implementation. And I have to admit that I am skeptical that that would be the case. It seems to me that the credibility aspect would be very challenging and would require sacrificing the flexibility to adjust policy and communications when circumstances change unexpectedly. Even so, the distributional considerations memo was helpful in that it reminded me that the data we use to inform our policy decisions are, for the most part, national averages or aggregates, and these measures can mask important differences among individuals in the population.

Without question, the experiences of people with regard to unemployment and job security can vary enormously. This relates to one of the main "takeaways" coming out of the *Fed Listens* sessions, with some participants noting that national statistics were not representative of their communities, whose unemployment rates have remained higher—and in some cases much higher—than the national average. This feedback is consistent with what I'm still hearing from people in certain industries or in different areas of the country who say that they are not experiencing the strong economy in the same way that they hear about it in the news.

Another key "takeaway" from the *Fed Listens* events is that I think we need to think carefully about our communications with the broader public and make an even greater effort to speak in terminology that is more accessible to the general population. An important point that I came away with from these meetings is the real exclusivity created by the language the Committee has historically used to communicate. If our goal is to be more inclusive, we should strive to communicate in ways that can be understood by a broader audience than Wall Street and academia, as Governor Brainard said.

Our written statement serves the very specific purpose of communicating to this technical audience, but I'd like to recognize and commend Chair Powell for his efforts to shift our broader communications approach to one that is more inclusive and accessible. I'd also like to recognize Governor Clarida for his creation of the *Fed Listens* initiative and the support that the presidents and Ellen Meade have given to this effort and for their support of this successful initiative. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I want to thank the staff for these memos and for all of the framework memos. I also want to thank those who worked on the *Fed Listens* series. I wasn't here when the previous framework was settled on by this Committee, but this process has been quite helpful for me in thinking through the many issues and in articulating what the Committee is trying to do.

Let me get to the three questions posed in the cover memo. I like the *Fed Listens* events and was pleased that leaders in both business and the community were willing and able to have good discussions on the implications of our pursuit of the dual-mandate goals as well as the quality of our communications. I found that the substance of these meetings confirmed much of what my regional executives and I have heard from our travels throughout the Sixth District, and it is reassuring to know that our meetings haven't been anomalous.

On the communications question, I think an important clarifying question to answer is, how broad a public do we think we need to be explaining our concerns about persistent below-target inflation to? There are many possible targets, and I'm not clear on which ones the Committee believes are most important. I think President Evans spoke to this in his review of Volcker and the money illusion and noting that the effort to engage some populations can actually be quite large. For me, I think the most salient audiences are likely to be financial market participants, leaders in business, and other policymakers. I also think the best strategy for effectively engaging each of these constituencies is different.

Tailored strategies to specific audiences would be best, and there are many dimensions to consider. Take language, for example—and Governor Bowman just spoke about this. For financial market participants, it may be fine to use more technical language, but for business leaders, we will definitely need to use plainer language. And for policymakers, we are going to need to use just plain language. [Laughter]

When we think about venues, I think, for financial market participants, standard conferences will be fine. We cover those quite well. But for business leaders, we might think about a more sustained engagement with those constituencies than we currently do. And for policymakers, we need to continue our Hill engagement, but perhaps use those opportunities to make more targeted messaging on this point of low inflation. I would note that financial market participants are the most immediate transmitters of our communications to the public, and though they certainly should not be our sole focus, the cost of not communicating effectively to that audience is likely to be quite high. All that said, I support Governor Brainard's call to explore possible ways to effectively engage others. This is a quite interesting way to think about this.

Regarding the third question on monetary policy and its effects on different segments of the population, I appreciate the effort of the staff to distill a literature that, in some ways, is still underdeveloped into a single, unified narrative. That said, I find myself unconvinced by the argument that, and I quote from page 6 of the memo: "Monetary policy strategies that reduce the frequency and severity of recessions are, all else equal, likely to decrease economic inequality." I agree with the memo authors that we can serve the interests of lower-income households by pursuing monetary policies aimed at minimizing the frequency and duration of downturns, which I take as a given part of our mandate. But I think these policies are more likely to help in reducing precariousness and poverty than inequality *per se*.

Let me explain. In thinking about the lower-for-longer strategy underlying this discussion, I see two competing dynamics. One involves the effect of the strategy on financial and investment instruments, while the other pertains to the effect on employment prospects. As I see it, the most direct effect of low interest rates is on the value of financial and investment assets and the cost of making such investments. This is a point that was noted first today by President Rosengren, but others have raised as well. And the Committee has noted in recent meetings that its policy decisions have helped bolster the value of housing, as one example, and many have argued that the elevated stock valuations that we observe are facilitated, in part, by the stance of monetary policy.

Moreover, the benefit to those holding such assets can be quite large. And I would note that very few of those at the bottom of the income and wealth distributions who would need to benefit if inequality was going to fall have holdings such that they could benefit via this channel. Regarding employment prospects, it is certainly true that a longer expansion can result in more of the disconnected and the least skilled becoming employed, and this is a good thing. But it seems to me to be a big question as to whether the gains of this population outweigh the gains of the asset-holding class, which would be the requirement if inequality was to be reduced. My gut reaction tells me that the asset-holding invested classes gain more than the newly employed, but the memo did not speak to this directly.

Now, I recognize that neither of these channels is unidimensional. Those with more valuable assets could use their improved economic standing to make investments that could create jobs that would employ those often left behind. Similarly, a longer expansion could create conditions that increase risk in the economy, which could trigger a downturn that results in the newly employed being the first to lose their jobs—a turnaround that could leave them worse off on net. This point was highlighted in recent research by the Atlanta Fed's Julie Hotchkiss.

There is one scenario in which this "last in, first out" dynamic could be resolved differently. To the extent that the new gains were, in part, the results of the historically high level of newly developed training programs and specialized curriculums, both of which were referenced in the *Fed Listens* memo, we might expect that they won't be entirely eroded by the next economic downturn. This is because the newly added workers would be in a stronger competitive position from the new skills acquired via training than those in previous circumstances who faced a similar situation but lacked the enhanced skillset that training provides. I would note that this is not a new recognition. Okun himself pointed to the importance of what he called "manpower programs" to take advantage of "hot" economic environments to make sure that these periods trigger the upgrading of the skills of the workforce in addition to just creating jobs.

On balance, despite the benefits of training and specialized curriculums, I think the case for monetary policy generally, and a lower-for-longer policy approach in particular, being able to help eliminate and alleviate distress, precariousness, and poverty is far stronger than the case for its being able to address inequality. As Governor Brainard strongly stated and others have pointed to today, fiscal policy, including tax policy, is going to be far more relevant where inequality is concerned. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. And I, too, want to thank Ellen Meade for the work that she did in helping us organize the *Fed Listens* events. Like others, I found the *Fed Listens* events to have been very useful in providing insights into the range of experiences felt by households and firms that are hidden beneath the aggregate macroeconomic statistics. These stories and experiences have been an important part of the economic narrative over the past decade as the economy began to heal from the deep recession. Even today, in an economy with historically low unemployment and low and stable inflation, we continue to hear, as we did in these events, how some households and firms and some industries and regions struggle with access to labor markets and with rising cost pressures.

Understanding these struggles and the resulting uneven distribution of opportunities and outcomes has long been a critical issue for central bankers. This topic was the focus of our 1998 Jackson Hole Symposium titled "Income Inequality Issues and Policy Options." At that conference, Alan Blinder summed up a paper by David and Christina Romer by saying, "Compassionate monetary policy is, most likely, sound monetary policy." Of course, judging what constitutes sound monetary policy in today's context is the aim of our current monetary policy strategy review. Although the staff memo argues that distributional effects provide additional incentives to pursue monetary policy–defined strategies that reduce the frequency, duration, and severity of the ELB episodes, it is equally important that we recognize the limits of monetary policy in addressing these concerns.

We should remember that monetary policy and inflation are not the main influences on long-run economic growth. Monetary policy is a blunt instrument. Although there are always winners and losers, we serve the public best by pursuing our mandate of maximum employment and price stability. An economy at full employment with stable prices is the greatest contribution a central bank can make toward lifting all boats.

Explaining to the public the Committee's concerns about persistent below-target inflation and the rationale for raising inflation to the 2 percent goal, as others have noted, is a challenging task. As our *Fed Listens* events have shown, some segments of the population simply don't see inflation being too low as a problem. Trying to explain to the broad public the role of expectations in determining inflation is difficult at best, and trying to influence those expectations solely through our communications seems unlikely to be effective. Rather, it appears that inflation expectations may be more backward looking, and less tied to our longer-run objective, than we would like. We can, and perhaps should, articulate the concept of makeup strategy to the public, but influencing inflation expectations will likely require an actual increase in inflation. My preference would be to wait for a demand or supply shock to move inflation higher rather than trying to engineer it at this stage of a lengthy expansion. Depending on the outlook for growth and employment, I am comfortable with inflation fluctuating in a narrow band above and below our symmetric 2 percent longer-run objective.

Finally, I would be reluctant to justify a policy that was more accommodative than otherwise at the ELB simply on the basis of distributional issues. While such a policy might increase the employment outcomes of some disadvantaged groups, it also implies a transfer of income from savers to borrowers and a potentially unsustainable reallocation of resources across sectors. In addition, a lower-for-even-longer policy raises the risk of creating financial imbalances and could call into question our political independence. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. And let me start by joining everyone else in praising the success of *Fed Listens.* As the member of the Committee especially charged with representing the heartless [laughter], I thought that the *Fed Listens* events were tremendously effective, both as a forum for hearing the perspectives of a wide range of the public and a venue for increasing our own transparency and public engagement. I agree with President Bullard, President Kaplan, and lots of others that I think that athletic *Fed Listens* stance is something that we need to make a continuous process and a continuous message.

I also found very interesting the staff memo on distributional considerations for monetary policy. The memo makes a number of important points in particular that recessions tend to have the greatest negative effects on those who are least able to afford it. By smoothing the cycle, sustaining growth, and mitigating recessions, effective monetary policy is arguably one of the most powerful tools for poverty reduction, although, again, as President Kaplan and others have noted, it can't be the only tool, and it can't be the primary tool.

In the other direction, the memo also argues that if you have a greater share of hand-to-mouth consumers, the larger the percentage grows of people without sufficient buffers—either savings or access to liquidity otherwise—to smooth through the hard times, that can make our job more difficult. Without savings to draw on, those consumers will pull back sharply on spending in a downturn, worsening the aggregate economy's reaction to negative shocks. I found that argument persuasive, intuitive, correct. I did have a couple of questions. Reading the memo, it's clear that it's not the wealth distribution that complicates monetary policy, but the fraction of liquidity-constrained consumers. And is that going up or down?

There may be analysis behind it that either I didn't pull from the memo or that wasn't in the memo, but, nonetheless, supported it to justify this. But the memo did seem to elide increasing wealth inequality with an increasing number of hand-to-mouth consumers. It's not clear that that has to be right as a logical matter, right? We know that the personal savings rate, at about 8 percent, is as high as it has been since the early 1990s. Since the crisis, consumers have been deleveraging. They've been improving their balance sheets.

There are circumstances in which increasing inequality can be accompanied by an upward shift in income and, therefore, liquidity across the spectrum. You don't have to have a view about causation there, and I don't, in the current circumstances. That's, obviously, a much more complex empirical and conceptual question than the ideological words connected with it would make it. But, nonetheless, it can happen. Against that backdrop, do we think that the fraction of hand-to-mouth consumers is increasing or decreasing in light of increasing inequality? More directly, are the aggregate features identified in the memo getting better or worse, accepting the consequence of the fraction of hand-to-mouth consumers?

Turning to the model simulation results, at the risk of sounding like a broken record, I am uncertain about how to interpret model simulations that don't allow for the nonpolicy rate tools of monetary policy—quantitative easing, forward guidance—that we used in the previous recession that everyone expects we would use again if needed. To reiterate a point I've made previously: I am worried that an excessive focus on the effective lower bound as a rationale for changes in our framework could be self-defeating. Rather than cementing the importance of the ELB as a constraint on policy, I think we should work to weaken the constraint by highlighting the other policy tools that are available to us as part of our communication.

Finally, the model results are very interesting in revealing how a higher fraction of liquidity-constrained consumers can worsen aggregate economic outcomes. But, as President Barkin noted, it also appears that the simulations with alternative makeup strategies didn't lead to substantially different economic outcomes either in simulations with a lower fraction of liquidity-constrained consumers or, for that matter, in simulations that were conducted under the assumption of the Taylor rule. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. I think the public review of our framework is a matter of good central bank governance. Over the years, the Fed has periodically reviewed its policy framework. But this is the first review that's been open to the public, with a conference at the Chicago Fed and the various other *Fed Listens* events.

Engaging with the public has the potential to increase the credibility of the institution and build trust with our various constituents. The public events have given us a way to show that we care not only about how monetary policy choices affect financial markets, but also how they affect large and small businesses, workers, consumers, and communities across income and wealth spectrums. But building trust also means avoiding overpromising and underdelivering. Monetary policy can make very important contributions to the health of the economy, but it is also a blunt tool, and we need to be careful to avoid suggesting that it can deliver things it's not capable of doing.

Now, the economics profession has been developing models to better understand how monetary policy transmits to various segments of the population along a number of dimensions, including whether they are credit or liquidity constrained, their income, their wealth, and whether they're owners of firms or salary workers. It's always been understood that monetary policy has differential effects on savers and borrowers, but these new models are permitting a more granular understanding of the differential effects. The fact that a portion of the population is liquidity constrained means their spending is less sensitive to changes in interest rates—a factor that limits the effects of monetary policy.

Now, how monetary policy should appropriately take these considerations into account deserves further study. Would more aggressive monetary policy actions alleviate these liquidity constraints? Or would it, instead, engender higher financial stability risks that would undermine any benefits? The strength of the expectations mechanism in a heterogeneous agent model depends on the calibration. In the Board staff's model, expectations play a larger role than in the standard representative-agent models. But in other models in the literature, the effects of expectations are damped, relative to the standard model. In the Board staff's model, given the strong expectations mechanism, would the credibility and communications issues implicit in makeup strategies make these strategies less appealing?

The staff's memo concentrates on symmetric monetary policy strategies, but would asymmetric policy strategies, such as reacting more strongly when inflation is below 2 percent than when it's above 2 percent, be even more beneficial in offsetting the asymmetry induced by the ELB, given that liquidity and credit constraints induce additional sources of asymmetry? All of these are important questions to continue to explore using these models. But, at this point, the research is still in an early stage, and it's not ready to be used to guide actual policymaking.

The work does underscore something we already know: that monetary policy can have a positive effect on vulnerable populations by helping cushion against recessions, which have a differentially more negative effect on these calculations. It also suggests that policies other than monetary policy can help alleviate liquidity and credit constraints, and that can make monetary policy more effective. The research also underscores the importance of the Fed's community development efforts. The System's community development function does its own analysis, but it also plays an important role as convener and catalyst of the appropriate bodies. It can implement policy and programs to address the challenges facing low- and moderate-income communities and individuals.

Now, under my tenure as chair of the Conference of Presidents' Committee on Research, Public Information, and Community Affairs, I think the System has made important strides in more effectively communicating its important community development efforts to the public. Now, of course, there is always more to do, and I expect the system will continue to improve on this front. And this work will help reinforce any improvements that we make to our monetary policy communications.

The Cleveland Fed's *Fed Listens* event was held at our community development policy summit in Cincinnati. One of the main themes that came out of this discussion, as well as most of the other sessions held in lower-income communities, was the importance of jobs. The overall strength of the labor market has helped bring jobs to these communities, but many people are concerned that these jobs will be the first to go in a downturn. And they continue to face significant structural barriers to finding stable work. These barriers include affordable access to training, reliable transportation, and quality health care and daycare, all of which are outside the realm of monetary policy to deliver. Monetary policy does have an important role to play in helping ensure the overall economy remains healthy, but to have a first-order effect on the structural barriers to work that people in these vulnerable populations face, fiscal policy actions are needed.

People at our *Fed Listens* event in Cincinnati were not concerned with inflation. In fact, some were skeptical of the Fed's view that inflation was too low, because, in their experience, it's costing more, not less, to get by. This seemed to be a general theme at the various *Fed*

Listens events. This lack of concern about inflation partially reflects the success the Fed has had in achieving price stability. And I guess this is honoring Paul Volcker here. If inflation were to get out of hand again, as it did in the 1970s and '80s, it would become a major concern again for everyone. Now, from an individual's perspective, low inflation is not a problem. Wages just tend to be sticky. So while higher inflation poses a burden, lower inflation is viewed as good. But inflation running below our goal does pose a problem for the macroeconomy and for monetary policymakers, as it constrains our main policy tool.

We've got to explain to the broader public why low inflation is a problem. We might explain that when inflation runs persistently below our goal, it constrains monetary policy's ability to stabilize the economy. The mechanics of why that's the case and the strategy of how we achieve the inflation goal are complex and likely not that relevant to the broader public. Instead, they need to view the Fed as a trustworthy steward, focusing on achieving price stability and stable employment, thereby keeping the economy healthy and giving them opportunities for productive employment. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. I agree with many around the table about the benefits of the tight labor market that were highlighted in the *Fed Listens* events. I mean, it wasn't surprising to me—obviously, I've had this view for a while. What I'm interested in is, why were the *Fed Listens* events so effective in getting the Committee to understand this? You know, we have 12 community development departments. I bet these conclusions weren't surprising to them, and yet their perspectives weren't making it into the Committee. And so I'm trying to think about, in going forward, how do we create a structure that is fresh, like the *Fed Listens* events?

Why were they effective? They were effective because they were new, because we didn't know what to expect. We went in with an open mind, and then we learned all of these things. We all have advisory councils and whatnot, but they become very structured and very routinized, and so I think the *Fed Listens* events were partially effective because they were new and they were unstructured and we didn't know what to expect. And so I'm just brainstorming with my staff on what we could do so that we get the benefit of this type of insight on an ongoing basis, and we don't lose it and let it become stale. But I'm really glad we did it. So hats off to everyone who was involved in organizing it.

Now, question two, explaining low inflation and why we care—with all due respect, I didn't like any of your answers. [Laughter] I didn't think those were going to be persuasive. My explanation is, maximum employment is a labor market consistent with 2 percent inflation. If inflation is low, that means the labor market is not as strong as we would like it to be. Why do we want inflation to go up? We want a stronger labor market so more Americans have jobs, have better jobs, and have higher wages. Just go right back to the labor market. I'm sure the economists in the room will say, "Hey, you're oversimplifying the connections." That's fine. The people who are asking us these questions are not looking for highly technical, academic answers. What does it mean for them? We want a stronger labor market. And if inflation is running low, the labor market is not as strong as it could be.

Question number three—I've said this before, that we are operating in a free-lunch zone of monetary policy between the size of our dual mandate where there is no tradeoff. I think that the memos were very instructive about the benefits of running a tighter labor market. I think the challenge comes in when those two goals are in tension. Then I think we need to do more work to figure out how to trade off. But when we're in the free-lunch zone, we should be letting the labor market tighten as much as possible.

You know, in the HANK versus RANK memo, I wrote "Wow" when I read it, because, to me, it takes 106 years of Federal Reserve convention and turns it on its head. The conventional wisdom is that distributional considerations are just not a domain of monetary policy. Now, all of a sudden, here comes this memo, and it's like, wow, actually, it's central to monetary policy, and it's really important. So as I think about why it's so important, obviously, I've been opposed to the rate increases since I've been at the Fed, because I said inflation seemed low, and it seemed like there was still slack in the labor market. Why were we raising rates? We are worried that inflation was around the corner. We wanted to get out ahead of it.

But underlying that was the idea that raising rates was costless. We could raise rates and it doesn't slow anything down, it doesn't hurt anybody, and we'll take out insurance in case we get surprised about inflation. Well, these models show that it's not at all costless. It's actually very costly to the people at the bottom of the income distribution, the people who are marginally attached to the labor force. And so I applaud the staff for writing that memo. I hope we do a lot more work in understanding it, because I think a really important consideration is that raising rates ahead of inflation is not costless, and the cost is borne by those who can least afford it.

Last two points—several people have brought up inequality, fiscal policy versus monetary policy. Charlie, I think you made a comment about—was it a program to help ex-cons get back into the labor force? My view on this has really evolved over the past few years. I now think that monetary policy has a role to play to create a context in which fiscal policy can be effective. If you look at worker retraining programs and various targeted fiscal programs, they are very hard to scale. They are very hard—you actually measure the results, you know, question whether they are effective. But if monetary policy can deliver a tight labor market, all of these other fiscal policy programs have a much better shot at being effective. And I thought your anecdote was a great example of that.

And then, the last thing—Raphael raised a point about people pushing back on the Fed for wealth inequality. You know, there's income inequality, and there's wealth inequality. I push back on people saying, "Well, we're just exacerbating wealth inequality," because for the vast majority of Americans, their most valuable asset is their job. They don't own stocks. They don't own a house. They have a job. And if you capitalize their income, and we get wages to grow, that actually makes them wealthier, and that's our big contribution to reducing income inequality. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. As I've been thinking about Paul Volcker's passing, I can't help but think of Isaac Newton's phrase of "standing on the shoulders of giants." I think we all owe an enormous debt of gratitude to Paul Volcker, and we all stand on his shoulders as we do our work. In terms of the staff memos and the work on the *Fed Listens,* I, like everybody, really appreciate all of the work that's gone on. I think this is really helpful and successful.

I'm going to start with the model stuff, the HANK versus RANK. I thought the staff memo and the briefing were really very good at incorporating heterogeneous agents and inequality in our models. I think that's an advance. I agree with President Bullard and others, and President Mester made this point as well, that this is an area of active research and development. I'm never sure whether our macro models are ever mature, but it's an aspirational goal, and I think it adds useful insights into our thinking about the interaction of monetary policy and the economy. And, of course, it reinforces the importance of the monetary policy strategy that can effectively mitigate the effects of the ELB in pursuit of our dual-mandate goals.

I'd like to take this opportunity to actually make a broader point about how we use models and discuss models. It's not just about heterogeneous-agent models or dynamic stochastic general equilibrium (DSGE) models or the FRB/US model, but, you know, the reality is, given the uncertainties inherent in describing a complex and changing economic environment, there is not going to be any single model that we can rely on for all questions and all circumstances. We shouldn't even be thinking about it that way.

That doesn't mean we should despair for a lack of a perfect model and revert to gut intuition. Instead, we should broaden the set of models we use, fitting the model to the question and the issue at hand in setting the economy and setting monetary policy strategy and tactics. I always use the phrase, "When it comes to economic models, the more the merrier." This allows us to compare and contrast results and understand to what extent certain results were sensitive to particular assumptions and also look for a robust understanding of economic issues and thinking about monetary policy strategy and tactics.

There's been a lot of work over decades here at the Board in taking that approach, and I think that the more we can look at a wide range of models, the better we are. I applaud the Board staff and Stacey's leadership here to promote this actively, bringing more models and comparison and contrasting results across different frameworks to help us think about things. I know there is a lot of work done in the Federal Reserve Banks and elsewhere that we can add to the mix, so, again, I encourage further development along those lines.

Regarding *Fed Listens,* I agree with everybody that these were highly informative and successful. I think it's both true that we didn't hear things that we didn't know or shouldn't have known, but we did hear them very specifically on our dual-mandate goals and specifically about how to think about what success looks like for the Fed. And I think that framing and the public aspect of it were important.

Now, of course, the Reserve Banks have long had regular conversations about labor markets, inflation, and monetary policy with our boards of directors and with our advisory groups. The *Fed Listens* events really built upon this tradition and extended and broadened our conversations in a very useful way, and especially about, what does it mean—what does maximum employment mean? What does price stability mean? One lesson I take away from this is that I want to make sure that this conversation is an ongoing feature of our future board meetings and our future advisory group meetings so that we don't lose that dialogue as we move forward.

Although I generally agree with the summary of the "takeaways," I am going to urge caution about not overinterpreting comments that suggested a lack of concern about inflation. First, there is no question that we heard that about inflation today. Absolutely, I heard that in our meetings as well. But if we did have a return to high inflation, that would be a major concern for low- and moderate-income families who are on fixed incomes or whose wages wouldn't keep up with the rise in inflation—getting back to President Evans's point about surprise inflation is really what we're talking about. So we shouldn't lose track of that. I don't think we will. That's my first word of caution.

Second—and this is along the lines of a whole long list: Presidents Daly, Evans, Rosengren, Mester, and many others—comments that inflation moderately below 2 percent would not be a major worry are completely understandable for a family or a business that's going about their lives. They are appropriately focused on their own decisions and their own circumstances. But let's not lose sight of the case that having inflation anchored at 2 percent rather than a lower number reflects, in large part, concerns about the negative macroeconomic effects of too-low inflation, associated with downward nominal wage rigidity, the lower bound, and risks of deflation. As a concrete example, which has already been mentioned a number of times: If inflation expectations become anchored well below 2 percent, that gives us less policy space to respond to an economic downturn, and this is to the detriment of the entire economy.

So this is a fundamental distinction between the micro and the macro, the partial equilibrium and the general equilibrium. It underscores, at the end of the day, the point that we can't "crowdsource" our strategy—but, instead, must take a decidedly macroeconomic perspective in which the focus is on: How do we best achieve, with the tools that we have, our dual-mandate goals as we consider improvements to our policy framework? Thank you.

CHAIR POWELL. Thank you. Thanks, everyone, for your comments. I have a few of my own.

Evidence has long shown that the cost of recessions fall disproportionately on the more disadvantaged. That unfortunate fact underscores the benefits of long, sustainable expansions in delivering on our dual-mandate goals. We're seeing the remarkable effects of such an expansion. Employment gains in the past few years have been broad based across all racial and ethnic groups in levels of educational attainment as well as among people with disabilities. Incomes for low- and middle-income households have risen more rapidly than average as wage growth has picked up most for the lower-paying jobs.

But, as participants in our *Fed Listens* events have emphasized, there is still plenty of room to build on these gains. The message at these events has been a consistent one: Tight labor markets are spreading benefits to communities to a degree that has not been felt for a long time.

Employers are working creatively to structure jobs so that employees can keep working effectively while coping with the demands of life beyond the workplace. Companies, communities, and schools are working together to find and train productive employees. Apprenticeships and on-the-job training are having positive effects on workers' careers. So 50-year lows in unemployment come around only every 50 years or so. You heard it here. [Laughter]

We simply lack sufficient data to reliably estimate the persistence of the positive effects we are clearly seeing, and I think we should take seriously what we are seeing in the participation and the other data and what we have been hearing at the *Fed Listens* events. In my view, there is every chance that these positive effects will be sustained, and that will be partly a function of our policy.

Fed Listens has been a home run in so many ways. Elected officials, journalists, and other members of the public think it's just great that we're listening carefully to a broad spectrum of people across American life. Of course, we've always done that, and it's frustrating to hear a small minority saying, "Well, it's about time." The Reserve Banks have always had deep and abiding connections with their communities. Here at the Board, we've also long met with community and labor leaders, small business owners, community banks, and others. *Fed Listens* has been a public and highly successful extension and coordination of our engagement with the public and has focused attention on our broader context. So I want to thank everyone, particularly Ellen for her work, for making this so.

The memo on distributional considerations for monetary policy examines how monetary policy affects traditionally disadvantaged groups. The memo shows how the share of households with little or no financial buffer can play a role in the way monetary policy affects the real economy and, hence, our achievement of the dual mandate. Households with small financial buffers because of a lack of either wealth or access to credit are affected more by shocks. An economy with more such households is, therefore, also more affected by shocks and thus by policy.

This point is nicely illustrated by the HANK and RANK simulations in the memo. The HANK model is calibrated as a realistic distribution of low buffered households. The simulations show that ELB episodes can be worse when this aspect of realism is modeled and that the benefits of makeup strategies could be larger. Research into these issues illustrates how a modest reduction in the severity of the ELB events, viewed by the standpoint of aggregates or the typical consumer, could entail gains for those of low- or moderate-income and wealth. We cannot precisely measure these things, but we should take seriously, I think, the general thrust of the result that we consider what framework is appropriate in light of the elevated ELB risk.

One of the questions posed is, how should we take this research and other similar research into account for policy? And I will admit, that's a question that I think we've all been thinking about. This is a very thought-provoking memo. I'm uncertain about the answer. Nonetheless, I do think that, in principle, a better model of the economy will allow us to make better policy. It will not give us tools that we don't have to address inequality more broadly. More generally, this work and other assessments that we do on disparate economic effects can inform our evolving understanding of maximum employment.

I would echo a couple of other comments around the table—that we need to be careful how we talk about this. Pursuing maximum employment and 2 percent inflation in a robust way could well benefit low- and moderate-income communities. As some noted, this is a different thing than inequality *per se*. If you asked for a briefing on the most recent literature on inequality, which I happened to do last week, what you get is a discussion of income and wealth distribution, particularly at the high end and the median end. This is a different but closely related thing, and I think if we do monetary policy successfully, we can have an effect on the number of households that are constrained by having longer, more stable expansions. I don't think we should think of ourselves as working directly on inequality, wealth, or income inequality. I think that's a little bit of a stretch for our mandate.

Regarding the question on communications, much of the public remains bewildered as to why we care that inflation has been running somewhat below 2 percent. People are concerned about the rising costs of medical care, housing, and college, but no one seems to be complaining about overall inflation running below 2 percent. This will clearly be a challenge, and I have tried to explain it in my public remarks. I will take President Kashkari's thoughts onboard in this respect.

I would close, though, by saying that the fact that this will be extremely difficult I don't think it should be seen as a reason to be less determined in our pursuit of 2 percent inflation. And I would echo what the Vice Chair said, which is, if we fail to achieve 2 percent inflation either on the upside or the downside, people will come to understand that relatively quickly in coming years.

So, with that, thank you for your comments, and we will now take a one-hour lunch break, concluding at 1:00 p.m. Thanks very much.

CHAIR POWELL. The next item is the Desk briefing. Lorie, would you like to start us out?

MS. LOGAN.[2] Yes. Thank you, Mr. Chair. I'll be referring to the handout titled "Material for Briefing on Financial Developments and Open Market Operations." Since your previous meeting, U.S. and global economic data and the evolving outlook

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

for trade policy have continued to be the key drivers of financial markets. To begin, I'll briefly summarize asset price developments over the period, note some key watch-points ahead, and assess near-term policy expectations. I'll then spend most of my time on money markets and policy implementation.

As shown in panel 1, major U.S. asset prices are little changed, on net, since the previous meeting. Consistent with a perceived stabilization in the U.S. and global economies, Treasury yields increased slightly and forward measures of inflation compensation widened modestly. The S&P 500 index increased 4 percent, driven by the better data as well as perceptions that the FOMC is unlikely to raise rates in the near future. Corporate bond and high-yield spreads narrowed slightly.

With regard to trade, the outlook for U.S.–China relations remains the biggest near-term focus, particularly whether additional tariffs scheduled to take effect on December 15 will be canceled or postponed. As shown in the yellow and green areas of panel 2, a large and increasing majority of Desk survey respondents think the most likely near-term outcome for the trade negotiations is that the additional tariffs on Chinese imports will be avoided. However, due to the timing of the survey, these results do not incorporate recent developments, which may have changed perceptions slightly. In addition to the economic significance of additional tariffs on Chinese goods, many contacts view the decision regarding the December 15 tariffs as providing an important signal about the medium-term outlook for U.S.–China relations.

One new facet of the trade conflict this period was its potential linkage to political tensions in Hong Kong, with market participants noting increased risk that these two issues will become directly linked. The unrest has negatively affected Hong Kong equity markets, but broader spillovers have been limited.

Another important watch-point is the U.K. parliamentary election later this week, in which the Conservative Party is expected to win a clear majority and thus have the votes necessary to proceed with Brexit by the January 31 deadline. Market participants appear to be responding positively to the prospect of reduced uncertainty about the process, with the British pound trading at recent highs.

With some potentially market-moving events on the horizon, seasonally low levels of liquidity in late December could amplify market moves, as we saw last year. Certain measures of liquidity in the U.S. Treasury market have been slow to recover from the August volatility and are below where we'd typically expect them to be in the run-up to year-end, as shown by the red line in panel 3. However, contacts do not appear to be too concerned about broader liquidity conditions going into year-end.

Regarding market expectations for this meeting, as summarized in panel 4, the Desk's surveys point to expectations of no change to the target range. Respondents, on average, assign a 90 percent probability to this outcome, consistent with market pricing, and indicated that they anticipate little significant change to the FOMC statement. With respect to the SEP, the median respondent expects the median dots for the federal funds rate for 2019 to 2022 to shift lower by 25 basis points but for the longer-run dot to remain unchanged.

Consistent with investors' views that the FOMC's policy stance is likely to be maintained barring a significant change in the outlook, survey disagreement around the most likely level of the target range following the next two meetings declined, shown as the dark blue line in panel 5. Market commentary following the October FOMC linked the convergence in near-term forecasts in part to the Committee's October communications. Survey uncertainty about the near-term outlook also declined, and implied volatility on short-tenor interest rates—a common market-based measure of uncertainty shown in the light blue line—fell back to levels seen before the escalation in trade tensions last spring.

Further ahead, median forecasts for the modal rate path point to the target range remaining at its current level at the end of 2020. But the perceived distribution of outcomes is skewed notably to the downside, as reflected in the average probability distribution for the change in the target range through next year, shown in panel 6. Unsurprisingly, when asked about scenarios that would lead to rate cuts next year, most respondents pointed to slow growth, continued trade uncertainty, or low inflation.

My remaining exhibits focus on money markets and policy implementation. Starting on your second exhibit, and as outlined in panel 7, I'll cover three topics: first, an update on the implementation of the FOMC's strategy to ensure ample reserves; second, our approach to managing risks to policy implementation around year-end; and, third, a few key considerations regarding implementation as we move into 2020.

First, the implementation of the Committee's strategy to maintain ample reserves at or above early September levels has been going well. Bill purchases, which continue at a pace of $60 billion per month, are proceeding smoothly. By the end of December, we will have purchased approximately $160 billion in Treasury bills. The operations have been well covered, with offers at least two to three times our intended purchase amounts and at attractive rates, and with limited discernible effect on market functioning. As shown in panel 8, spreads of bill rates over comparable overnight index swap rates narrowed a bit after the purchase announcement, about as we expected, and have remained relatively stable even as purchases have accumulated.

Meanwhile, repo operations are maintaining reserve levels at early September levels as bill purchases build underlying reserve balances over time. As shown by the sum of the red and gray bars in panel 9, we've had roughly $215 billion in repo outstanding per day—about $140 billion in term and $75 billion overnight.

Notably, as reserve levels have risen from these purchases of T-bills and the repos, the distribution of reserves across bank types is now comparable to where it was in early September. In addition, the number of banks having reserves below their reported least-comfortable level of reserves has fallen, as shown in the dark blue line in panel 10.

Now, against this backdrop, overnight money market rates have been printing closer to IOER. As shown in panel 11, the effective federal funds rate was near interest on excess reserves over the period, within but toward the bottom of the FOMC's target range.

As shown by the narrowing in the blue bars in panel 12 on your third exhibit, the intraday dispersion of money market rates has also been lower than it was when reserves were at similar levels leading up to September. In addition to adding reserves, it may be that the repo operations are also reducing repo rates directly. This may also be contributing to softer and less disperse overnight and term rates across money markets.

On panel 13, I'll turn to the second key topic: year-end dynamics and our approach to managing related risks. Market participants are expecting some temporary pressures in money markets around year-end. In addition to normal year-end balance sheet management, market participants have noted that several G-SIBs are close to higher surcharge thresholds, which could further reduce their incentives to intermediate across markets. We expect this to lead to temporary upward pressure on interdealer repo rates, as is typical around year-end, though the likely effect on broader repo and money markets is less clear. As shown in the table, some indicators, such as overnight interdealer repo rates spanning year-end and the expected year-end effective federal funds rate implied by OIS, both displayed in red, are elevated compared with the levels seen before last year-end. Other indicators, displayed in green, are not.

Now, given the broad attention that these rates in red have garnered in the press and in market commentary, we see some market participants funding earlier than they did ahead of previous year-ends. In particular, as shown in panel 14, triparty repo financing over year-end is well ahead of where it was last year. However, we have limited insight into funding preparations beyond banks and primary dealers. Our goal, of course, is not to eliminate typical year-end pressures in repo markets, but rather to mitigate the spillover to the federal funds market and support orderly market functioning. Our operational strategy in achieving this has been to ensure that reserves are amply supplied and that repo operations provide predictable funding leading up to and over the year-end date. The Desk has conducted three longer-term repo operations spanning year-end for $25 billion, each of which was oversubscribed. This suggests strong demand for year-end financing and has contributed to the earlier funding shown in the red dotted line.

In our upcoming repo calendar to be released Thursday, we plan to include one more term operation to be conducted in the coming days, bringing total longer-term repo supplied over year-end to $100 billion. We also plan to increase the amount of overnight repo offered on the year-end date and stand ready to make further adjustments, if necessary.

While the increase in reserve balances and the availability of repo funding should help reduce pressure on federal funds and other unsecured money markets, the risk that higher repo rates could temporarily pass through to the federal funds rate remains. One indication based on the Desk survey, which is shown in panel 15, suggests that market participants are expecting some degree of pass-through between repo and federal funds rates. As shown in the top half of the panel, the median of survey respondents' expectations suggests the effective federal funds rate could increase 4 basis points at year-end, remaining well within the target range, while triparty repo rates, shown in the bottom half of the panel, may increase roughly 40 basis points. Importantly, however, these are market participants' point estimates and don't capture the perceived distribution of risks related to these rates over year-end.

Ahead of year-end, we are also closely watching the upcoming midmonth tax payment and Treasury settlement date. Similar settlement and tax flows and associated reserve declines were contributing factors to the pressure in mid-September. Although we anticipate some pressure, conditions this month should be more stable, reflecting the higher level of reserve balances and the repo operations we now have in place. Nonetheless, developments around mid-December may provide some indication of conditions to expect through year-end.

Let me turn now to my third main topic: operational considerations around policy implementation as we look at the year ahead. To set the table for these operational considerations, panel 16 shows our current reserve forecast into the second quarter of 2020, with the blue shaded area highlighting the reserves supplied by reserve management purchases of Treasury bills. Currently, our forecast shows that with the ongoing pace of purchases and the repo operations, reserves will be maintained just above the early September levels throughout the April tax season. Of course, forecasts at this horizon are subject to considerable uncertainty, and we expect to continue to adjust the outlook.

As we look into 2020, we are currently considering two operational adjustments, summarized in panel 17 of your final exhibit. First, bill purchases are expected to bring the underlying level of reserves above $1.5 trillion by late March. Although the purchases are currently going well, there is a risk that it could become difficult for us to transact in bills at some point, particularly given the expected decline in privately held Treasury bills driven by a seasonal decline in issuance and SOMA's growing share of bill holdings, shown in panel 18.

If we see tangible signs that bill purchases are encountering difficulties or starting to negatively affect bill market liquidity, we would recommend adding short coupon Treasuries to the reserve management purchase mix. There is currently a large stock of short coupon securities, and we think the market could absorb sizable purchases. As with bills, purchases of these short-dated instruments should not meaningfully affect broader financial conditions.

There's a small chance this scenario could materialize between now and the end of January and call for a relatively quick response, and as a result it may be necessary to alter the purchase allocation before your next meeting. If this were to occur, we would consult with the Chair and inform the Committee before making any changes to our plans and seek a change in the directive at the January meeting.

Second, as bill purchases continue to build reserves, repo operations will become less central. As discussed in the memo on transitioning away from active repo operations circulated ahead of the meeting, the Desk intends to transition away from active repo operations by gradually changing operational parameters and closely monitoring market conditions. We expect to reduce and consolidate term operations and to raise the minimum bid rate for repo operations so that they become less attractive. However, we would expect to continue some overnight offerings at least through April, when tax payments will sharply reduce reserve levels.

We will publish a calendar of repo operations for mid-January through mid-February that starts to reflect these gradual changes to the operation parameters along these lines, and the minutes to this meeting, which will be published in early January, could also communicate our intentions. The Committee's directive to the Desk could then be adjusted as appropriate at the January meeting to reflect more specific plans beyond January; recall that the directive currently instructs the Desk to conduct repo operations at least through January. Our sense is that this type of gradual reduction is generally in line with market expectations. As shown by the blue dots in panel 19, the median respondent to the Desk's survey expects overnight repos to be offered at or above $100 billion through January 2020 and to taper thereafter.

Similarly, as shown by the blue dots in panel 20, the median respondent expects term repos to be offered at around $200 billion in December, falling to $100 billion by March and then tapering further. As you can see, these expectations become more disperse in the later months and include some expectations for no term operations.

The Desk's approach to transitioning from active repo operations is intended only to guide near-term planning while we continue to gain experience operating in an ample-reserves regime, and the staff will seek additional guidance at a later stage on the longer-term approach.

In addition to these operational considerations related to bill purchases and repo operations, as reserves become more ample and rates are maintained near the IOER rate, it may become appropriate at some point to contemplate an upward adjustment to the IOER rate and the overnight RRP offering rate, reversing the decreases made amid the volatility in September. As discussed earlier, the effective federal funds rate has been trading close to the IOER rate in recent weeks, 5 basis points above the bottom of the target range. Adjusting the administered rates upwards at some point would bring the IOER rate closer to the middle of the target range and return the overnight RRP rate to be in alignment with the bottom of the target range.

As shown by the placement of the dark blue and red dashed marks relative to the shaded area representing the target range on the right side of panel 21, the median survey respondent sees no technical adjustment through March 2020 and expects the effective federal funds rate to "print" above IOER consistently through March 2020 and in the longer run, which is not shown. Nevertheless, market analysts have suggested that an adjustment may be considered by the FOMC if the effective federal funds rate continues to "print" at or below current levels.

I'll conclude with two brief operational updates. First, as discussed at the October meeting, the remuneration rate on the foreign repo pool will be reduced to align with the overnight RRP rate; this change has now been communicated to our customers and will take effect on December 16. Along with other customer developments related to the foreign repo pool, this is likely to reduce activity in the pool and correspondingly increase reserves relative to our forecast.

Second, given the current importance of repo operations, we plan to conduct a new small-value exercise in coming days that will test repo operations using backup processes without our proprietary auction system. This test is listed in the appendix, along with a summary of additional upcoming small-value exercises. Thank you, Mr. Chair. That concludes my prepared remarks.

CHAIR POWELL. Thank you. Are there any questions for Lorie or Patricia? President Rosengren.

MR. ROSENGREN. I'd like to follow up on your comment on the global systemically important bank (G-SIB) surcharge thresholds. There's been some market commentary about how many of the large banks are close enough to their threshold that they would be unwilling to roll broker-dealer portfolios over the New Year. So do we have a good sense of which institutions they are, whether they're institutions that are particularly important for financing broker-dealers and hedge funds? And maybe just a little bit of commentary on, the federal funds rate doesn't move, but people can't finance other assets—how comfortable we are with that kind of outcome over year-end. So do you think that's a likely concern that—some of the commentary I've highlighted, or are you not as worried about that?

MS. LOGAN. On the G-SIB surcharge, I think there are four institutions that have largely been in focus for market participants. And of those four institutions, somewhat surprisingly, at least two of them are active in our repo operations, and they're active in the operations relative to what they indicated to us about a month ago of what they plan to do because of their G-SIB surcharge constraints. In other words, it's difficult to know what to take from the commentary because their actual behavior ends up deviating a bit from what we hear from them.

My understanding is that those four institutions have communicated, though, very early and directly with their customers about what to expect in terms of the funding over year-end, and that's given customers time to make adjustments. So I think that preplanning has taken place, which should support conditions as we move through year-end. But, overall, I've found that it's hard to know what to make from the comments from market participants on the G-SIB surcharge, because the actual trading activity hasn't always been consistent with the comments.

In terms of year-end and the intermediation, my sense is, from the banks, in terms of managing their own levels of reserves, that they've been doing a fair amount of prefunding, and those banks that are close to their lowest comfortable level of reserves (LCLoRs) have taken steps to have funding through the year-end. And there has been a lot of preplanning, and you see that in commercial paper (CP) issuance. A lot of that's been funded ahead of time.

On the dealer side, that's more difficult to know about the intermediation in interdealer markets, and we are expecting the strains to most likely be in an interdealer part of the repo market, and that's beyond where our repo operations occur. Your know, our repo operations affect the triparty rate, and we hope that that intermediation then takes place into the interdealer markets, but I think that's where the strains would likely be, in that interdealer portion.

MR. ROSENGREN. Just one follow-up. So has there been a growth in non-Treasury repo activity? And would we be concerned that hedge funds or organizations may or may not be as prepared as they should be for the end of the year? I mean, what would we do if a lot of those financing vehicles don't work at the end of the year? I know we're primarily focused on the

Treasury market, but you can imagine after September the concern, if large hedge fund portfolios have trouble rolling over the year-end, that we'll once again be in another cycle of hearing about concerns about liquidity. So are there other things that we could be doing proactively to avoid those kinds of outcomes? How real a risk is that, do you think?

MS. LOGAN. Our sense is, looking back from September until now, the growth that we saw—we've been focused mostly on Treasury repo, and there's been a growth in overnight financing by levered investors in Treasury repo. I haven't seen as much of a focus in mortgage-backed securities MBS or other collateral types.

The planning that's taking place from those firms is outside our direct visibility. They do rely, to a large extent, on overnight financing in the Delivery-versus-Payment (DVP) repo market, and that is more difficult for us to affect directly. So the operational approach we're taking to that is to provide repos to the primary dealers so that it has two effects. First, it lowers their own financing costs and creates competition from their other cash funders. And, second, it encourages them to then pass on that repo financing to the other part of the market and to maintain intermediation.

We are seeing some of them intermediate, so they're not just keeping the funding for themselves. They are using that to fund some of those hedge funds and other players that are leveraged. But we don't have a direct way of providing funding to those other type of accounts.

CHAIR POWELL. President Kashkari.

MR. KASHKARI. Lorie, you talked about, if bill purchases start to affect bill market liquidity. I'm just curious—what would that look like? Because when I think about a lack of liquidity, I think about a lack of buyers. This would be the opposite—it would too many buyers. So what would you see?

MS. LOGAN. I think we'd be looking at the rates on bills relative to other money market instruments, we'd be looking at liquidity metrics, and, more importantly, we'd be looking at fails in the market. So if we started to see security fails, and we knew there's a lot of demand for those and the market's not clearing with those fails, then we would know that there were market-functioning indicators.

We're also focused on our auction performance. I think in that sort of scenario, the primary dealers would have less inventory, and then we'd be seeing less coverage in the auctions. Right now the coverage is very healthy, and the prices that we're receiving are quite attractive, which makes me think they have sufficient inventory to be passing through to us.

MR. KASHKARI. Thank you.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. I'm going to ask a little bit of a strategic question. I think you and your team have done a great job getting us to this point and getting ready for year-end. I'm just wondering—if phase one of this strategy is more bills and these regular repo activities at the interest rate on excess reserves at the low end of the range, looking ahead after year-end, at a certain point in the year we'll have bought substantially more bills, we'll have a bigger balance sheet. My concern is, if you're still facing frictional issues then, just because of bank behavior, G-SIB desire to do some of the other things that the banks want to do, we would have to continue with repo activities.

Back to the issue of the standing repo facility: I'm wondering what your assessment would be if, instead, earlier in 2020, we shifted gears and went, with its pros and cons, to a standing repo facility with a rate 1 or 2 basis points above the top end of the range, which may not get used other than in spike situations. Would that allow us to maybe end the bill purchases sooner, depending on what you think we needed to get to ample or abundant reserves? And would it provide a more sustainable and less episodic approach to stabilizing the federal funds rate, as well as conditions in the repo market?

MS. LOGAN. Our objective is, as we said, to purchase bills in order to have reserve levels above that early September level. And we think that will occur, according to our current forecast, around March. And, at that time, we'll have started to bring the repos down. We will have started to consolidate and to shrink the repos. And in that experience, I think we'll be seeing where money markets are trading relative to the IOER rate, and we'll be looking at the distribution of reserves within the banking system, and we'll have more updated information from the banks on their demand for reserves.

At that point, I think it would provide the Committee with the base of information on which to think about whether the early-September level of reserves is sufficiently ample, as well as how money markets are responding to the decline in the repos. I think both of those pieces of information will help the Committee's strategic discussion as it looks ahead and wants to choose the amount of insurance it wants to have in an ample-reserves regime, either with "more ample" reserves or ample reserves supported by a standing repo facility. So in this February and March timeframe, we'll be able to come back with some more information to support your strategic discussions.

MR. KAPLAN. Great, thanks.

CHAIR POWELL. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I just want to come back to this issue of market liquidity in the Treasury bill (T-bill) market. As Lorie highlighted, right now things are going very well. I don't want to lose track of that. We're all asking good questions and thinking about hypotheticals, and that's appropriate—obviously, a lot of planning on that.

Specifically, here, again, we're not seeing signs of that. As we go forward through this month and the next couple of months, there's some small probability that we would start seeing illiquid conditions in the T-bill market. And I think, on the basis of our discussions on October 4 and the decision on October 11, that shifting some of the T-bill purchases to short coupon securities would be totally consistent with how we agreed upon buying at the short end of the curve—clearly, it's not quantitative easing (QE), it's not Large Scale Asset Purchases (LSAPs)—and it would be consistent with us building up, on a permanent basis, the reserves to ample reserves. So right now that's not the baseline, that's not the expectation, but I do think, if it were to occur that we saw liquidity issues, I think that's a natural place to go.

Obviously, as Lorie said, we would communicate that to the Committee. Market commentary already has that in their frame, that if we were struggling to do the $60 billion a month, we have this ability to go to the short-coupon sector. And, as Lorie highlighted, there's a lot of that out there. So I just think that's good, prudent planning for a contingency. We hope we won't need to do that, but I think it would be completely consistent with the approach that we agreed on back in October. Thank you.

CHAIR POWELL. Further questions? [No response] Okay. If there are no further questions, we need a vote to ratify the domestic open market operations conducted since the October meeting. Do I have a motion to approve?

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. All those in favor. [Chorus of ayes] Thank you very much. Next we'll turn to the review of the economic and financial situation. Glenn, would you like to start.

MR. FOLLETTE.[3] Sure. Thank you. I'll be referring to the handout labeled "Material for Briefing on the Domestic Economic Situation." Today I thought I'd begin with a quick review of the near-term outlook in light of the more upbeat data we've received since the November Tealbook.

As shown in the top-left table, we now anticipate that GDP will expand at a 1.9 percent rate over the second half of the year, a little higher than we forecast in October. Still, GDP slows noticeably from the first half, with much of the slowing coming from a step-down in government purchases, though PDFP, shown on line 4, also contributes to some of the deceleration.

The panel to the right summarizes the two surprisingly strong employment reports we have received since the previous meeting. The black line shows that private payroll gains have averaged a whopping 200,000 over the past three months. The dashed line adjusts these data for our expectation for revisions the BLS will make to the post-benchmark period. As noted in a box in the Tealbook, the staff's estimates derived from data from ADP, shown by the green line, indicate a much slower pace of payroll growth since the middle of the year. The pooled estimate, the blue line, which combines the BLS data with the ADP data, is our best guess of the underlying rate of growth of employment and stands at roughly 160,000. With the unemployment rate edging down in recent months, it is unlikely that payrolls are growing as slowly as indicated by ADP, but gains in the range of the pooled estimate seem quite plausible, and we expect a pace in that range in the first quarter.

The bottom two panels display recent wage data that suggest that wage gains have flattened out this year, perhaps reflecting the slowdown in hiring. On the left-hand side are several measures of median year-over-year changes in wages for workers. The black line shows the Atlanta Fed Wage Growth Tracker, an estimate derived from the microdata collected for the household survey. Smoothing through the volatility, it appears that wages have accelerated as the labor market has tightened but may have flattened out over the past year. The blue dashed line shows the median wage increase for base pay derived from our ADP data, which has been fairly steady at around 3 percent, similar to anecdotal reports in the Beige Book. By contrast, the red line includes the effects of overtime, commissions, and bonuses that shows a more pronounced cyclical pickup, but it has also flattened out over the past year.

On the right-hand side I display a set of more traditional measures: the ECI, the black line, and two measures of average hourly earnings—total, the solid blue line, and those of production and nonsupervisory workers, the dashed red line. Again, the ECI and total average hourly earnings display a flattening out this year, but wage growth for production workers has continued to move up. In addition, looking at the ECI by occupation as well as CPS-based measures, it appears that wage gains are stronger at the lower end of the income spectrum now.

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

Your next slide reviews the changes in the economic outlook since last year. In short, the economy slowed, but unemployment still fell and inflation faltered. The top-right chart reviews our projections of real GDP growth. As shown by the blue line, last December the staff expected growth to moderate from 3 percent in 2018 to 2.4 percent this year and to slow further over the following two years. Our current assessment is shown by the black line. GDP growth now looks to be a little softer this year, increasing 2.2 percent. The median SEP values—the blue dots for December 2018 and the black dots for the current SEP forecast—have been quite similar to the staff's. Business investment spending has been both the main source of slowdown in GDP growth this year as well as the source of the downward surprise for the staff. We now estimate that business fixed investment ground to a halt over the course of this year, as mounting uncertainty over trade policy and global growth appeared to have taken a toll. This is all the more surprising in view of the much more favorable financial conditions that have come to pass.

Meanwhile, the bottom-left chart shows that unemployment has fallen to 3.5 percent, as both the Tealbook and the SEP projection had anticipated last year. And as displayed in the bottom-right chart, after reaching 2 percent in late 2018, core inflation has disappointed this year—a topic I'll return to later. Taken together, these developments led both the Board staff and the FOMC to reduce estimates of the natural rate of unemployment. Your next slide examines labor market developments a little more closely.

The top-left panel provides a comparison of the Tealbook projection from a year ago with our current forecast, after taking in the November data. There are two noteworthy outcomes. First, as luck would have it, unemployment and payroll growth have been very close to our expectations. Second, labor force participation has improved more than we expected, and this has led us to revise up the underlying trend by 0.4 percentage point.

As you know, participation is being affected by three important forces: aging, cyclical movements, and changes in longer-run trends. The chart to the right is designed to help focus on cyclical and trend movements by removing the effects of aging that obscure these changes. The black line displays that the standard aggregate participation rate has surprised us by moving up this year after moving roughly sideways since 2015. The effect of aging is documented by the red line, which shows the decline in overall participation since 1997 due solely to changing demographics—that is, the decreasing share of the population in prime working ages. That downward pull from aging amounts to about ¼ percentage point per year currently. The blue line shows the participation rate after excluding this aging effect. This age-adjusted line shows that participation has been rising since 2015 about 0.4 percentage point per year.

A continuing challenge for analysts has been to figure out how much of the change in participation has been cyclical and how much is structural. The rise in LFPR this year has led the Board staff to put a little more of the improvement into structural changes. This is particularly tricky because the lags from labor market conditions to participation appear to be quite long and much longer than suspected before the current cycle.

Indeed, we now think that there are fairly substantial lags between changes in labor market conditions and participation. The black line in the bottom-left panel shows the gap between the staff's trend participation rate and actual participation. This gap reflects the cyclical swings in participation as well as transitory factors. The gap peaked in 2013, well after the unemployment gap, the red line, and in our estimation it only closed last year—again, well after the unemployment rate gap closed. This large and lagged response has only become evident with this deep and extended cycle. The staff's cyclical gap is now similar to one suggested in the canonical 2014 Brookings paper by Aaronson and other staff members, shown by the green line, that incorporates lags of up to three years. However, at the time of that paper, they did not put much weight on those results, and they judged the cyclical shortfall to be much smaller. As more data have become available, the staff's assessment has also gradually adopted this stronger cyclical response.

The bottom-right panel shows the staff's estimate of trend participation, also adjusted to remove aging. After falling for many years, we estimate that it is currently rising slowly. This rise may reflect the strong labor market or other factors such as rising levels of educational attainment. Your next slide examines some of the demographic groups where change may be occurring.

The top-left panel shows the participation rate for prime-age males—that is, those aged 25 to 54. The red line is a trend line from 1970 to 2005 extended forward. With participation now near its former trend, it may be the case that the swing below trend and back are just cyclical movements. But it could also be the case that some of the recent improvement is a mix of cyclical and structural factors, particularly because the rebound has been so strong. Meanwhile, prime-age female participation shown to the right has now recovered to its 2008 high, with participation among younger prime-age women at all-time highs. This may reflect a variety of factors beyond the cyclical ones, including increasing levels of education, lower birth rates, lower marriage rates, and even perhaps the 2017 tax law.

The lower-left panel documents the continuing rise in "post prime" participation. For example, the group aged 60 to 64 that is close to my heart [laughter]—that's only for my twin brother—and shown by the red line has increased 10 percentage points over the past 20 years. The increases in post-prime groups may reflect a variety of factors, including the rise in prime-age female participation in earlier decades, the shift to work that is less physically taxing, and the increased age requirements for full social security benefits.

Finally, the bottom-right panel looks at youth. The black line shows that there's been no recovery in participation, which fell sharply during the recession. This reflects a variety of factors. For one, the increasing share of the young are in school—either high school or college, as displayed by the orange dashed line. Second, fewer students are working. You can see the share of the population that is in school and not in the labor force, the solid orange line, is rising, and this essentially mirrors the drop in the labor force participation. This new normal, therefore, is less work by those in school, particularly less full-time work. This is probably a good thing, as research shows that grades are hurt by full-time work but not affected by part-time work. Accordingly, it is not surprising that graduation rates are up somewhat.

Altogether, a case can be made that ongoing declines in prime-age male participation are being more than offset by women and older workers, resulting in a drifting up in structural participation. The Board staff will continue monitoring participation to see if our adjustments to trend have been overdone or have been too cautious. If the latter, the economy may have more room to grow than we've built into our projection.

You last exhibit reviews recent inflation data using a variety of methods to filter out idiosyncratic or noisy changes to help gauge how much of the recent low readings reflects transitory factors. The top-left panel displays four different measures of PCE inflation. The values range from total, the black line at 1.3 percent for the 12 months ending in October, to the Dallas trimmed mean, the gold line at 2 percent, with core inflation, the red line, and the common component of core, the blue line, in between. These latter three measures use different methods to reduce the influence of transitory or nonmacroeconomic factors. Core, as you know, is an example of an exclusion index, the Dallas trimmed mean is a central tendency measure, and the common component is a dynamic factor model–based measure that we've developed here at the Board. There is mixed evidence about which of these indicators is best at filtering the inflation data, and we here on the Board staff view them as complements rather than substitutes.

The red line in the top-right panel shows that monthly core inflation was unusually weak in September and October, running below 1 percent at an annual rate. Our common component measure found that much of that weakness reflected idiosyncratic price movements in individual categories, the pink portion of the bars, and that the common factor across items, the blue portion, was closer to 1.8 percent in those months. Over the past 12 months, the idiosyncratic component has been slightly negative, on balance, yielding the assessment shown back on the left in blue that inflation is running at 1.7 percent. By contrast, the Dallas trimmed mean indicates that inflation is running at 2 percent. What could account for these differences? It could be the different mean rates of inflation inherent in the two measures.

One criteria used to evaluate different inflation indicators is whether the mean value is close to average inflation. The table in the bottom left shows that the Dallas trimmed mean rate tends to run a bit higher than either core PCE inflation or total PCE inflation over either the past 10 years or the past 20 years, while the common component has been quite close to actual core inflation and a bit above or equal to total inflation, depending on the time period.

The panel to the right displays three-year averages of our measures—done to further reduce the noise in these series. I think there are two "takeaways." First, the Dallas trimmed mean inflation rate has tended to run higher than the other two series. Second, over the past three years, with unemployment averaging 4 percent, average inflation has been about 1¾ percent by all of these measures if you account for the tendency for the Dallas trimmed mean to run high. This has also been a period when an appreciating dollar has been holding down inflation.

Let me now turn the floor over to Steve to discuss things international.

MR. KAMIN.[4] Thank you, Glenn. I'll be referring to the handout titled "Material for Briefing on the International Outlook." Over the past few quarters, our forecasters, one of whom is shown in the bottom left of your first slide [laughter], have been haunted by the prospect of failing to predict the next global recession. However, even though we've been revising down our outlook for foreign economic growth this year, as shown by the evolution of our forecasts in the middle panel, we have yet to see any convincing signs of an imminent contraction abroad, and our model's estimate of the probability of a foreign recession, the right panel, has remained fairly low.

In fact, while the data flow in the past several months has been mixed, as indicated in the left panel of your next slide, if you squint at it hard enough, and maybe if you have 20/20 vision, you can see some nascent signs of recovery. In particular, three recent developments point to some acceleration in growth abroad over the next few quarters. First, as shown to the right, manufacturing PMIs around the world have started to pick up, hinting at the possibility that the global manufacturing slump may be starting to ease.

Second, as indicated in the left panel of your next slide, trade policy uncertainty—or what we call TPU—appears to have eased since its surge over the summer, in large part reflecting optimism that a successful conclusion of the "phase one" trade talks between the United States and China will lead to a further reduction in trade tensions. The right panel shows that our daily measure of the TPU index, in blue, spiked last Monday following the announcement of reimposition of tariffs on aluminum and steel imports from Argentina and Brazil, the threat of tariffs on imports from France, and suggestions that the phase-one negotiations might be placed on hold for a considerable time. However, as you can see, the index quickly subsided, and we're assuming that there's sufficient momentum toward a phase-one deal that another hike in tariffs on Chinese goods, currently scheduled for Sunday, will be averted. We are also heartened by this morning's news that an agreement has been reached to bring the USMCA to a vote in the Congress. This isn't a game-changer, but it will probably help at the margin to boost sentiment on trade.

A third positive development is that several major economies appear to have now bottomed out. As shown in your next slide, both euro-area and Chinese growth in the

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

third quarter came in around their second-quarter pace, and the euro-area print actually exceeded our expectations. Growth in emerging Asia ex China, the solid black line at the bottom left, plunged in the third quarter, but this largely reflected the 12 percent fall in Hong Kong's GDP in response to political protests; excluding Hong Kong, shown by the red line, growth in the region has remained fairly solid. So by our reckoning, the real weak spot in the global economy is now Latin America, whose growth has languished, restrained by policy uncertainty and political unrest.

Your next slide puts this all together. Foreign growth bottoms out in the current quarter and then moves up next year, driven by an easing of trade uncertainty, a strengthening of global manufacturing, some idiosyncratic factors such as Hong Kong's rebound, and generally accommodative macroeconomic policies. Lest this forecast seem too Pollyannish, note that, in 2016, we were in the middle of a similar slowdown. However, our March 2016 forecast of recovery of global growth, the red dashed line, was soon surpassed by its subsequent, sustained, and synchronized surge. By the way, that sentence was brought to you by the letter *s*. [Laughter] Moreover, even when this recovery we're predicting is complete, growth will still fall short of its pace earlier in the decade.

The left panel of your next slide reviews prospects for inflation in the major advanced economies. In Canada and the United Kingdom, inflation is already in the neighborhood of the 2 percent target and should remain around there. In contrast, inflation in the euro area hits only 1.6 percent by 2022 and only 1 percent in Japan. In consequence, policy interest rates are likely to stay exceptionally low in these two economies, and rates in Canada and the United Kingdom don't rise much higher either.

Given the likelihood that they will fail to achieve their mandates anytime soon, an argument could be made that the ECB and BOJ should further ease monetary policy by lowering interest rates, ratcheting up their asset purchases, or both. However, at present, that seems unlikely. As summarized on your next slide, to begin with, both central banks are worried about the drag of low interest rates on the profitability, and thus financial strength, of their banks, insurance companies, and pension funds. Second, they are concerned that prolonged low rates and low profitability might encourage reach for yield and financial excesses. Third, some critics argue that any stimulus that negative interest rates might provide is offset by their depressive effect on households, who may choose to save more as a result. This issue has gained considerable political traction in Germany. Finally, these considerations are going to carry all the more weight, assuming our baseline outlook of somewhat stronger growth in Japan and the euro area materializes.

Now, how worrisome would low-for-long or low-forever interest rates be for financial stability in the advanced foreign economies? In the remainder of my briefing, I'd like to review how a decade of very low interest rates has affected two important dimensions of risk-taking and financial stability: asset valuations and nonfinancial-sector leverage.

Let’s start with asset valuations and, in particular, those of equities and corporate bonds. Your next slide looks at equity prices. Foreign P/E ratios, the top-left panel, don’t seem all that high at present, although it’s a little difficult to pick out the individual strands in this bowl of multicolored spaghetti. The bottom-left panel cuts through the clutter by showing how P/E ratios, expressed as a percentile of their historical distribution, moved from 2007—right before the Global Financial Crisis, which is expressed as the red dots—to the present, shown as the blue dots. It shows that, as in the United States, P/E ratios in Germany and France have risen to the upper reaches of their historical range. However, U.K. ratios are unchanged over the period, and they’ve moved down in Canada and Japan.

The panels on the right show the equity risk premium—a measure of how much additional return investors are demanding as compensation for the additional risk of holding equities rather than bonds. As you can see, the equity risk premium has risen since the Global Financial Crisis for all the economies shown here. This is the opposite of what one would expect if low interest rates had triggered a surge in risk-taking behavior.

Your next slide looks at triple-B-rated corporate spreads. Since before the Global Financial Crisis, foreign spreads have generally risen and are near the middle of their historical distribution despite much lower interest rates, again suggesting that investors abroad have not reduced the compensation they demand in exchange for taking on risk. So, to sum up, we don’t see a lot of evidence of increased froth in foreign asset markets.

Let’s now turn to spending, borrowing, and leverage, starting on your next slide with nonfinancial corporations. The top panels review corporate investment as a share of GDP. In almost all the economies shown, investment ratios plunged after the Global Financial Crisis, and then they generally rebounded only to around their pre-crisis level. Only France shows evidence of a concerted upswing in investment.

The bottom panels depict trends in the ratio of corporate credit to GDP, the black lines, and corporate leverage, or the ratio of debt to assets, the red lines. In the AFEs, again, only France provides some evidence of an effect of low interest rates, with credit rising to record levels, though leverage remains subdued. Canada’s bulge in credit largely reflects heightened borrowing during the commodity boom followed by still more borrowing as the commodity bust led to distress for many firms in that sector.

Your next slide looks at households. The upper panels show household debt, in black, and saving rates, in red; the bottom panels depict housing prices. Canada provides the clearest evidence that low interest rates are driving some consumer exuberance—the top panel shows that household debt has risen to about 100 percent of GDP and saving rates have fallen to near zero; the bottom panel tracks Canada’s pronounced boom in housing prices. But indicators for other countries are mixed. German real housing prices are up since the GFC, but household debt is down and saving rates are up. French household debt is up, but saving rates have been range-bound and housing prices remain below their pre-GFC peak.

All told, as we turn to your last slide, low interest rates appear to have motivated some, but not a great deal, of spending, borrowing, and valuation excesses in the major advanced economies. This does not mean, however, that another decade of low interest rates would pose no risks to financial stability. There may have been increases in financial risk-taking that are more difficult to gauge on an aggregate basis, such as declines in underwriting standards and lending to riskier entities. In addition, low credit growth in some countries might have reflected the effects of the hangover from the Global Financial Crisis—including weak economic growth, risk aversion, and tightened regulations—that could ease over time. Finally, it could be that the main causality does not run from interest rates to risk-taking, but rather from risk-taking to interest rates. In other words, weak investment and borrowing since the GFC may have lowered equilibrium interest rates in these economies. Untangling these explanations will continue to be a worthwhile subject for future research. Kurt will continue our presentation.

MR. LEWIS.[5] Thank you, Steve. I will conclude the briefings by reviewing your projections. To summarize: Your outlook for economic activity and inflation is relatively little revised from that of the September SEP, while your projections for the unemployment rate have declined modestly. By contrast, the majority of you projected lower levels of the federal funds rate for 2019 and 2020, while some of you also revised down your projections for the subsequent two years. As a result, the median projected federal funds rate path has shifted down 25 basis points for each of the four years in the projection period and now reflects substantial agreement that a flat path of the policy rate would likely be appropriate through 2020. A majority of you still saw the risks to your outlook for economic activity and unemployment as adversely skewed, although a few more of you now viewed those risks as broadly balanced relative to your previous projection. About one-third of you judged inflation risks to be weighted to the downside.

I'll discuss the projections in greater detail now. As shown on exhibit 1 of your handout, the median real GDP growth projection was unchanged for each year in the forecast period, though many of you slightly upgraded your growth projections for 2020. The median unemployment rate projection for 2019 declined 0.1 percentage point from the September SEP, while it fell two-tenths for each of the remaining years. The median longer-run unemployment rate projection for the longer run also declined modestly, as several of you marked down your projections. The vast majority of you lowered your projections of core PCE inflation for 2019, resulting in a moderate decline in the median to 1.6 percent. In subsequent years, the median projections of both headline and core PCE inflation were unchanged from September.

Exhibit 2 reports your assessments of the appropriate path of the federal funds rate. All of your projections of the funds rate at the end of 2019 were at the midpoint

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

of the current range, 1.63 percent, resulting in a 25 basis point decline in the median projection from September. The median path of projections for the funds rate over the next three years has likewise shifted lower 25 basis points, but its trajectory remains similar to that in September. The vast majority of you currently anticipate that it will be appropriate to leave the target range unchanged through 2020, resulting in a considerable narrowing in the range of projections of the policy rate at the end of next year. Indeed, both the range and central tendency of your current projections indicate the smallest dispersion in policymakers' views regarding the appropriate level for the federal funds rate one year hence since before liftoff. The median projection rises 25 basis points each year in 2021 and 2022, ending the forecast period slightly below the longer-run median of 2.5 percent, which is unchanged from the previous projection.

The green diamonds in exhibit 2 show the median prescription for the federal funds rate based on the Taylor (1993) rule, taking as inputs your individual projections of inflation, the unemployment gap, and the longer-run federal funds rate. Across the forecast horizon, the Taylor (1993) rule prescribes a path for the federal funds rate notably higher than what the vast majority of you judged as appropriate—a gap that has generally widened relative to its size under your September projections. Though most of you did not cite an explicit comparison with a simple policy rule, your narratives suggest that this gap at least partly reflects the same factors that led you to revise lower your anticipated policy rate path—in particular, concerns about low inflation expectations and persistently below-target realized inflation, as well as downside risks related to trade policy and foreign growth.

Exhibit 3 presents your judgments about the uncertainty and risks surrounding your projections. As shown in the left panels, most of you viewed the uncertainty regarding each of the four economic variables as being broadly similar to the average over the past 20 years, though about one-third of you continued to view the outlook for the unemployment rate as being more uncertain than average. As illustrated in the top panel on the right, the balance of risks to the outlook for real GDP growth has shifted somewhat toward the center. As a group, you are now more evenly split between those who see the risks to real GDP growth as being weighted to the downside and those who see them as broadly balanced, and a few of you cited the current stance of monetary policy as a contributing factor in making a positive change to your risk assessment. A similar, but smaller, shift occurred in your risk assessment associated with the unemployment rate projections. Most of you continue to judge the risks to the inflation outlook as being broadly balanced, though one more of you than last round assessed inflation risks to be weighted to the downside, for a total of six, and no one assessed the risks to inflation as being weighted to the upside.

Your narratives discussing the sources of uncertainty or adverse risks pointed to concerns similar to those in your September SEP responses, including risks to output associated with potential escalating trade tensions, slower global growth, and weaker domestic business investment. These factors, as well as concerns about undesirably low inflation expectations, also contributed to risks to inflation. In contrast, the underlying strength of both consumer spending and the labor market, coupled with more accommodative monetary policy, were cited as balancing the risks to the growth outlook. As in September, the adverse effects of trade tensions on aggregate demand were cited as a downside risk to inflation, but the possibility that higher tariffs could lead to significant aggregate price pressure was also seen as a source of upside risk to inflation.

This concludes the briefing material, and we welcome any questions you may have.

CHAIR POWELL. Thank you. Questions for our briefers? President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. Glenn, you talked about lags in labor market participation. I just want to make sure I understood it—the labor markets get tight, the unemployment rate falls, and then no lag before we see that bleed through to response in labor participation. Do I have that right? And, if so, can you walk me through the implications of that?

MR. FOLLETTE. Yes. If you look on page 3, the bottom-left panel, the easiest way to talk about it with this one is the opposite experience. The labor market deteriorates, and the unemployment rate goes up, right? And as you can see, what we now think is going on is that the unemployment rate peaked in 2009 and then has improved since then as you can see with the red line. But you can see that our assessment of how labor force participation reacted to that was with a lag of several years. And so, under that assessment, one of the things that held labor force participation up at the beginning of the recession was the fact that people were still reacting to the good conditions beforehand, and it took a while for them to react to the bad conditions.

Now, with respect to your point, on the other side it's taken a while for them to react to the tight labor market as well. So in that chart, you can see that in the staff's assessment, the unemployment rate gap gets closed in 2015, but participation is still unusually low for cyclical reasons, not for structural reasons. The cyclical effect is removed by the end of 2018. So, therefore, the fact that unemployment has been below the natural rate for the past three years would be pushing up participation on a cyclical basis over the next couple of years.

And that's kind of a new thought, in the sense that, in 2014, we tended to think that it was much more contemporaneous. If you read commentary from 2014 and 2015, you'll hear a lot of people talking about how the labor market was pretty close to full employment: There was nothing going on in labor force participation and that sort of thing. And now you can see that our assessment is that there's a lot of weakness in participation still, even in 2015, and that's gone away slowly as labor markets improved.

MR. KASHKARI. Thank you.

CHAIR POWELL. President Daly.

MS. DALY. I want to follow up on that. You know, your work isn't read when you say it's a new idea, but let me just run through why you might see this pattern. Bart Hobijn and I wrote a paper on this where we noted that unemployment benefits persist for a long time, and so the long duration of unemployment benefits elevated labor force participation in this downturn even more than you would normally see, because it was just an extension, and you can't get them unless you say you're looking for work. So it's mechanical, almost.

MR. FOLLETTE. Right. Yes, so we had that part in there.

MS. DALY. Yes, so you go through that. But the common dynamic is that there's this lag. People stay in, they're more optimistic that we'll turn around soon, and then they go out. And there are fixed costs to moving in and out, and these fixed costs of moving in and out delay the reentry.

And so, I mean, I'm not that different from all of you in this regard, so I'm not trying to say, "Well, I knew this and you didn't." But what I think all of us made the mistake on—and I mentioned this from the *Fed Listens* framework review today—is that I've now come to believe that we were much more pessimistic about the elasticity of the labor supply response.

MR. FOLLETTE. Right.

MS. DALY. And so we misallocated too much to structural and too little to cyclical.

MR. FOLLETTE. Exactly.

MS. DALY. Would you agree with that?

MR. FOLLETTE. Yes.

MS. DALY. Okay. So then I want to ask a broader question. Given that we made—now, you mentioned this, Glenn, and I thought, this is how we all do our work: We wait for a decade until we're really certain it happened. And what I'm asking now is, you all have been hanging on really hard to 4.4 percent, I think, on the natural rate of unemployment.

MR. FOLLETTE. For a year. [Laughter]

MS. DALY. Because before it was 4.6 percent.

MR. FOLLETTE. Sorry, less than that—we just changed it.

MS. DALY. No, just changed it, but I just—I mean, you've been slow to adjust it downward. And what I want to ask is, can we take any lessons from the idea that we hung onto some of what our historical models showed us and apply them to other measures of the labor market, like u^*? I mean, I just want to know how you're thinking about it. I know they're not the same patterns, but the idea that we may have been too reliant on history as a predictor of the future—I wondered how you think about that.

MR. FOLLETTE. Well, yes. [Laughter] First, just a little bit more on the labor force participation rate (LFPR). I think that what we have been doing is kind of reacting year in and year out in terms of—so, we didn't come to this this round. We've fully moved out as that data came along.

MS. DALY. Right.

MR. FOLLETTE. And a similar thing has happened on the natural rate of unemployment. We're at 4.4 percent now, and we were at 5 percent a few years ago. And so we've been slow coming down, probably, relative to—I think both the FOMC and the staff have started coming down at around the same time, but the FOMC has moved down a little faster. So, over the past year, we've come down two-tenths of a percent, and you've come down three-tenths—I've got a typo in my work here.

We've been slow, in part—I think we've been relying a lot on models that are not that surprised by the inflation developments, and so we've been looking at those models that say, "Well, we're not that surprised with 1.6 percent inflation this year." It's a little bit low compared with what we were expecting—we thought it would be 1.8 percent. And so, as part of that, we took our natural rate down a little bit. But you're right. I think it's fair to say that we might be overly cautious on this.

MS. DALY. Thank you.

CHAIR POWELL. President Rosengren.

MR. ROSENGREN. Not surprisingly, Steve, I have a question or two. If you look at pages 11 and 12 and just look at Japan, in all four, they're not in a red box. So we see that investment hasn't improved much. Leverage is down. Credit is down. Savings is down. Real house prices are down. So one conclusion, which seems to be your conclusion, is that pushing interest rates so low that you can't affect housing or wealth—and Japan would be a leading example—an alternative hypothesis would be that if you allow the economy to experience a financial crisis because both home prices and equity prices declined 50 percent, at that point, monetary policy probably won't work, particularly when the demographics are negative. So one reaction to Japan not being in a red box is that they faced such a horrific collapse in 1990 that, 30 or 40 years later, they still haven't been able to recover. So I might draw a little different conclusion than you as I follow the boxes.

And then a second question would be, looking just at real housing prices—I look at Canada and Germany and see how much the housing prices have gone up. And if I ask how much has the median family income gone up in those countries and ask who can afford a house in Canada or Germany now—unless you're extremely wealthy and inherit a lot of money, you're not able to buy a house. So I wonder if I would draw the same conclusions from the set of charts that you showed and wonder if you have a comment.

MR. KAMIN. No comment. [Laughter] Actually, I don't disagree with your interpretation of the boxes themselves, and I appreciate that you're able to glom on to them so quickly as I whizzed through them. I would actually retreat back to what I stated in my last wrap-up conclusion, when I said that just because we don't see these things in the data over the past decade does not mean that if low rates stay low for a further long period that we won't see them. And I cited three reasons why that might be.

One of them is, aggregate data might obscure risk-taking at the micro level, and we certainly see that in Japan, right? We see regional banks that are really hurting for profitability lending to riskier entities. We see banks of all sizes doing more overseas investment, but that's risk-taking at the margin: increasing duration, buying U.S. investment-grade stuff. We see the beginnings of reach for yield in Japan, but it just hasn't reached long enough.

The second point I mentioned is that maybe the hangover from the Global Financial Crisis by increasing regulation and, in particular, by pummeling the economy and increasing risk aversion has held up the process of economies responding to low rates. In Japan, that happened a lot earlier than in all of these other economies, but it happened in a very egregious way. So I could completely buy the view that, over time, as the hangover from both the bubble bursting in Japan and then the Global Financial Crisis (GFC) goes away, I could and might, indeed, expect low interest rates to eventually incentivize more financial excess as risk-taking.

And then, finally, I noted the likelihood that a lot of the low rates we're seeing are because corporations and households are not risk-taking. And, again, I could easily imagine that, over time, as those factors recede, the "low-for-long, low-forever" rates do, indeed, promote greater risk-taking. So, as I say, I'm not trying to use the experience of the past decade to disprove the idea that low rates encourage risk-taking—just to note that, in practice, we haven't seen too much evidence for it, because those effects can be moderated or muted by other things.

On the issue of rising house prices, I'm certainly willing to put Canada in the "low rates have encouraged risk-taking" camp. Canada looks like a clear case in which low rates have provided an incentive to that behavior. In the German case, I would note that a lot of the increase in house prices that we've seen has actually been an offset to earlier declines. And you see very similar patterns, in terms of real house prices, if you look at house price–to-income ratios and if you look at house price–to-rent ratios.

MR. ROSENGREN. Thank you.

CHAIR POWELL. Governor Clarida.

MR. CLARIDA. A comment on the international deck. Steve, great job. I learned a lot from this. On page 2—and I think our forecast was in line with a lot of other folks—relative to what we thought a year ago, there's been a big markdown on what 2019 turned out. And I think these are U.S. export weights, so this is a good metric. You know, about a percentage point decline in export demand—and you factor in the dollar and the multipliers—is not a small effect.

I think I've seen other simulations from your group that are essentially alternative scenarios of a decline in export demand. So if you were to quantify this and turn this into some sort of a ballpark estimate, how much of a headwind to aggregate demand has this been this year ex post? I'm not saying what was the forecast, but *ex post*, knowing what we know now, how much of a headwind has this big decline in demand been?

MR. KAMIN. You mean in terms of actual U.S. GDP growth?

MR. CLARIDA. Yes.

MR. KAMIN. That's a good question. I'm wondering if—well , I'll tell you. Let me start by saying a few things to give Stacey a chance to—one thing that's surprising and that I will note is that, ordinarily, we would think that a big, sharp fall in foreign growth would affect the U.S. economy through net exports. And we actually have not seen that much of a deterioration of net exports. But that's been for a number of peculiar reasons. One of the factors that has, in some sense, led to the global downturn has been our trade policy, and so we've got tariffs that have buffered some decline in imports. But another factor is that our imports have actually been inexplicably weak—weaker than we would expect, given our tariffs. So for a number of reasons, that primary effect hasn't affected us, and I think the effect of the foreign growth shortfall on the U.S. economy has come from sentiment, financial market effects, things like that. Maybe I'll pass it to Stacey.

MS. TEVLIN. Yes. A lot of it, we think, does come through the financial markets, and we don't have that parsed exactly. That's hard to parse into separate items.

MR. CLARIDA. Yes.

MS. TEVLIN. We think some of the weakness in the global outlook is something that's being reflected in the indicators we see about investment in terms of the profit expectations, and so we've taken down our forecast, and we think that's consistent with what we've seen this year in profit expectations. That's worth not quite a tenth on real GDP growth this year. And then we also have taken down real GDP growth just based on the other indicators from uncertainty. It's actually very hard to separate them all out. I would say, altogether, we're taking, if you're not looking at the direct effects of trade policy effects, a couple of tenths on GDP growth this year, if that was your question.

MR. FOLLETTE. Yes. So if you add up—we do an accounting at the time of every Tealbook on why we adjust our forecasts up or down. And if you take the past eight Tealbooks from last December to now and you add them up, then on foreign growth, that's a couple of tenths. There's another tenth from the dollar. There's a couple of tenths from heightened uncertainty, which we think has to do with some of those same sorts of things. So then that's where it starts to get very murky.

MR. CLARIDA. Well, the other point of forces relative to a year ago, the bond yield path was lower and the policy rate path was lower. So if you do the counterfactual of leaving all of that unchanged and ramming this through the model, you would get a bigger number, presumably.

MR. FOLLETTE. Right.

MR. CLARIDA. Thank you.

CHAIR POWELL. Thanks. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. This is for Steve Kamin. Page 6 of the current outlook deck—this is an important aspect of the outlook: that the foreign sector is going to rebound. You cite “strengthening in manufacturing, reduced trade uncertainty, rebound in Hong Kong.” So go through those factors and tell me why I should think they’re going to turn around.

MR. KAMIN. Okay. Well, let’s take them one by one. On the expected strengthening in manufacturing, as I said, I provided on page 3 a little bit of a slight down payment on that, which is that we’ve got some turnaround in the purchasing managers’ indexes (PMIs), okay? So, to be clear, industrial production numbers globally have still continued to come in on the weak side in many economies, but the purchasing manager index surveys, which are a little bit more forward looking, do seem to indicate some turn-up. If you look at more specific areas, we note an upturn in high-tech manufacturing in East Asia, and that’s certainly a positive sign.

MR. BULLARD. Okay, but if I look at those kinds of charts, one way to look at it would be, it’s stabilizing, it will just stay where it is, as opposed to saying it’s going to rebound.

MR. KAMIN. Right. Let me go to the number.

MR. BULLARD. One way to make the forecast would be to say that PMIs will stay around 50 globally, manufacturing won’t grow very fast, and Hong Kong will continue to have protests.

MR. KAMIN. Right. I don’t disagree with that. You’re saying we need, in some sense, a more fundamental driver.

MR. BULLARD. Yes.

MR. KAMIN. Okay. And our second point is that we think that one of the factors that held down global manufacturing has been the increase in trade policy uncertainty and the response of businesses to that trade policy uncertainty. It looks like trade policy uncertainty has declined since the summer, when it was kind of like at a high point, and it looks like current developments may be pushing it down further. That is the reason why manufacturing should pick up as the effects of the lower uncertainty on business investment start to wane. And we were heartened by this morning's news that it looks like they're going to vote on the United States-Mexico-Canada Agreement (USMCA) and we hope will pass that. So that's another positive development there.

Now, I would note that beyond just the uncertainty about trade policy falling, it seems to me very reasonable to expect that as businesses start to respond to a more uncertain trade policy environment, they probably will put a green light to some projects that they had held off on. If it turns out that there's a surge in trade tensions and a surge in trade policy uncertainty, then that will indeed depress the forecasts. That is just another part of our story here.

MR. BULLARD. And then, Hong Kong—do we have any reason to think it's going to turn around?

MR. KAMIN. Again, Hong Kong GDP plunged 12 percent at an annual rate in the third quarter, and we expect it to fall again, at a 10 percent annual rate, in the fourth quarter. And those are very, very steep declines that are predicated on this eruption in social protests, okay? So, you know, it's hard to know how this political story will end, but these stories do end, and when they do end, you usually do get a rebound in growth, okay?

And, by the way, we are actually not predicting a rebound of the same steepness in the next couple of quarters as how much it fell. We've got close to flat or a couple of percent in Q1, and then 3 or 4 or 5 percent in Q2. So we're actually predicting a more gradual rebound.

I cited Hong Kong as one of these idiosyncratic factors. We have others. We've actually penciled in a huge decline in Chile GDP in the fourth quarter—again, in response to political protests. Again, we think those will be transitory, and we have real GDP growth coming back in Chile. So we have a number of places around the globe in which real GDP growth fell very precipitously in the second half of this year, and it seems reasonable to expect that to come back.

MR. BULLARD. Thank you.

CHAIR POWELL. Further questions? If not, let's go ahead and begin our go-round on the economy, beginning with President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. Last week's employment report continued to confirm a strong economy, with higher payroll employment than expected, steady wage growth, and a 50-year record-low unemployment rate. This is very consistent with what I have heard from my contacts in the District, who emphasized both a good start to the holiday season and continued difficulty hiring workers in a very tight labor market.

While the risks to the outlook have received much attention, outcomes over the past three quarters have been surprisingly stable, and many forecasters expect that stability to continue. For example, the unemployment rate was 3.6 percent in the second and third quarters and will likely be either 3½ percent or 3.6 percent for this quarter. The November Blue Chip forecast expects the unemployment rate to remain near this level next year. My own forecast, like the Tealbook, has the unemployment rate ending next year at 3½ percent, still within its recent narrow band.

Similarly, real GDP for the past two quarters has been stable at 2 percent and 2.1 percent, respectively. My own forecast is that real GDP growth next year will average 2 percent, not far from the 2.2 percent rate I expect for 2019. I believe that the recent pattern of strong consumption growth—buoyed by wealth, personal income, and employment increases—and healthy residential investment, supported by recent interest rate cuts, will continue. This strength will be partly offset by weakness in business investment spending, which has been depressed by uncertainty about trade and other policy changes that might occur after the presidential election. Thus, despite the risks of a global slowdown and the imposition of tariffs, the economy appears poised to deliver a stable outcome of growth slightly above that of potential and tight labor markets.

One of the continuing puzzles in the economic data is why wages are not growing faster given a tight labor market. My staff have done some work to help us better understand what might explain the lack of stronger wage pressures during this expansion. They split industries between those that have added jobs relatively rapidly—which include transportation, education and health services, professional and business services, and leisure and hospitality—and all other industries in which employment has grown less quickly. What is interesting and somewhat counterintuitive is that those industries with surging employment have seen slower increases in earnings per worker, while the other industries grouping has seen faster increases in earnings per worker. These differences appear in national data given in the payroll survey but are also confirmed when using state industry employment and earnings data obtained from the quarterly workforce indicators. This pattern differs from that seen in earlier decades when earnings in these high-employment growth industries were more responsive to labor market conditions and grew faster than in other industries. My staff will be doing more work to better understand why wages seem to be growing relatively more slowly in industries with robust hiring. However, as reported last Friday, overall wage growth in November was 3.1 percent, and the acceleration of wage inflation over the past 24 months is evident.

In addition, firms are now facing more compressed margins, which, coupled with tight labor markets, are likely to create additional upward pressure on prices. With 12-month core

PCE inflation likely to increase mechanically—from dropping unusually low price increases from early last year—and the continued pressure of rising wages and lower profit margins, I expect inflation to average 1.9 percent next year and to be somewhat above 2 percent over 2020.

In sum, I expect continued strength in the real economy and inflation near our target next year, with the unemployment rate remaining noticeably below my estimate of the natural rate. I will discuss the policy implications of those expectations tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. Recent data have been broadly in line with moderate growth. And like President Rosengren, I see solid gains in jobs and income continuing to support consumer sentiment and spending. Still, ongoing trade uncertainty and weak global growth remain headwinds. Indeed, we are seeing further declines in manufacturing activity and downbeat investment indicators.

In this context, I find it reassuring to see our recent policy accommodation already working through the traditional channels of monetary policy transmission. As I've mentioned in previous meetings, policy easing has been accompanied by declining mortgage interest rates and a notable step-up in refinancing activity. In turn, residential investment picked up in the previous quarter after declining for more than a year, and recent indicators suggest further increases in Q4. When I source my contacts, they link these two things together, especially when they're bankers and builders of homes, and they note that recent actions are having a material effect in their communities. The standard transmission channels suggest that monetary policy remains effective and is in part why we are seeing the growth that we are citing. In looking ahead, with the waning fiscal stimulus that was noted earlier and modest monetary policy accommodation, I expect growth to settle at about 2 percent this year and next, slightly above my estimate of longer-run potential growth, which I put in at 1.7 percent.

Now, when thinking about future potential trend growth, it's useful to think about how ongoing weakness in business investment and capital goods production is going to have an effect. It's concerning, because it tempers capital deepening. New work by San Francisco Fed Economist Andrew Foerster, along with Richmond Fed Economists Pierre-Daniel Sarte and Andreas Hornstein, as well as Mark Watson of Princeton University—it takes a tribe—shows that effects on trend growth can be quite large. So they do this bottom-up decomposition of the overall trend growth rate since 1950. And they do this by taking account of the sector-specific direct effects but also the spillovers to other sectors. And they show that, since 2000, declines in the durable goods sector—an important source of capital goods or investment goods—have been the biggest contributor to slower trend growth.

And in addition to its indirect effect, which is actually relatively modest compared with its spillover effect, the slower growth in the durable goods sector has pulled down output growth in a lot of affiliated sectors. In other words, durable goods have a big multiplier, and simply looking at the effects of employment and productivity in those sectors is insufficient to really gather how much of an effect they are having not only on employment, but also on innovation and productivity in other sectors.

If you take their model fully on board—and they're using a combination of models and data—their analysis would imply that over the next decade we'd shave another ½ percentage point off potential growth in the United States. Although I've stopped short of taking that onboard—because, like we heard this spring, this work is early analysis—it does suggest an additional downside risk to potential growth that bears further watching. So I'm staying at 1.7

percent for now. I just wanted to remark that there was an outside risk. I'm an early adopter, but not that early. But I think it's useful work to recognize what the sectors are and how they are going to evolve and how this lack of capital deepening can have longer-term effects than just the one year that we've seen it.

In terms of other star variables, I have kept my estimate of *r** unchanged at 0.5 percent. However, it's possible that weaker growth abroad and associated capital inflows into the United States could weigh on *r** in the medium run. And, indeed, estimates from the San Francisco Fed's term structure model have declined a bit since the middle of this year, and they are now standing at 0.3 percent in most recent data. So that's something else to continue to watch as 2020 emerges.

Now, thinking about the labor market and *u**, I want to start with how I think about employment. With the economy growing slightly above my estimate of its trend rate, I expect steady, though moderating, job growth. And despite a few hiccups, I would say payroll gains this year remain impressive, as confirmed by last week's employment report. I'm going to hold to this view, but I want to take a moment to commend the return of the Tealbook alternative view box of Stacey and team. I think it's really healthy and important for us to continuously challenge whatever the conventional wisdom is that we're holding, and examining why the unemployment rate has stayed so steady despite strong job growth is a great topic. So thank you for that.

Still, I'm going to hold on to my preferred explanation for now for plateauing unemployment. And I'm putting that to the rise in labor force participation, which we went over today. It's been increasing solidly as job growth has been increasing, as Glenn reviewed. And as I mentioned earlier in our framework discussion, I think this is suggestive that labor supply is much more elastic than we thought, that we've been overemphasizing the structural hurdles and underemphasizing the potential for a cyclical rebound.

So along with moderate wage growth, we've seen the strong economy just simply pull workers back in. This reentry of workers, as well as persistently muted inflation, has led me to really reconsider what to do with u^*. And I've been guided by our estimates in San Francisco using standard state-space models and filtering techniques—this is work that's done at the New York Fed as well—and I now put u^* at 3.8 percent, which is two-tenths lower than my previous estimate in September. So, given this new estimate of u^* and recent inflation data, I've also lowered my near-term outlook for core inflation a bit. I project core PCE inflation will rise just to 1.6 percent this year and 1.8 percent in 2020, reaching 2 percent only in 2021.

Now, I tried to find a way to be a little more hopeful, so I asked the San Francisco Fed research team to update their analysis on the best predictors of future inflation. And this dovetails nicely with the pictures that Glenn showed us earlier this afternoon. But they continue to find that conventional measures of core inflation have provided the most reliable signal about future inflation over the past 20 years, beating out alternatives—although modestly, I would say—such as the Dallas Fed trimmed mean or the common factor. Really, none of these are better than each other, but the core rate is as reliable as any and a little bit more reliable, depending on which analysis you run.

And this finding is in line with a recent paper by Jim Stock and Mark Watson that finds that simply excluding energy from PCE inflation, rather than food and energy, best matches underlying PCE inflation over the sample period that they study.. And when I look at that, I don't see any of those measures, either PCE inflation minus energy or PCE inflation minus food and energy, as flashing green signals about future inflation. So, for now, I remain cautiously optimistic that inflation will rise over time for some of the reasons that President Rosengren mentioned. This can be helped by our recent policy accommodation, and I'm also informed by the fact that over the past several years, fewer cyclical components of inflation have moved up as labor markets have tightened. And this work is done in San Francisco but also in Cleveland, as President Mester has mentioned.

So, to end, with that slightly optimistic view, I am, despite the fact that it's—well, let me say it differently: I remain humble. I remain a little humble about the fact that we've constantly missed on our inflation projections. I, like others, am hopeful each year when the new year comes that it will bring better things on the inflation front than it has in the past. But over the past five years, we have consistently projected that inflation would move gradually back to target in the time frame that we were happy with, only to have realized PCE inflation average less than 1.5 percent for those five years. So, each year, we explained these misses with idiosyncratic one-off factors. But as I have emphasized at previous meetings, whatever the reason, continued downward misses of our inflation goal will run the risk of eroding inflation expectations and diminishing our much-needed policy space. *Thank* you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. The U.S. economy is in a good place, with historically low unemployment and inflation somewhat below but projected to revert toward our 2 percent target. Growth in real GDP and private domestic final purchases (PDFP) has downshifted from the above-trend pace of last year to a pace within the range of our estimates of potential growth. And I'm at the high end, I think, of the Committee—I see potential growth at 2.2 percent.

Labor force participation is at a cyclical peak, and prime-age participation—while rebounding—remains below levels seen in previous business cycle expansions. And I would like to second President Daly—I think the elasticity of labor supply can't go on forever, but there may be more room to run, and that is relevant in thinking about growth projections. The labor market is robust, but there is no evidence that rising wages are a source of excessive cost-push pressure on price inflation. Real wages continue to rise broadly in line with underlying productivity, which itself has picked up to a 1.5 percent pace over the past three years—not great, but up about ½ percent from the previous three years.

Indeed, if anything, the revised national income data show a noteworthy—and, to me, welcome—increase in the labor share of national income in recent years, revealing that, as in previous cycles, wage increases absorbed by margin compression are non-inflationary. And we saw that in the '90s and the 2000s. Of course, as I pointed out in October, there is math involved, and income shares have to add to 1, and, thus, the revised data show that the profit share of national income has declined in recent years. And this is relevant because, as the staff reminds us, profit expectations are an important driver of business investment, and the decline of profit expectations is one reason—certainly not the only one—why we are seeing and we project somewhat weaker business fixed investment.

Underlying inflation appears to be running at the 1.8 percent pace estimated by the staff, and I am a big fan of the staff's work on *underlying* measures of inflation. I think it's important, and the nice thing is that it's econometric enough, based on market surveys or Treasury Inflation-Protected Securities (TIPS) markets, and it's a useful reality check. Of course, tariffs and some favorable year-over-year base effects may push core PCE inflation up to 2 percent in the winter, but as these level effects wear off, inflation is projected to fall yet again to a pace below our 2 percent objective and, by the staff, to remain there throughout the forecast horizon.

Now, relative to the October Tealbook, the staff has made some sensible but modest revisions to the baseline outlook. And I largely agree with these, but the central message remains unchanged from October. The modal outlook calls for roughly trend growth, with maximum employment and PCE inflation in the range of price stability. Fed watchers and financial markets are labeling this the "soft landing scenario." But I'm superstitious, and so I don't want to jinx this welcome outcome with any public embrace of the soft-landing language, so I won't, but I'm among friends here. But were I back in the classroom, this is the sort of scenario for monetary policy in the 11th year of a business cycle that I would put in a diagram on the whiteboard. As I said at the conclusion of our October meeting, and I will elaborate on tomorrow, I believe that monetary policy is now in a good place to support these favorable baseline outcomes. That said, I would like to make some observations about inflation expectations and here again will leverage off President Daly's comments.

Looking at a wide range of estimates in the staff's new—and I highly recommend it; it's in the Tealbook now—common inflation expectations (CIE) index on page 24, I continue to believe that inflation expectations are close to, but do reside at, the low end of a range I consider consistent with our mandate. Now, this new index is just a simple weighted average of 21 inflation expectation indicators, and the weights are chosen by econometrics to maximize the variance explained by the factors. A factor model can tell us only if inflation expectations have changed, not their level at a point in time. But it does indicate that, as is the case with Michigan and other surveys, at whatever level inflation expectations were anchored—say, in 2004, before the crisis, when we were at a comparable point in the cycle and underlying inflation—they are estimated to be anchored at a somewhat lower level today.

I also note that the staff estimates of expected inflation obtained from the TIPS market, after adjusting for term and liquidity effects, have sagged noticeably this year. For much of the year, fluctuations in breakevens were attributed by the staff model to term and liquidity premiums. More recently, the declines in breakeven inflation are now being attributed, in material part, to declines in expected inflation. For example, if you take the average of the two staff models—they report technically the four-factor models with and without the random-walk factor—expected CPI inflation is running at about 1.9 percent five years forward, which translates into PCE inflation of about 1.6.

Let me conclude with the following observation. An important insight in the academic literature on optimal monetary policy is that policy should aim to keep expected inflation over some horizon—not realized inflation—equal to target period by period. Actual inflation outcomes will always fluctuate in response to shocks within some range of the target. So a central bank's policy, especially in the case of a bank that has a dual mandate, should not be evaluated on the criterion of minimizing the variance of inflation outcomes, but rather should be evaluated on its record of keeping inflation expectations on target. It would seem to me that, taking into account the challenge of precisely measuring inflation expectations, a practical way to support this objective would be to conduct policy with the *ex-ante* intention of keeping average inflation over some horizon equal to target. Thank you, Chair Powell.

CHAIR POWELL. Thank you. I would ask everyone to look at your watch [laughter] and come back in 30 minutes. We're going to take our coffee break now. We're on a good pace to get done early—so, 30 minutes, which will be 10 after 3 on that clock.

[Coffee break]

CHAIR POWELL. Well done. President Evans.

MR. EVANS. Thank you, Mr. Chair. My contact reports on economic activity were very similar to the previous round. Manufacturing is soft, though I do not get the sense that the sector overall is getting worse. That said, there definitely are segments that continue to struggle. Oil-related activity is weak. Some manufacturers of heavy earth-moving equipment continue to see declines in demand, and sales of agricultural equipment are being squeezed by poor weather-related crop conditions as well as the effect of tariffs. I note, though, that strong state and local construction spending and federal support payments to farmers are cushioning the blow to construction and agricultural equipment producers.

In this environment, it's not surprising that capital spending by manufacturers remains moribund. As one of my contacts put it, "Anything we can delay, we are delaying." Still, manufacturers are mostly holding onto labor. I'm only hearing about selected layoffs, and these are largely at those same heavy-equipment manufacturers with sizable exposure to international demand, both in the agriculture and energy sectors.

Meanwhile, the consumer continues to do quite well. We took a deep dive into the household sector with our directors at our board meeting last week. No one reported any meaningful cracks. Bankers noted that credit quality is good. They've seen some increase in delinquencies on consumer loans, but the levels are still very low. There's a lot of mortgage activity going on, both purchases and refis, so lower interest rates clearly are showing through to the real economy.

All of the directors pointed to the strong labor market as being the key foundation for household spending. They see very tight labor conditions in both their own businesses and in their customers' businesses. In a change from the previous few rounds, several reported larger wage increases. Many of the wage hikes appear to be aimed at keeping existing workers from jumping ship, as firms recognize how difficult it is to find and train new workers in the current tight market. In contrast, our contact in the temporary employment industry, who has a broad view of the labor market, reported a continuation of more moderate overall wage pressures. He also does a lot of international business and indicated that, in sectors other than manufacturing, their foreign order book was performing very well. With regard to inflation, I heard a couple of reports of price increases at the retail level but nothing to suggest any change in underlying trends. Higher inflation is just not on anyone's radar screen.

I'll now turn to the national outlook. My real GDP growth forecast is broadly in line with that in the Tealbook. My unemployment rate path also is similar, although our Chicago Fed assumption about the natural rate, which we see at 4.2 percent over the longer run, is marginally lower than the Tealbook's. My projection is a bit stronger than my most recent SEP submission, largely reflecting a slightly lower path of policy rates. I also feel the risks to the growth forecast have diminished some since September.There are some signs that foreign growth may be stabilizing. Performance in the U.S. labor market continues to be impressive, and businesses appear to have become accustomed—or, should I say, resigned—to the sometimes daily ebb and flow of Administration announcements regarding trade developments and other news about the political risk here and abroad. This mindset suggests more stable business sentiment. Such stability, while probably not enough to fuel expansion plans, does seem to reduce the risk of a confidence-related cutback in hiring, with the obvious negative repercussions for household spending.

In contrast to growth, the incoming news on inflation has been disappointing. The latest slippage in core inflation, along with the lack of any increase in financial market or survey measures of expectations, highlights the concern that underlying inflation trends are simply too low. We still have work ahead of us to reach our inflation mandate, and I share President Daly's concerns there. As has been my narrative for some time, I think some overshooting of 2 percent inflation will be necessary to boost inflation expectations to be symmetric around 2 percent and thus sustainably deliver on our inflation goal. To get there, my forecast incorporates an accommodative monetary policy rate path like that of the SEP median, as well as communications that convey the Committee's desire to get inflation moving up with momentum. Conditioned on this policy, I have core inflation reaching target in 2021 and overshooting by two-tenths in 2022.

Mr. Chair, I want to thank you for taking the coffee break when you did. It almost made me forget about the most horrifying thing I've heard at this table in quite some time. Did everybody hear what President Daly was suggesting about evidence from Mark Watson and company, that a reduction in manufacturing, in durables production, could be falling so much that potential output growth could go down ½ point? That's a big, big effect, if that's true. I certainly hope we understand that better before too long. But I guess, with the coffee break, I feel a little bit better at the moment. [Laughter] Thank, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chair. And thank you, President Evans, for that caution. [Laughter]

MR. EVANS. I mean, ½ point.

MR. KAPLAN. I know. I have to think about that. Okay. Dallas Fed economists forecast growth in 2020 to be approximately 2 percent. Based on this forecast, we expect the unemployment rate to remain around 3.5 percent and the Dallas trimmed-mean rate to remain in a range of 2 percent. I normally say fairly mechanically after that, "which suggests to us that headline PCE inflation should approach 2 percent in the medium term due to structural factors in the economy more so than monetary policy." I'm learning to be skeptical about that, but the Dallas trimmed mean, our core inflation method, does continue to run in the range of 2 percent.

We believe trade uncertainty will likely persist in 2020 even with an early-stage trade deal that is expected, and the reason for that is, we still think the bulk of the tariffs are going to stay in place. We're getting adjusted to the fact that, every few weeks, there is a new announcement about some new trade issue—most recently with Brazil and Argentina, which many of our contacts found alarming because it cited their weaker currency as the justification for us putting tariffs on. So it's still a little bit jarring for the folks we talk to. As such, we expect global growth to remain sluggish, much like this year. Manufacturing and business investment will also likely, we believe, remain sluggish. I'll talk more about that in a moment.

We believe the consumer will continue to be the primary underpinning of the U.S. economy based on overall improved balance sheets and the historically tight jobs market. At a U-6 rating of 6.9 percent, along with discussions with our contacts, the results of our broad surveys suggest to us that we are at or past full employment in the United States.

Though hourly average earnings growth is a little more than 3 percent, we believe that wage growth is stronger at the low end—that is, for $12 to $15 per hour workers—and stronger for skilled workers, particularly mid-skilled workers. We continue not to see or hear from our contacts about significant wage pressure in the middle—that is, $25 an hour plus benefits. Based on our discussions with contacts and our surveys, we believe that workers in the middle are placing, at this stage in the cycle, a high value on the stability of the company, promotion opportunities, overall benefits, and—oh, by the way, it helps if the company is in a big city versus a smaller town, which is another draw to keep people at the company. And they're willing to trade these positives off versus looking to change jobs in order to receive higher wages. We think this trend may be reflected in slightly lower quits rates in the Job Openings and Labor Turnover Survey (JOLTS) reports, which means, on the margin, if someone was going to quit, that person may have already changed jobs. And we do think workers are cognizant, based on discussions with our contacts, of where we are in the economic cycle.

We continue to hear from our contacts in the business outlook surveys about a lack of pricing power among companies we talk with primarily, again, due to technology and technology-enabled disruption. If companies do face cost increases, they're just as likely to lead to margin erosion versus price increases to customers. Uncertainty regarding logistics and supply chain arrangements due to trade uncertainty has reduced confidence on the part of many businesses we talk with about their ability to use supply chains to manage their costs. Companies that we talk to are addressing these pressures by investing more in technology and looking to gain more scale primarily with merger activity, and public companies we talked with are looking to mask the margin pressure through significant share repurchase. They're using the substantial rally along the Treasury curve to finance these activities with historically cheap debt. Debt cost, as all of you know, is historically low versus the cost of debt equity even taking into account the expansion of price-to-earnings ratios, which is going on in 2019.

One pressure that is encouraging companies to do share repurchase and merger activity is activism. It's unusual today to talk to a CEO of a publicly traded company who doesn't either have an activist in the company's stock or isn't fearing the accumulation of the company's stock by an activist. All of this puts more pressure on the CEO to increase his or her company's share price in the near term. The activist playbook is to encourage debt-financed share repurchase, shedding of the marginal businesses, and scale-enhancing merger activity.

We continue to see the effect of these trends, though, on the workforce, and we think they're being skewed by educational attainment. If you're one of the 46 million workers, as you've heard me say before, that has a high school education or less, we continue to think your job is likely either being restructured or eliminated unless you have a skill. In this job market, you'll find another job, but it may well be at lower wages than the one you left, and it's causing us at the Dallas Fed to do a little bit more work on the subject of job quality and in trying to decipher a little bit in more detail where these new jobs are coming from. Our suspicion is they may be "lower quality jobs" than we may have seen earlier in this cycle.

Of course, investment in education and skills training must be done locally, and it's improving but, in our view, not nearly as fast as technology and technology-enabled-disruption trends are developing. The implications of this are likely to be increasing wage and income inequality based on levels of education and skill. We are hopeful, though, as we discussed earlier, that running the labor force "hotter" will attract and retain more workers into the workforce and incentivize more investment at the local level in education and skills training.

We note in that regard that, though Texas is lucky to enjoy pretty dramatically rising population growth, slowing workforce growth and flat-to-down population growth are putting pressure on a large number—30, 35—of states in this country to trim their spending on public education. Low interest rates, we also note, are putting pressure on state pension funds to meet their return targets, which is, in addition, putting more pressure on state budgets.

I'll come back to that last comment on energy. Crude production growth in the United States, as you heard me say before, was 1.8 million barrels a day in 2018. It's going to be, in our view, 700,000 to 800,000 barrels a day this year. We think in 2020 it's likely to be 500,000 barrels a day or less, and we think it's trending toward zero in 2021. What's the reason for this deceleration? A rapid decline curve of shale indicates, because of that, drilling activity needs to keep building for production to grow, and investors, like probably never before, are now demanding that new cap-ex be funded from cash flow versus leverage, and there's a much greater focus on returns to capital.

And the other thing that's happening is, most capital providers are under pressure from pension funds, university endowments, and big money managers due to environmental, social, and governance (ESG), and much more sensitivity about environmental issues. And so what we're finding is, in the debt and equity markets and even in the private markets, there is not new capital right now going into this industry. As a result, it is our expectation now that in 2020, cap-ex in this industry will drop as much as 15 percent. That follows, in our view, about a 5 to 10 percent cap-ex cut this year. Based on our numbers, it's pretty hard for U.S. business fixed investment to be a positive number if oil and gas or energy cap-ex is down 15 percent, but that is our best judgment at this point.

Now, even with pledged production discipline from OPEC, which would normally create some firming in prices, we get the sense that, given the trauma that most producers are going through, you'd probably need to see, in our view, as much as a $10 increase in the price of oil from here for people to say, "I'm going to do more to try to put more cap-ex into this business." I think people are just trying to survive in here. It is our view that you're going to see much more this year in the way of consolidation, where possible, but because there's not a lot of corporate buying in the aftermath of one large merger—I won't mention the company names, but one large, very leveraged merger, which hasn't gone well—we think you're more likely to see restructuring activity and some greater number of failures in this industry.

Having said all that, we still believe that, as you start having production growth in the United States trend toward zero, and when you carve out some new, long-lived projects coming onboard in Brazil and Norway and Guyana, global demand over the medium term is going to have to be met primarily from shale. And if global demand growth continues to be at 1 million barrels a day per year or greater, shale, as we just described, is not going to keep up with it, which should ultimately lead to higher prices, which ultimately may lead to greater production in the United States. But we think it's unlikely to happen in 2020. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. Reports of business contacts in the Fourth District indicate that conditions improved in recent weeks, with economic activity expanding at a modest pace. The Cleveland Fed staff's diffusion index of business conditions has moved up over the past couple of months from readings of 0 in July and September to 20 in December. Conditions in manufacturing are still soft but are better than they were this summer. A large, diversified manufacturer told us that domestic demand has been more resilient than expected. Other manufacturers noted that some customers are beginning to restock the inventories they had allowed to run down earlier in the year.

Contacts continue to report that ongoing trade tensions and weak global growth remain concerns. Some firms have delayed investments because of the uncertainty. Others are moving forward on their investment plans even though they don't believe trade tensions will be resolved anytime soon.

District retailers are relatively optimistic about the holiday shopping season. District labor market conditions remain strong but have softened a bit from earlier in the year. The District's unemployment rate edged up to 4.2 percent, which is still well below the Cleveland staff's estimates of its former and normal levels. Year-over-year growth in payroll employment in the District edged down to 0.3 percent, equal to the Cleveland staff's estimates of its longer-run trend. Much of the deceleration in payrolls is due to a decline in manufacturing jobs. Some contacts continue to report difficulty in attracting and retaining workers. The percentage of contacts planning to increase staffing levels in the next 12 months is lower than it was a year ago, consistent with growth slowing toward trend.

Wage pressures, which had been elevated, have eased a bit, and price pressures at District firms remain moderate. The prices of industrial materials have declined on softer global industrial activity, but input costs of retailers have risen as a result of additional tariffs on Chinese goods that took effect on September 1. One contact reported that as U.S. apparel firms attempt to source more of their goods from outside China, costs of goods sourced from other parts of the Pacific Rim are increasing. In response, retailers are offering fewer discounts this holiday sales season and increasing prices on some of their products. One retailer also reported reducing employment levels to offset these additional costs.

For the national economy, incoming information remains consistent with my outlook that over the forecast horizon the most likely outcome is that output growth will remain near its trend pace, which I estimate to be 2 percent, and employment growth will slow toward trend, with the unemployment rate remaining below 4 percent, which is below my estimate of its longer-run level of about 4¼ percent. And then inflation will rise gradually to 2 percent. Compared with my September SEP submission, I have slightly higher output growth and a slightly lower unemployment rate next year. These outcomes are conditioned on a shallower policy rate path than in September. This reflects the recent reductions in the federal funds rate.

Business investment, manufacturing, and exports remain soft. October's rise in shipments and orders of non-capital goods excluding aircraft is a tentative sign that investment in equipment may be beginning to stabilize, but it's too soon to tell. Housing is responding to the decline in mortgage rates. Consumer spending and sentiment remain solid, supported by the strength in labor markets.

The strong job growth for November, coupled with upward revisions of previous months, suggests there may be stronger underlying positive momentum in the economy. Payroll gains have averaged more than 200,000 per month for the past three months and 180,000 so far this year. This is well above trend. The coming benchmark revisions are likely to weaken these numbers, but even so, labor market conditions remain solid. We can see this in a number of other labor market statistics. The unemployment rate has been about 3½ percent for the past few months, its lowest level in about 50 years. The employment-to-population ratio has risen to a new peak for this expansion, and the labor force participation rate has been constant to up slightly this year.

I'm estimating a longer-run unemployment rate of about 4¼ percent. But the performance of the labor market and the fact that the acceleration in wages hasn't been stronger, with most measures remaining at about 3 percent this year, means I'm very open to the possibility that the natural rate of unemployment is lower than my current estimate. Another possibility is that some businesses have decided that further increases in wages won't attract qualified workers, and they're making other adjustments to retain their current workforce. This is consistent with what I'm hearing from contacts in the Fourth District. The Board's annual survey on hiring plans suggests, though, that there is considerable variation across the country in the approaches firms are taking to attracting labor.

There's been little change in the inflation outlook. Measures of inflation and long-run inflation expectations are consistent, with inflation gradually rising to our 2 percent objective over the forecast horizon. Headline PCE inflation has been held down by energy prices this year, and core PCE inflation has also been subdued. However, other measures of inflation that focus on the center of the distribution of price changes point to somewhat stronger inflationary pressures than do the headline and core measures. The median PCE and CPI inflation measures published by the Cleveland Fed's Center for Inflation Research have remained near expansion highs, with the median PCE inflation measure at 2.7 percent and the median CPI measure at 3 percent. The cyclical component of core PCE inflation constructed by the Cleveland Fed staff using finely disaggregated data is close to its highest level of the post-crisis period, coming in at 2.9 percent in October.

Over the past few meetings we've received mixed readings on longer-run inflation expectations. Recent readings have been broadly stable, although soft in some cases. The long-run CPI inflation forecast from Blue Chip Financial was unchanged in December at 2.1 percent. The Cleveland Fed's five-year, five-year-forward measure of expectations, which combines market and survey data, edged up to 1.8 percent in November. And readings on household longer-run inflation expectations from New York and from the Michigan surveys remain soft.

Overall, in my view, the price data remain consistent with a gradual and sustained firming in inflation to our 2 percent goal over the forecast horizon as the expansion continues, and this inflation forecast is supported by a shallower policy rate path than I had in my September projection, with the funds rate remaining at its current level through most of next year and then moving up with only a few more 25 basis point increases over the rest of the forecast horizon. Now, a variety of simple monetary policy rules, including those available in the Cleveland Fed's website, suggest a steeper policy rate path would be appropriate. However, the shallower path I built into my forecast reflects the recent cuts in the funds rate and an opportunistic approach to supporting inflation moving back to 2 percent.

So long as output growth remains at trend and the labor market remains solid, my assessment of appropriate policy refrains from taking deliberate action at this point to try to reinflate the economy but also refrains from taking deliberate action to curtail an inflation overshoot so long as inflation isn't expected to rise too far above 2 percent. I see this path as consistent with a balanced approach to achieving our goals. It takes into account the softness in inflation and inflation expectations; the risks to my global outlook, including trade policy and soft global growth, which I now see as tilted still to the downside but less so than in the time of my September projections; and the risks to financial stability that arise in a low interest rate environment.

The economy and policy are in a good spot right now, giving us time to see how inflation and economic activity evolve before making any change to the funds rate, either up or down. Of course, a substantial change in the outlook would necessitate a reassessment of this policy rate path. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I'm in general agreement with the staff forecast, although I remain a bit more optimistic that inflation will return to target in 2021. I realize, though, that there is a measurable risk to my scenario of inflation returning to target, because inflation has been persistently under target for some time and most recent readings on inflation disappointed a bit to the downside. Now, that's only one data point, and I'm placing more weight on the recent firming trend. Regional economic data support my projection of trend-like growth and inflation returning to target. What I've heard in discussions with contacts in the region is also consistent with my forecast submission.

Unemployment in the District picked up 0.1 percentage point in October but remains at very low levels, and employment growth has been improving for the past two months. The labor force participation rate is also showing a modest upward trend. Labor markets are tight, and contacts cite the inability to find workers with required skills as the primary impediment to hiring. Relative to last November, more firms are indicating they are hiring less-qualified workers and providing training, and 44 percent mentioned that they are increasingly using technology to replace labor, consistent with what President Kaplan said.

For selective categories of jobs, wages are rising at a very healthy pace, but not all workers, of course, are experiencing a jump in pay. Like the nation, economic growth in the region is driven by the consumer, and that growth was reflected in our November nonmanufacturing survey, which jumped back to its historical average. As well, new orders, sales, and employment indexes all remain above historical averages. Nonmanufacturers also report significant optimism.

Based on our business outlook survey, manufacturing in our region continues to outperform the nation. Although the current activity index has rebounded back to its nonrecessionary average, the details of the report were significantly weaker, with declines in both new orders and shipment. An average of the five regional manufacturing surveys from Federal Reserve Banks put the manufacturing sector slightly in positive territory, indicating that we may see some future improvement in the sector. Like the nonmanufacturers in the region, our manufacturers, despite all this, continue to remain upbeat.

Information from various contacts confirms what we're seeing in our surveys. One contact indicated that his customers remain optimistic, and another indicated having less uncertainty going into 2020. He is also obtaining funding from German and Japanese lenders, as investors in those countries are coming to him and looking for yield—those positive returns. The third contact indicated that his consumer-based businesses are doing well but that his industrial-focused business lines are finding growth elusive. He also indicated that some IT-sophisticated firms are cutting inventory and forcing him to respond more quickly when demand picks up. He mentioned a shift of inventory toward distributors as the risk of stock-outs increases. Another manufacturer indicated that tariffs are now hitting home and the shortage of materials is delaying some projects.

On inflation, one-year-ahead inflation expectations of firms in our region have been on a downward trajectory since the middle of last year and now stand at approximately 2.4 percent. They appear to be converging to the SPF forecast. Predictions of own-price inflation have also become significantly more muted and are now slightly below 2 percent. According to the latest survey, there appears to be very little price pressure in the District. However, expectations of compensation growth have risen modestly.

To summarize, the District's economy is, like it tends to always be, growing modestly, with growth almost entirely driven by the consumer, which is in line with what we're seeing nationally. The most recent data indicate that the economy will continue to expand, and my forecast continues to project trend-like growth and the return of inflation to target. However, in light of the recent behavior of inflation and its lack of a significant response to increased policy accommodation, I've maintained my view that the long-run neutral federal funds rate is 2.5 percent in my forecast. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. In my discussions with market contacts, they indicated that repo operations and reserve management purchases of T-bills were going well, and they understand our plan for the next few months. However, there's a growing desire for clarity about our framework beyond that, particularly surrounding what constitutes ample reserves and some question whether there is agreement among the Committee on that. It's important to provide further clarity on the initially targeted level of reserves that would be consistent with a more passive approach to reserve management and the guidelines for trend growth thereafter.

Our early September guidance was an expedient reference point, but it will soon be time to clarify our thinking and ground it in fundamentals about reserve management. I would favor being clear that our goal is to maintain effective control over the federal funds rate and transmission to other short-term funding markets, with only rare need for operations. In service of that goal, we should continue to increase reserves to a level that provides a sufficient buffer to absorb foreseeable large fluctuations in nonreserve liabilities and trend growth thereafter.

I'm mindful of the fact that we knew all of the autonomous factors that would pressure reserves in mid-September: the rebalancing of the Treasury General Account after the suspension of the debt limit, corporate tax payments, and ongoing high levels of Treasury security issuance. And, as Lorie Logan showed in exhibit 11, we saw and discussed the building pressure on the federal funds rate relative to the IOER rate. Despite that, the market volatility caught all of us by surprise. We should seek to avoid a repeat that would generate confusion about our ample-reserves regime. That said, I agree with the general approach to tapering proposed by Lorie Logan. I also support a shift to short coupon securities, if needed, to avoid disruptions. The market expectation is that a standing repo facility will ultimately be announced, and this makes sense as a backstop for repo markets in times of stress.

Most immediately, as was noted, funding conditions over year-end remain a key focus. Several contacts indicated dealers have been proactively warning their clients to expect significant reductions in balance sheet availability. The fact that market contacts are attentive to the year-end pullback in various markets by the G-SIB dealers that are close to a step-up in their surcharge bucket and the fact that the Fed's term operations spanning year-end have been oversubscribed was noted by contacts as evidence that market participants are actively prefunding positions. Having observed this behavior now for three years, my own inclination would be to move quickly to address this unnecessary contributor to year-end volatility. I support replacing the G-SIB surcharge buckets with a more continuous or near-continuous methodology and avoiding the statement-day window-dressing problem by moving to averaging across the year. These are straightforward fixes that can be done in a way that's capital neutral.

Regarding the outlook, data on aggregate spending and the labor market have come in somewhat stronger than anticipated. A strong labor market and strong sentiment are supporting solid consumer spending. Although business investment, trade, and manufacturing remain downbeat, reflecting weak growth abroad and trade conflict, there is little sign that the softness in these sectors is spilling over to the broader economy. Indeed, the latest data suggest that the deceleration from the first to the second half of the year was more modest than we expected, and there is solid momentum going into next year. Moreover, financial conditions appear very accommodative. Every financial conditions index (FCI) I consult is near the low end of its historical range. On net, I've revised up my modal outlook very modestly.

The two employment reports released since we met in October surprised to the upside and suggest that employment conditions are very strong, consistent with a lot of the business contacts that you've referenced. Even taking into account the General Motors (GM) strike puts-and-takes and the anticipated Bureau of Economic Analysis (BEA) payroll revisions, the three-month average of monthly payroll gains is above 200,000—about 50,000 higher than at the time of the October meeting. And the latest data point to some acceleration rather than deceleration in payroll gains from the first to the second half. Last month, the unemployment rate inched back down to its lowest level in five decades, and the employment-to-population (EPOP) ratio for prime-age adults is just above 80 percent, equal to its pre-recession peak. Despite this tightening, wage growth remains moderate. Layoff indicators, including initial claims, remain at low levels.

On the spending side, the incoming data surpassed my expectations, leading the staff to revise its estimate of GDP growth in the second half from just above 1½ percent to almost 2 percent. After accounting for a deceleration in government purchases and the GM strike, growth in private domestic final purchases, which tends to provide a better signal of underlying momentum, is projected to slow only ¼ percentage point in the second half. Consumer spending increased at a robust 3 percent in the third quarter, and the latest indicators, which include an upbeat preliminary December reading on sentiment, continue to point to solid growth despite some deceleration in the October retail and motor vehicle sales.

And, as others have noted, in the housing sector, the decline in mortgage rates since late 2018 appears to have spurred a welcome rebound. By contrast, inflation data have come in on the soft side, with core PCE prices increasing only 1.6 percent over the 12 months through

October. Market-based measures of inflation compensation have moved modestly higher, but the latest survey measures sit at the low end of their recent ranges.

Business fixed investment is still expected to post a modest decline in the second half after having increased at an anemic 1¾ percent rate in the first half. Manufacturing PMIs remain downbeat, and net exports are expected to be roughly neutral for GDP growth in the second half, reflecting weakness in both exports and imports likely due, at least in part, to previously implemented tariffs.

Overall, it appears foreign growth was weak in the third quarter, and the latest indicators point to little improvement in the fourth quarter. Manufacturing remains weak throughout most of the world and foreign growth data have generally disappointed, although a few data points have been read as suggesting some stabilization in the euro area and China. The ongoing protests in Hong Kong are troubling, and the general election in the United Kingdom later this week bears watching. In recent months, we've seen notable weakening in Latin America.

Although risks remain, market participants see the U.S. outlook as more resilient to these risks, and recession probabilities implied by models using market data have declined significantly since our previous meeting. The U.S. economy's resilience has been the dominant theme despite volatile news on trade, including the surprise announcement of new tariffs on imported steel and aluminum from Brazil and Argentina and on French goods. In my discussions with market participants, there was a widespread expectation that the threatened tariffs on consumer goods imports from China scheduled for December 15 would be averted, so a reescalation of trade conflict could be expected to reignite some level of market volatility.

Financial conditions are easing, and risk assets have done particularly well in the intermeeting period, with U.S. equities increasing 3 percent on net and investment credit spreads tightening a little further. Market participants continue to highlight risks associated with triple-B-rated investment-grade debt. With a triple-B segment now 2.8 times the size of the high-yield market, market participants are concerned about the capacity of that market to absorb so-called fallen angels without dislocations, given continued growth and increasing leverage.

Over the past few months, the Committee has taken significant action to buffer the economy from weak foreign growth and ongoing volatility associated with trade conflict. I'll be watching the data carefully as the full effect of this accommodation works its way through economic activity, the labor market, and inflation. I look forward to discussing policy implications tomorrow. Thank you.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. On balance, Eighth District business contacts continue to be moderately optimistic concerning the outlook for the fourth quarter and into the first half of 2020. The end of the GM strike was mentioned as a welcome development, and the state of the auto sector was generally viewed as satisfactory. Agribusiness continued to be an area of concern. Labor markets continue to be described as tight, but District firms seem to be on track for continued hiring in the first half of 2020. Contacts in higher education continued to note substantial enrollment declines causing disruption and significant retrenchment.

Nationally, real GDP growth appears to be holding up somewhat better than might have been anticipated a few months ago. In part, this may be due to the more accommodative monetary policy this Committee has put in place during 2019. The recent jobs report was certainly encouraging in this regard, although I would remind the Committee that the year-over-year growth rate for payroll jobs remains below 1.5 percent. It's been declining all of 2019, and the current reading is one of the lower readings of the past five years.

U.S. unemployment—I'm not sure why we don't look at the year-over-year rate. We look at the year-over-year rate for everything else. Why not for jobs? So the U.S. unemployment rate moved again to 3.5 percent and has now been below 4½ percent for about two and a half years. Despite this extraordinary run, pressure on inflation remains muted, with the Tealbook now projecting core PCE inflation of just 1.6 percent for 2019 and 1.9 percent for 2020. In my view, this inflation outlook is unsatisfactory.

The Tealbook forecast appears to be consistent with private-sector forecasts on most dimensions but not on the short-term interest rate, where the staff model suggests rates that are still above the top-10 average of the Blue Chip over the forecast horizon. It does seem like the Tealbook could get inflation to 2 percent with a somewhat more accommodative policy rate path, such as the one in place in private-sector forecasts.

The yield curve has returned closer to an upward slope. The 10 year–2 year slope has been trading at around plus-20 basis points. I would characterize the current state of the yield curve as mostly flat going out to five years and then somewhat upward sloping from there. I think this is a better situation than we were in previously, but it's not terribly comforting. Many recession probability models that rely on spread variables are showing lower probability of recession in the next 12 months. I think that's a welcome development. TIPS breakevens have recovered somewhat during the intermeeting period but not enough so far, so we still have some way to go on expected inflation.

I have a final comment on the trade war and business adjustment. As I have been saying for some time, I think the trade war is likely to continue on during 2020. I see any kind of quick resolution as highly unlikely. These are very difficult issues. To get a satisfactory resolution, they would have to be negotiated on for many years.

I see tariff uncertainty as likely to remain high over the forecast horizon. But I also think that this has been going on for about 18 months, and businesses are adjusting their practices. So they are changing their business models, and, above all, they are rearranging their supply chains, taking into account the higher level of uncertainty that now exists in the trade arena. These adjustments take the form of, instead of putting all of your factories in one country and counting on the trade relations to remain the same between that country and the United States, you might instead spread out your factories over many countries and make provisions so that you can switch production from one country to another. That's a simplistic description. But I think sophisticated strategies are being put in place, as you would expect in any kind of uncertain environment, with major businesses and a lot of investment at stake.

So the bottom line is that, from our perspective, we may want to view trade uncertainty as a one-time shock to growth. It would be something that would disrupt the supply chain for 18 months or two years. But after that, some adjustment would be made, and then the economies—the global economy and the U.S. economy—would start growing at the previous pace, having now adjusted to the fact that the tariff situation is less stable than it once was. If you take that sort of a view, then I think prospects for 2020 GDP growth and other factors in the U.S. economy may be somewhat brighter than otherwise, given this adjustment. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. Like everyone else, I think the overall economy remains sound and at the near-trend pace we have been forecasting. Consumer spending, of course, has been the stabilizing force in our economy. The data have been a bit softer of late, with PCE increasing only at a 1 percent annual rate in October. But the fundamentals for spending remain strong, with the job market healthy, real incomes rising, consumer sentiment still high, savings rates robust, and credit markets open.

Like others, in my conversations on the consumer side, I hear positive reports on this holiday season, and the recent strength in residential investment is cause for optimism as well. The labor market remains a particular bright spot and the lead driver of consumer spending. Payroll employment is still growing strongly. Labor force participation is high. And, as Governor Brainard said, the prime-age employment-to-population ratio has now exceeded its previous cycle peak.

Initial unemployment claims remain low. We continue to hear of significant wage increases at entry levels, and our surveys reinforce that tightness. To those who would expect to see even greater increases, some work by my staff—reverse-engineering JOLTS data—would suggest part of the explanation could be a 10-day increase in the time to fill jobs in the past four years. Perhaps rather than paying more, employers are investing more on search.

Markets seem to have responded well to our recent moves. I welcome the steepening of the yield curve, particularly on the long end, as well as the repricing of highest-risk debt. In contrast, like many others, I have been disappointed by the recent trend in inflation. After a robust second quarter, I had hoped to see more momentum in the third. Some increase should come as the soft readings early this year recede further into the past, and I hope our recent moves will have an effect in time.

I've also noted the continued weakness in business investment. It's interesting to talk to contacts about their 2020 plans. They are nervous about the macroeconomy despite seeming clarity on Brexit and potential progress on trade. But when you ask them about their own businesses, they, with the exception of manufacturers, describe a healthy outlook. As an example, I served on the Virginia Governor's Advisory Council on Revenue Estimates two weeks ago. There are still seats available on that committee for anyone who is interested. [Laughter]

The state came in with a conservative outlook for its economy next year. Twenty CEOs were present. Each one described their own business as sound and, at the end of that discussion of a diversified set of businesses, concluded the state should upgrade their forecast. I was in the minority there. I anticipate seasonal behavior associated with elevated uncertainty. The end of the year is the time when uncertainty can have the most effect, as we learned last year. Remember that we're in budget season. In today's uncertain world, even companies with healthy outlooks plan cautiously.

While no one tells me they are cutting back, these companies tell me they are forecasting low growth. They are keeping operating expenses and capital expenditures flat. They are slowing the filling of open positions and shaving inventories. They are resisting price increases. They are paying down debt. These planning choices run the risk of depressing first quarter growth. On the positive side, if individual businesses start healthy in the new year, my consulting experience taught me that companies will loosen their wallets as the year goes on. Some extra impetus could also come from our recent rate moves, and I have built that step-up in growth into my baseline.

I did want to flag one early positive signal on investment. You'll remember at our previous meeting some banter about the World Series. I'm told President Kaplan was so disappointed that his 11th District Astros lost to the Fifth District Nationals that he has taken matters into his own hands and made a major investment of his own in the 103-loss Kansas City Royals. [Laughter] When smart businesspeople make big investments, even if they are investing outside their District, that's a good sign for the economy, if not the American League. [Laughter]

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Chair. In many ways, my outlook for the U.S. economy is substantially similar to my views at the October meeting. For 2019 overall, it looks like GDP growth will be a bit more than 2 percent, a larger increase than what most consider to be the trend rate of economic growth. Households still appear to be doing well, and the incoming data on retail sales and motor vehicle sales suggest consumer spending growth has retained much of its recent strength. Activity in the housing sector has begun to pick up more noticeably. Recent readings on consumer sentiment have been more positive, which bodes well for the spending outlook over the next few months. Of course, the labor market picture is still remarkably strong. Since our previous meeting, the unemployment rate has moved down further, and labor force participation has again strengthened relative to its underlying downward trend.

My expectation is that labor demand will remain strong next year, and, in light of the latest data, I made a modest downward adjustment to my forecast for the unemployment rate in 2020. Further to that, I think it is possible that we could see labor force participation strengthen even more, which would be a welcome development.

Since our previous meeting, the domestic business-sector data have not changed significantly. We continue to see broadly based declines in manufacturing activity and in outlays for business equipment. In conversations with my business contacts, the weaker economic performance this year is often traced to ongoing trade policy uncertainty, as many have referenced before my go-round. Should this period of trade uncertainty persist, it's likely that we will continue to see this influence the domestic business economy.

Regarding agriculture, the effect of trade uncertainty is being felt broadly across the sector, and financial conditions among agricultural producers continue to be affected. But even with projections of flat income over the next five years, producers across all agricultural industries emphasize that trade fairness in the worldwide market is a priority.

On a positive note, despite the bad weather conditions, many farmers reported better-than-expected crop yields this year. But even with stronger yields, aggregate farm income would have declined again in 2019 had they not had the support of U.S. Department of Agriculture (USDA) payments. I continue to hear that many farmers face cash flow shortages and bankers have continued to restructure debt, with some banks reporting shifting troubled agricultural loans to nonaccrual status. The lower interest rate environment is helping, but, with producers continuing to borrow, short-term debt and its servicing are often cited as producers' biggest worry.

Many landowners are stressed to the point of accessing equity in land, leading to more land available for sale in some areas. So far, reports indicate that this is not widespread, but lesser-quality ground will likely see a deterioration in value if this becomes a wider trend. Generally, farmland values have remained fairly stable, but with persistently low prices for farm commodities, land values continue to appear increasingly elevated in relation to the land's potential to earn income, specifically with respect to cash flow to farm the ground and its rental value as an investment.

As generational pressures increase, the average age of farmers in the United States is nearly 60 years old, and the new or beginning farmer's average age is nearly 50. Some see the future of agriculture shifting. Structuring ownership in a different way to attract long-term workers and to create a succession plan, significantly increasing the scale of an operation, or choosing to do custom work instead of investing in the input costs are often discussed as options. One interesting approach by a large, well-known retailer is to own the entire life-cycle process, from raising the hatchling to selling the rotisserie chicken in the store. Time will tell, and I'll continue to watch developments in this area closely.

Regarding the price stability side of our mandate, the incoming price data have been softer than expected and suggest that core inflation has continued to track below our 2 percent goal. The staff have noted that the recent soft readings have been concentrated in some of the noisier price categories, and they predict that core inflation will pick up to 2 percent by the middle of next year. I'll continue to watch inflation developments closely over the next several months for signs of this to be reflected in our inflation measures.

In all, I believe the U.S. economy continues to be in a good place, and I remain optimistic that, with the support of the additional monetary policy stimulus that we've provided this year, the U.S. economy is well positioned to continue expanding next year. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. This round, we performed a little experiment. In a lead-up to our board meetings, we asked our directors, about 35 respondents, to engage in the same exercise that we are asked to do and submit a summary of economic projections, which included some firm-specific forecasts and their projections of real GDP growth, the unemployment rate, PCE inflation, and the federal funds rate. The results, for the most part, were very similar to our projections—which I suppose isn't too surprising.

There was one meaningful difference in their projections from that of the FOMC. My directors' collective responses on longer-run PCE inflation ranged between 1.5 percent and 2.5 percent rather than collapsing to a singular point like ours does. The subsequent discussion was revealing. There were no worries that our recent inflation experience was somehow going to lead to some sort of pernicious deflationary episode. Nor were there any soundings that suggested firms would alter their business decisions if inflation continues to come in around but not exactly on target. In short, these business leaders and bankers do not share the same "point sensitivity" with regard to price stability that we appear to have.

My "takeaway" from this discussion is that business decisionmakers, at least those decisionmakers among my boards of directors, are not viewing recent history as a material deviation from our target. Anywhere in the range of 1.5 percent to 2.5 percent is close enough for government to work for them. Their expectations were still centered on 2 percent, but inflation outcomes that are a little bit below or above the target appear to be a nonissue for them. No one expressed the view that the Committee needs to demonstrate that we can hit the 2 percent target. In their view, we actually are effectively on target.

This dovetails with President Rosengren's observations regarding the *Fed Listens* events, and these are observations that were echoed by others around this table. Essentially, my directors' remarks sound an awful lot like the Greenspan definition of price stability, which I'll paraphrase as "A rate of inflation that is low and stable enough that people effectively stop thinking about it."

But I think the exercise reveals something even more powerful than that. As I see it, the real concern about expectations being anchored somewhat below 2 percent is twofold. First, anchoring below target absorbs precious policy space by anchoring nominal interest rates somewhat below where they might otherwise be. But if, in fact, expectations have fallen below target at all, it seems they have only done so marginally. Re-anchoring expectations to the explicit target would, at best, buy one or two rate cuts. I don't think this is anywhere near enough to buy meaningful insurance against future effective-lower-bound episodes.

But that brings me to the second and, in my view, more important concern. At the effective lower bound, credible commitments will almost certainly be crucial to the implementation of policy. So demonstrating that we can actually hit the target that we have chosen and convince people that we are able and willing to do so is essential if the effectiveness of effective-lower-bound tools, like forward guidance, are to work.

The feedback from my director discussions convinces me that the inflation outcomes for the past many years have not damaged our credibility or altered anyone's opinion about our ability to appropriately and effectively conduct monetary policy in the event of a downturn. For me, the "takeaway" from the exercise with my boards is that inflation expectations are well anchored, and that projecting our worries about an inflation shortfall of a few tenths here or there may be an exercise in false precision.

All of this harkens back to this morning's framework discussion. There was considerable back-and-forth about how important it is for inflation to hit and exceed the 2 percent target and the implication for inflation expectations if we do or fail to do so. To me, the question is whether small deviation from the 2 percent point estimate is behaviorally meaningful, even in the context of the macro considerations that Vice Chair Williams articulated in his statement. I'm not sure it is and, as a consequence, have a great deal of sympathy for the policy approaches highlighted by President Barkin. These include using a range for the target and reporting multiple measures of inflation. I look forward to more discussion of these in future meetings as we move toward a Committee framework statement.

As for the rest of my outlook, rather than attempt to rehash, using slightly different words, the same message and same sentiment my contacts have shared with me since the May meeting, I'll just summarize as follows: Business prospects are still good, trade is a drag for those most exposed to it, a variety of factors make it unlikely we'll see a material acceleration of cap-ex, labor markets remain tight, the consumer looks solid, and cautious optimism is ruling the day. In other words, ditto, though I do wish I had thought of doing a haiku. [Laughter]

I'd like to close by returning to a topic raised by President Kaplan—namely, job quality rather than job existence as the key looming challenge. Now, this is something that some teams in the community development space in the System have been working on, and I recall the Federal Reserve Bank of Boston as being a particular leader here. As part of this effort, the Federal Reserve Bank of Atlanta recently launched an Opportunity Occupations Monitor, which is a web-based tool to help displaced workers and others identify jobs that don't require a four-year degree but that pay something akin to a living wage. It is important that, to the extent possible, the job transitions associated with disruption don't result in big increases in precariousness, and the tool, I believe, can be a help in this regard.

On balance, an active approach here is preferred to a passive one that relies on workers to figure it out on their own. So I agree with President Kaplan that this is likely to be a growing issue and hope that Fed tools like this one continue to be developed and deployed. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The 10th District economy continues to grow but at a slightly slower pace. District contacts continue to report weakness in manufacturing activity, especially in durables, citing inventory buildup and uncertainty. Despite this softness, expectations of future activity improved slightly. On the other hand, services activity continues to expand, providing the largest contribution to recent employment growth in our region. We continue to hear from our District contacts that tight labor market conditions and difficulty finding qualified workers are constraining their hiring plans. More contacts report difficulty hiring or retaining workers compared with the previous year, with upward of 70 percent of our contacts indicating they increased wages.

There continues to be much less optimism, however, in the region's energy and agricultural sectors. Energy activity slowed in the District, mostly driven by large reductions in drilling in Oklahoma but also in Colorado. A drilling service company recently announced a layoff of over 800 workers. Despite declining rig activity, total crude oil production in the District actually continues to grow—but at a slower pace compared with a year ago—and is expected to slow further and even decline next year. Finally, despite higher farm incomes in some of our District states compared with a year ago, weakness in the agricultural sector remains. With a second round of government payments linked to trade disruptions, these subsidies in total are expected to account for more than 30 percent of net farm income in some District states. Whether these payments will continue or trade tensions for commodities will be resolved is highly uncertain going into this planting cycle.

Regarding the national economy, my outlook is relatively unchanged from our October meeting. I expect the economy will end this year with above-trend growth, albeit slower compared with last year. My SEP calls for real GDP growth to stabilize near its trend rate in the medium term, the unemployment rate to stay near its current level, and inflation to remain muted.

This growth forecast rests principally on consumer spending. Household consumption data were stronger than expected in the third quarter as spending on durable and nondurable goods rose at a solid pace. However, with the deceleration in services consumption in the third quarter, downward revisions to retail sales data, and slowing in imports of consumer goods and autos, I expect a moderation in household spending. My forecast also has relied on high levels of consumer confidence. While these confidence measures remain near post-recession highs, expectations for the future bear watching. Based on the Conference Board survey, the differential between consumer expectations for the future and current sentiment has widened over the past several years. I'll be monitoring this gap as a potential downside risk to household spending.

A robust labor market continued to support consumer spending in 2019 even as payroll growth slowed in line with the economy's potential. Payrolls have averaged 180,000 per month through November compared with 223,000 per month last year. While the pace of payroll growth has been strong in recent months compared with the first half of this year, signs of slowing suggest that this pace is unlikely to be sustained. Readings on the Kansas City Fed's Labor Market Conditions Indicators show that both momentum and the level of activity in the labor market declined, and the pace of job openings has slowed according to the JOLTS.

Even as employment growth gradually decelerates, I found the alternative view of employment growth in the Tealbook box worth considering. The combination of downward revisions to past payroll growth numbers that will be coming in February and recent weakness in the Automatic Data Processing (ADP) data may signal a sharper slowing in job gains than we see in the Bureau of Labor Statistics (BLS) data.

The rebound in residential investment continues, as consumers have responded to lower mortgage rates. Recent data indicate positive contributions from most major components, such as single-family construction and brokers' commissions. Forward-looking measures, such as single family and multifamily starts and permits, continue to move up strongly.

Inflation remains muted despite low levels of unemployment. As we look at various measures of inflation, my staff has noted that, over the past year, the gap between core inflation measures has widened as core PCE inflation declined and core CPI inflation picked up. Their analysis shows that, while tariffs are temporarily lifting CPI core goods prices, factors affecting rent and health-care services are likely to keep the wedge between the two core measures of inflation from fully normalizing. Given that dynamic, I take little signal from the recent increase in core CPI readings for underlying fundamentals for inflation.

Finally, risks to my outlook for real activity and inflation remain to the downside. Weak global growth conditions, geopolitical concerns, and unresolved trade tensions continue to contribute to elevated levels of uncertainty that may constrain growth in the near and medium term. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. I made only minor adjustments to my SEP forecast, compared with my September submission. I see continued growth next year—moderate growth, a touch slower than this year—and then only gradual further slowing thereafter. Although that outlook reflects my continued optimism regarding the strength and momentum of the U.S. economy, I do acknowledge that notable downside risks remain, with signs of weakness persisting in the manufacturing economy. The outlook for global growth remains fragile even after taking into account some of the moderately positive information in Steve's presentation.

Investment and exports have been disappointing. Last year I made a big deal of the level of business investment, which hasn't continued, and I share President Daly's concern about the potential long-term implications of a period of loss investment even if it were to turn around tomorrow on the resolution of trade chaos. And, in that regard, the outlook for trade policy seems to be shifting daily, leaving it somewhat difficult to assess where we stand. With the proposed December 15 tariff hike fast approaching, we could have a better read on where we're going soon, but, like President Bullard, I'm not counting on it.

Now, throughout the trade-induced turmoil of the past year, economic growth has continued to be supported by the strength of the labor market. In turn, that's kept consumption growth robust. November's labor market data suggest continued momentum, although math is math, and, at some point, job gains must eventually slow as the labor market tightens further. Over time, then, I'd expect the employment rate to edge up, in part, as the tight market draws in more workers, boosting labor force participation even as job growth slows.

I appreciated the Tealbook box on potential data issues that might be contributing to an upward bias to measured unemployment growth. Certainly, the authors there have highlighted some upside risk to the unemployment rate, and we should continue to monitor those closely.

I'd note that that pickup in residential investment that's been occurring is also encouraging for the growth outlook, and the sharp jump in starts and permits in recent months bodes well for the future. In addition, that turnaround in residential investment, which is one of the most interest-sensitive sectors of the economy, is a reassuring sign for the continued effectiveness of monetary policy, even acknowledging that housing is a materially less significant element of the economy than it was during my youth in the Coolidge Administration. [Laughter]

And then, Mr. Chair, I was going to conclude with some remarks on inflation. I was going to drag in the Dallas trimmed-mean inflation rate, *et cetera*, but I think, really, I should simply note that I was vibrating with joy during President Bostic's discussion of inflation, with every word of which I concur. Thank you.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you. It's always tough to follow Governor Quarles. [Laughter] Regarding the local economy, growth continues in the Ninth District. I'd characterize it as modest: Consumer spending appears to be holding up relatively well; low interest rates, as others have noted, are benefiting construction and real estate; permits for residential construction are up sharply year-on-year in and around the Twin Cities; but manufacturing is flat to declining, and agriculture continues to be especially weak.

The employment situation in the local economy is mostly solid, with a few signs of weaknesses. Half of the firms that we surveyed are planning to add to head count. About 60 percent of those firms reported wage growth below 30 percent. The downside is that the unemployment rate has ticked up in Minnesota. It's inconsistent with the anecdotes that I'm hearing from businesses, but when you look at other states in our region, it has also ticked up, which suggests to me it may actually be some signal and not just noise, so we're watching it carefully.

On the national economy, not much has changed since our previous meeting. As I said, consumption is still holding up. It seems to have slowed somewhat. Ongoing weak business investment and residential investment are doing well in response to our monetary policy. And then the weak global economy and trade tensions remain the key threat to the expansion.

For inflation, 10 years into the expansion, inflation remains below target, with core PCE inflation at around 1.6 percent on a 12-month basis. Survey measures of expectations remain at or near record lows. Market-based measures also remain low and, at face value, point to future inflation below 2 percent. And, finally, probabilities based on option prices continue to indicate risk of low inflation much more than high inflation.

Regarding the labor market, the health of the national labor market is somewhat hard to read. The latest payroll numbers were positive and continue to indicate strong growth, suggesting that there may still be more workers out there. However, the ADP numbers suggest a slowdown, and, like others, I thought the Tealbook box was very interesting and worth paying attention to.

To me, the job creation numbers are a useful gauge of momentum in the economy. But, ultimately, for estimating slack, I continue to want to focus on wages. Real wage growth has risen since around 2012, but even now, real wages are growing roughly on par with labor productivity growth. Nominal wage growth is 3 to 3½ percent. Inflation is 1½ to 2 percent. Therefore, real wage growth is around 1½ percent, which is consistent with productivity growth. And real wage growth seems to have stagnated somewhat recently. So, overall, I don't see any evidence that the tight labor market is putting upward pressure on inflation.

I will close with a quick anecdote. I was recently in northwestern Wisconsin. Charlie and I split Wisconsin—northwestern Wisconsin is part of the Minneapolis District. And, as part of my outreach, I visited the headquarters of a company called Quick Trip, which is a convenience store and gas station company throughout the Midwest. It's expanding pretty rapidly. It's considered to be a premium among gas stations and convenience stores—[laughter]—better quality produce. People tell me this. I'll give you an example. When my wife and I drove to Chicago in August, we took our baby daughter, and my wife asked her colleagues, “Any advice? We have a newborn. We’re going on a road trip.” All of her colleagues said, “Make sure you change the baby in Quick Trips. They’ve got the best bathrooms.” [Laughter]

So we visited Quick Trip. They are also known to be a premium employer, meaning they pay higher wages and offer benefits, so I asked them, “How is hiring going?” They said that last year, in the past 12 months, they hired 4,000 people across all their stores. I said, “How many applicants did you have?” They said, “We had 100,000.” I said, “There is your labor shortage.” And the truth is, they pay more, and workers respond to wages. Now, I don’t think those 100,000 applicants were all off the sidelines. Most of them were probably employed somewhere else. But that’s another data point that we should focus on—wage growth—if we want to assess if we’re really at maximum employment. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. Although it may sound clichéd, the economy is in a good place. Despite weakness in manufacturing and ongoing uncertainty surrounding trade policy, labor market conditions have remained vibrant, with robust payroll gains, low unemployment, and a strong recovery in the employment-to-population ratio. Consumer spending continues to be healthy, supported by the strong economy and favorable financial conditions. And the housing market appears to be responding to lower mortgage rates. I expect real GDP growth will average near its potential rate over the second half of this year and next year, consistent with that forecast. I see the unemployment rate remaining roughly where it currently stands over the next year or two.

The strong labor market should provide some upward pressure on inflation and assist us in reaching our symmetric 2 percent goal on a sustained basis. I won't go into all of the details, but you can find them under SEP participant number five, if you're having trouble sleeping. [Laughter]

That's my forecast. But, of course, forecasts rarely come true. In that regard, like many others who mentioned this, I found the two boxes in the Tealbook—one on the potential fragility in the labor market and the other on the tug of war between strong consumption and weak investment—extremely useful. So, like President Daly, Governor Quarles, and President Kashkari, in my remarks, I am going to highlight some aspects of the first box.

The analysis presented in the Tealbook alternative view on a possible significant overstatement of employment growth since 2018 points to a potential fragility of the labor market. If, as the preliminary estimate indicated, the upcoming BLS benchmark revision shows more subdued employment gains in reported current data, this would be another signal that the economy may be somewhat more vulnerable to an adverse shock than we think.

On the inflation front, the latest readings on PCE inflation have been somewhat disappointing, and inflation continues to be stubbornly below our target. Measures of inflation expectations remain low, and so the risk remains. Expectations could be coming anchored at a level below our longer-run objective. Exhibit number one, in the case of missing inflation, is the absence of significant wage pressures despite the unemployment rate being at or below 4 percent, which is my estimate of u^*, for 21 straight months. This calls into question whether labor markets are in fact as tight as traditional measures of the unemployment gap suggest, a point President Kashkari has made numerous times in the past.

And I think this gets to some of the language we use. I think saying "The labor market is strong" is accurate. Whether labor markets are tight without wage growth, that's—having upward pressure on inflation, I think, is—I guess I prefer to use "strong" rather than labor markets are "tight," given what we're seeing in wages. The staff at the New York Fed and others have been exploring this issue and are in the process of developing some alternative measures of labor market slack, and this picks up on a theme that President Kaplan mentioned.

Based on preliminary findings, this research suggests there may be other margins of labor supply that standard measures do not properly account for. Specifically, an additional pool of labor could come from currently employed workers who are not satisfied with their current job—may not be in a good match—and therefore they are easy to poach, or from those who would like to work longer hours than they can get from their current employer. These people are counted as employed, so they are part of the employment number and not unemployment, but they represent maybe a hidden measure of additional supply in the labor market. So more to come on this research as it develops further.

In any case, my working assumption is that the current, very low level of the unemployment rate of 3½ percent is consistent with the achievement of both of our dual-mandate objectives, and we should aim to keep labor market conditions very strong. So if you were to ask me what my working definition of maximum employment is, I think the evidence would argue that, at least for the next few years, 3½ percent is the right answer to that, even though my long-run view—and this gets back to the memo and the discussion we had—of the unemployment rate is, I'm at 4 percent. But I think that, given various disinflationary forces, a 3½ percent unemployment rate is most consistent with our dual-mandate objective based on where we stand now.

A final area of concern in my mind has to do with the number of vulnerabilities in the global outlook. Not to belabor the point, but we have seen a monotonic sequence of downgrades to global growth. We shouldn't lose track of that. I hope this will be the end of that, and that we'll see some good news on that front. But I think, again, in the context of a global low r^* and policy rates uncomfortably close to the ELB or actually negative in parts of the world, this is an area of risk that I'm still focused on.

I'm going to close with a few remarks on some unfinished business related to the implementation of the ample-reserves framework. Like Governor Brainard, I am going to make much the same points and, obviously, picking up on Lorie's remarks. Much of our attention now is focused on the year-end dynamics in money markets, but we also need to look ahead and plan for the transition to the steady-state ample-reserves regime, which we hope to reach in the second quarter of next year.

As Lorie mentioned, part of the transition includes continuing to conduct repos early next year in support of making sure that we have ample reserves available to the market. But, as we build up the underlying level of reserves through bills purchases and move away from the regular provision of reserves through repos, we will need, as a Committee, to address several issues. First, which has already been brought up, is the appropriate role of repos, either in terms of a standing facility or other approaches as a backstop in an ample-reserves regime. This question ties closely to the degree of ampleness in reserves and thinking about the tradeoffs involved there.

The second is the ultimate composition of our portfolio and, specifically, the composition of our Treasury purchases as we shift to the organic growth of our balance sheet. This is a topic that we discussed a lot, but, actually, we're going to be needing to think about us coming to a decision on that sometime next year.

And the third is the appropriate setting of administered rates, which Lorie talked about, relative to the target range in a well-operating ample-reserves regime.

Finally, the fourth question is the perennial question of, what's the best choice of a policy rate? Again, this is a topic we have discussed many times and left for future discussion. But I think the future is coming up on us—specifically, in the first half of next year.

To me, as we revisit all of these issues, an important part of it is that the experience of the past three months, along with what we're going to learn over the next few months, adds importantly to our understanding of the tradeoffs related to these issues. None of these issues require immediate consideration, but the earlier we can provide clarity and specificity around our plans in the first half of next year, I think the better for likely outcomes.

CHAIR POWELL. Thank you. And thanks, everyone, for your comments. So it has been an interesting and challenging year, with growth slowing over the year to a moderate pace, with crosscurrents from a weakening global economy and trade developments, and with inflation running below target. There have been sharp swings in risk appetite in financial markets, driven largely by trade developments. Through all of that, the economy has been resilient, led by a strong household sector, and the outlook remains favorable. Aside from a softening inflation picture, the outlook has changed only modestly over the year.

Today both the economy and the monetary policy are, yes, in a place that is good. As for the risks we've been monitoring, tariffs and trade policy uncertainty have been weighing on the economy since mid-2018. As was the case in early May and then again in July, it appears that the ongoing negotiations with China may be nearing a point of agreement, and I would echo many around the table that I think we should all be from Missouri on this one at this point.

Meanwhile, there are potential new trade war fronts with Argentina, Brazil, and France. And while these are not perhaps large enough to have a significant effect on our economy at this time, they set a tone of agitation and uncertainty. To say this constructively, it may take some time for business confidence to fully recover in such an environment.

There are also tentative signs, as Steve Kamin pointed out, that global growth may be stabilizing, at least in China and the EU. The risk of a hard Brexit appears to have declined, but risks have probably increased in Hong Kong. Regarding the economy, the staff have marked up their second-half forecasts for GDP, and the forecast now has GDP growth for the year at 2.2 percent, a bit above trend. That sounds about right to me.

Household spending continues at a solid pace, propelled by a strong job market and solid consumer confidence. The pickup in housing activity is gaining traction, but manufacturing is still in a recession, even excluding the effects of the GM strike, and business investment and exports remain weak.

With the unemployment rate at 3½ percent, prime-age labor force participation on the rise, and payrolls running at 200,000 a month, the labor market is strong. We have long expected some slowing in labor market gains, partly because we didn't think that the labor force participation would continue to outperform our estimates of trend, but it has. And with prime-age participation still below pre-recession levels, further gains are certainly possible.

The labor market is still not as tight as it was in the late 1990s, comparing unemployment to natural rate estimates or participation to trend. Growth in overall average hourly earnings or the employment compensation index has slowed, though wage gains for production in nonsupervisory workers have been strengthening. As Glenn pointed out earlier, increases in labor force participation have not come at the expense of formal schooling. Employment and on-the-job training can have long-lasting positive effects on workers' careers and can provide the savings needed to go back to school.

With regard to inflation, core PCE inflation ran at 2 percent overall for 2018, but we now forecast an increase of only 1.6 percent for 2019, and that actually includes the inflation effects of tariffs of a couple of tenths. Inflation expectations from household surveys are low, breakevens are low too, and there is a rising risk that inflation will fail to reach, let alone move beyond, 2 percent even during this long expansion. With disinflationary pressures evident around the world, we do not want to see our inflation expectations sliding down inexorably, as they did in Japan and are now doing in Europe. In the near term, that means conducting policy in a way that sustains the expansion and provides upward thrust to demand and, thus, inflation.

We are now in year 11 of this expansion, and the remarkable ongoing strength in the labor markets amid tepid inflation shows that our real-time estimates of maximum employment are highly uncertain. Although unemployment has run below our real-time estimates of u^* for three years now, I see nothing in the labor market data that raises serious concerns about sustainability. The case for humility about our ability to identify the precise level of maximum employment in real time is overpowering.

Turning to policy, I see it as appropriate to stand pat at this meeting. I have written down a flat path to 2020. I have also written down a mild overshoot of inflation in 2022 under appropriate policy, and I notice that some others did as well. And if we do leave rates unchanged tomorrow, as seems highly likely, I plan to emphasize the following in the press conference: We believe the current stance of monetary policy is appropriate and will remain so as long as incoming information about the economy remains broadly consistent with our outlook. Of course, if developments emerge that cause a material reassessment of our outlook, we would respond accordingly. Policy is not on a preset course.

I'm also going to note that we have been purchasing T-bills and conducting repurchase operations consistent with the plan announced in October. I will describe those operations as technical, aimed at maintaining an ample level of reserves and addressing money market pressures that could adversely affect the implementation of monetary policy.

I want to touch on one other point, and that is both for the purpose of the minutes and also in case it comes up in the meeting. I'd like to say that we're just beginning the process of considering changes to the Statement of Longer-Run Goals and Monetary Policy Strategy. I expect those discussions will continue well into the new year, and our focus in upcoming meetings should be appropriately on potential changes to that document. We're going to move through that process patiently and carefully—and give it the time and focus that it requires. With that being the case, it didn't seem appropriate to divert from that process to vote again on the existing document. There is no intended signal here. In the meantime, I think we are making good progress on the review, and I continue to expect that we will wrap it up by midyear.

Thank you very much. I look forward to everyone's views on policy tomorrow. And, as always, we will shortly have cocktails and then dinner in the elegant West Court Café. Sorry. [Laughter] I see that it's actually 4:30, not 5:30. Why don't we go ahead and start with Thomas for monetary policy.

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

Since the beginning of this year, you have significantly adjusted the stance of monetary policy through changes in communications and in the target range for the

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

federal funds rate. In the aftermath of these adjustments, key questions for your discussion at this meeting include what signals you want to send about your level of comfort with the current policy stance for the period ahead and about your willingness to make adjustments to the policy stance in response to unforeseen developments.

The dashed blue line in the upper-left panel shows that, at the time of your June meeting, market participants expected substantial near-term policy easing. By contrast, a straight read of OIS quotes at this point, the solid blue line, suggests that policy is now widely expected to remain unchanged for the foreseeable future; the remaining slight downward tilt may well reflect negative term premiums. This interpretation is consistent with the flat modal path of the policy rate given by the median Desk survey respondent.

The upper-right panel shows that the flattening of the expected policy rate path has been accompanied by a reduction in near-term policy uncertainty. The red line in the panel shows the width of the 90 percent confidence interval for the federal funds rate four months ahead derived from Eurodollar futures options. By this measure, policy uncertainty was quite low during the early months of this year, when you communicated that you would be patient in determining what future policy adjustments may be appropriate. Following the flare-up in trade uncertainty in early May, the width of the confidence interval more than doubled over the weeks before your June meeting. Since early October, investors seem to have had increasing conviction that one further adjustment at the October meeting would be sufficient to sustain a positive economic outlook, and this measure of monetary policy uncertainty has now returned to levels observed in the early months of this year. Overall, market expectations regarding the path of the federal funds rate appear well aligned with a message that policy is in a good place, and that modest data surprises would be unlikely to lead to a rate change in the near future.

Despite apparently high conviction about no near-term change in the federal funds rate, the probability distributions for the federal funds rate based on options quotes at longer horizons remain more dispersed than they were earlier in the year, as illustrated by the blue line in the upper right. Apparently, market participants still see a substantial likelihood of events that could trigger further rate cuts or, less likely, a reversal of earlier policy easing as next year progresses.

As Lorie mentioned, the Desk surveys included a special question asking respondents to describe scenarios that could lead the federal funds rate at the end of 2020 to be lower than, unchanged from, or higher than what they expected it to be at the end of this year. As summarized in the middle-left panel, the scenarios highlighted in the survey responses as likely to give rise to further easing were tepid or slowing growth, followed by low inflation, slower hiring, and trade-related developments. With regard to possible future tightening actions, the Desk respondents suggested that these may result from favorable resolution of the trade disputes or from inflation moving above your objective.

Arguably, your adjustments at recent meetings to the federal funds rate and the resulting easing in financial conditions should have improved the prospects for a sustained return of inflation to your symmetric 2 percent objective. The middle-right panel compares the real federal funds rate with the range of estimates of the longer-run neutral real interest rate that we regularly present in the Tealbook. The most recent observation on the real rate is given by the red diamond. By the end of 2018, the real federal funds rate got close to the average estimate of the longer-run neutral rate. With your policy adjustments this year, the current real federal funds rate lies a bit below the range of these estimates, suggesting that the current stance of policy is likely accommodative—a situation you might judge to be appropriate in light of global developments, trade-related uncertainties, and muted inflation pressures.

The lower-left panel shows several market-based measures of far-forward inflation expectations that I presented in October as well as the Michigan longer-run inflation expectations measure. All measures of inflation expectations have been recording values near recent years' lows. Notably, the estimates of inflation expectations derived from the term structure models, the red and green lines, have so far not retraced their roughly 25 basis point decline earlier in the year.

With regard to your decision tomorrow, the three alternative policy statements maintain the present target range for the federal funds rate. However, as discussed in the lower right, they differ from one another with regard to the likely subsequent course of monetary policy.

Under alternative B, the Committee would affirm that the current stance of policy is appropriate for supporting a favorable economic outlook. The draft omits previous statements' explicit reference to uncertainties about the outlook. However, it indicates that the Committee, in setting policy, will continue to monitor the implications for the outlook of "global developments and muted inflation pressures," which remain important factors shaping the outlook. Retaining this reference maintains continuity with previous communications.

Alternative A expresses some uncertainty about whether the present stance of monetary policy will prove sufficiently accommodative to foster a timely and sustained return of inflation to 2 percent. It maintains the previous language indicating that uncertainties about the outlook remain, and it specifically highlights the risk that inflation will stay below 2 percent longer than expected. Alternative A, therefore, hints at the possibility of further easing before long.

Alternative C is included for the purpose of contingency planning rather than as candidate statement language for the current meeting. Consequently, it has no opening paragraph describing recent data. As well as deleting the previous language indicating that "uncertainties about this outlook remain," alternative C offers language that could be appropriate for a situation in which the case for some reduction in the degree of monetary accommodation has materially strengthened, so a rate hike is likely imminent.

Thank you, Chair Powell. That completes my prepared remarks. Pages 2 to 7 of the handout present the October statement and the draft alternatives and draft implementation note. I'll be happy to take questions.

CHAIR POWELL. Thanks. Questions for Thomas? Tom.

MR. BARKIN. Yes. In alternative B, the phrase "including global developments and muted inflation pressures," when you put that into that sentence, how do you think markets are going to take that? I read it as signaling some directionality, but you might tell me, "No, it doesn't at all." I'd just be curious about how you think markets are going to take that.

MR. LAUBACH. I can tell you how I think markets will take it—obviously, I'm not a perfect mind reader. I think it's embedded now in the sentence that focuses on monitoring. And, therefore, I would expect that it's interpreted as threading the needle between signaling continued attention to factors that, arguably, haven't disappeared overnight without going so far as providing a strong downside "tilt."

CHAIR POWELL. President Kashkari.

MR. KASHKARI. Thank you. Thomas, in your "Federal Funds Rate and *r**" chart, that's obviously a long-run *r**, because if you look at this chart at face value, it suggests there's no ELB constraint. When I look at it, it suggests that in the wake of the Great Recession, monetary policy was never constrained, because the real federal funds rate was below *r**. Now, this is a long-run *r** rather than a short-run *r**. So how do you think about long-run versus short-run r* in assessing policy today?

MR. LAUBACH. I don't think that you can conclude on the basis of this chart that monetary policy was never constrained. That is a question of, if the effective lower bound didn't exist, how deeply negative would you have wanted to drive the real rate? So, from merely the observation that the real rate ran below this *r** estimate, I don't think you can quite conclude that the lower bound wasn't ever a constraint.

MR. KASHKARI. Well, I believe the lower bound was a constraint. So when I interpret this, I look at this and say, "This is an estimate of long-run *r** versus short-run *r**." When I look at this and I say, "Well, okay, long-run *r** in 2010 may have been around 1 percent, but short-run *r** was probably deeply negative, so monetary policy was constrained"—maybe you disagree with that interpretation. If you do, I'd like to know that. But if you don't, I'd like to know how you think about the current stance of policy relative to short-run *r**.

MR. LAUBACH. So it's true that when you—so the estimates of short-run *r** that I've seen are substantially more volatile and, of course, go, in fact, negative in the post-crisis period. That's right. The red line here, just to be clear, is simply the actual real rate, not a short-run equilibrium concept. So what this is showing is that monetary policy was accommodative, except that you may have wished to be able to provide even more accommodation. I think I find it instructive to see where actual monetary policy is relative to some longer-run measure as a measure of how accommodative policy is.

MR. KASHKARI. But if policy is above some concept of short-run *r**, I guess I'd quibble with the notion that policy is, therefore, accommodative just because it's less than long-run *r**. I look at this chart, and I say, "I don't know if monetary policy today is accommodative or not." John?

MR. WILLIAMS. "What does the word 'accommodative' mean?" is really what you're asking, and I think that's, you know—I don't know if we have a perfect answer to what that means. In a lot of our models, optimal policy—the perfect setting of monetary policy might be to be tracking short-run *r**. So is that accommodative monetary policy or not? I mean, in a way, monetary policy is adding stimulus relative to a more neutral long-run state and is helping the economy be strong.

I think that it's hard to actually know what the word "accommodative" means, whether it's a short-run *r** concept. So I think the idea is, you know—I think Thomas's answer was, we were constrained in how much stimulus we could provide through negative short-term real rates at that time. I think, still, monetary policy was helping, was moving in the right direction, but was constrained by how much it could do—the stimulus it could provide.

CHAIR POWELL. President Evans.

MR. EVANS. Isn't it sort of the direct response? I mean, it's not on here what the current estimate of the equilibrium federal funds rate is. This is just the current real funds rate, right? The equilibrium federal funds rate? The real version of that would be the direct response to whether this is lower than that. That would be saying it is accommodative. I assume that's true.

MR. LAUBACH. We could convert this chart into nominal space, except that we would have to make, then, some assumption about where long-run expected inflation is. That's how you would convert the chart into nominal space. But I would think that the result wouldn't be all that different. I mean, right now, this is, depending on which measure you choose here—but if you just looked at the difference to the mean, you have about 75 basis points.

CHAIR POWELL. President Bullard, I think.

MR. EVANS. Well, I'm in the queue.

CHAIR POWELL. You're in the queue. Good. [Laughter] President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I have more questions about *r** here. Is this a domestic calculation, or is it a global calculation? I think if you average across Europe, Japan, and the United States, you're going to get a lower real interest rate, and we're going to look not so accommodative in that scenario.

MR. LAUBACH. These are all measures based on U.S. data. These are not global measures. That said, to the extent that foreign developments, including low foreign *r**, are having a restraining effect on the U.S. economy, that would show through in reducing these estimates for the U.S. economy.

CHAIR POWELL. Governor Brainard.

MS. BRAINARD. But, conceptually, I think the difference between short-run *r** and long-run *r** is very compelling. I think about it a lot, but my recollection is, the models are not very good at parsing that difference. So, what we're looking at here is probably some combination of those things. There's no great econometric way to distinguish those things, is my recollection.

MR. LAUBACH. I would, perhaps, put it slightly differently. I would say that the short-run estimates that I'm familiar with tend to be much more dependent on very specific aspects of model specification. Typically, you buy a lot more into model structure. One advantage of these estimates here is that they typically work with relatively robust, well-established specifications that are not super highly parameterized. And I personally take some comfort from the fact that, qualitatively, they really show a very common pattern, which is, you had sort of a downward trend coming up to the crisis. You had a noticeable step-down, and that really hasn't reversed in most of these measures. So I think that feature is pretty robust across these seven different specifications.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. I wanted to follow up—just not to let it go on President Barkin's question. And Thomas has already heard this from me and from us. Just to build on—I had thought, in my mind, leading up to this meeting, the narrative was that in light of global developments and muted inflation, we lowered the federal funds rate three times to address those issues. And we sort of said the narrative is, we think we've done enough to address that. So then, when I saw this language back, I thought, "Hmm." I think it's already a powerful statement to say we're monitoring incoming developments without singling out the two issues that we used before as a justification for why to lower more.

Now, when I saw the SEP, I thought, "This probably isn't going to be a big deal, because it's so clear. Everybody is at nothing, so maybe it doesn't matter." But, all things being equal, I would have probably preferred not to see this language back in.

CHAIR POWELL. Vice Chair Williams.

VICE CHAIR WILLIAMS. Yes. Paragraph 2 has two references to uncertainty. It first says that, in light of implications—I mean, the previous. So, first of all, we had the implications of global developments and muted inflationary pressures, which we're trying to address or manage. And then we said "uncertainties about this outlook remain." So we had two elements: We're trying to manage that, but we're dealing with uncertainty.

So I think that taking both of those out, because we're taking the latter out completely, and basically saying all of those issues that we've been trying to address and do risk management are gone would be a very strong—pretty much, it would sound as if we're done, and we're not concerned or worried about any of these issues anymore. I think by taking out the two and putting in one, it's saying we think policy is in the right place. It's a good place. That said, some of these issues, like trade uncertainty and muted inflation pressures, are still in the background and so are clearly concerns as we go into the future years. That's the way I thought.

MR. CLARIDA. Me, too.

CHAIR POWELL. President Evans.

MR. EVANS. Thank you, Mr. Chair. You know, maybe the answer to my question is related to Neel's question about whether it's accommodative.

Thomas, I was surprised by the discrepancy between alternative B and the rationale for alternative B in the write-up. The Tealbook's case for alternative B makes the argument that the current stance of policy is appropriate to support a sustained return of inflation to 2 percent. I agree with that. Yet the second paragraph of alt-B says "The Committee judges that the current stance of monetary policy is appropriate to support sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective"—full stop. I mean, this could easily make people think we're happy with where inflation is. If the case for alt-B supports a sustained return to 2 percent inflation, why not just have that in the language and say "return to 2 percent"? That way, we can avoid the risk of markets and the public thinking that we believe the current level of inflation is consistent with our objective.

On Neel's question—is policy accommodative? Well, if it's accommodative, I would think it would get us up to what we've always said our inflation objective is, 2 percent. If it's only near and below, then maybe it's not really as accommodative.

MR. LAUBACH. One possible response to that could be to point to the SEP, where you do see an increase in inflation. That is arguably not sending the message that 1.6 percent forever is just good enough, in your view.

I think that, right now—and that goes back to the discussion about the language we just had—the statement tries to focus on, the current stance of monetary policy is appropriate to support good outcomes. It tries to send a clear message that, for now, you want to watch what the additional accommodation that you've put in place is going to do. And I would think that if you changed this language here—which, as you know, has been in the statement for quite some time—that might send a pretty powerful signal that might be at odds with the claim that policy is appropriate.

MR. EVANS. Thank you.

CHAIR POWELL. President Rosengren.

MR. ROSENGREN. Just one more comment on the language in paragraph 2. The continuity is actually the problem, right? Because the language that you're using here is the same language that we used each time we decided to ease. And so there are two sentences, one that was taken out and one that was moved down. And I view the "are the most likely outcomes, but uncertainties about this outlook remain" as kind of a plain-vanilla concern that we can't be sure we're going to hit our 2 percent inflation target. We're being so specific about including "global developments and muted inflation pressures," which was the exact same—not the exact same language, but very similar to the language we used, and only used, when we were actually easing.

So in answer to the first question, at least when I first read this, I read this as being very "dovish." Now, that may not be the intent, and that may not be the way the markets interpret it, but if I were to pick between those two clauses, I would have kept the one that was crossed out and taken out the one that is red. But you may interpret it differently in terms of how the markets would see it.

MR. LAUBACH. I don't know—

MS. LOGAN. In the information we received from the surveys and in our conversations with market participants, there was very little expectation of changes to the statement. So the statement changes, I think, that they expected were only things that were really necessary to make its timing current. There was some modest expectation of a material reassessment to be put in the statement. But not a lot of other change was expected.

CHAIR POWELL. President Bostic.

MR. BOSTIC. Yes. I was going to "pile on" the last sentence of that second paragraph as well. To me, I understand that we don't want to change too much, given where we are, but the difference between the content in that last sentence and the content in paragraph 3 seems to me to be extremely small. So, at some point, I will make a plea to just drop that sentence altogether, because I don't think it adds very much information, in terms of what's driving our decisionmaking.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. Sorry, but I guess we have time before drinks, so I'll say a few things. [Laughter] I think, in the press conference after the previous meeting, you made a comment that, as you and I've talked about, got picked up, which basically suggested the bar for future action might be higher even than people might have thought. I didn't think it was inappropriate necessarily, but I noticed—one of the things that's worrying me a little bit is, we're starting to see, since that October meeting, a pretty healthy price-earnings ratio (P/E) expansion in the United States. Although triple-C rated bond spreads have gapped out, credit spreads for more highly-rated debt are very tight. I don't think it's the end of the world, but it sort of gives you a little bit of information. I'm a little nervous that markets are running away from us a little bit—it starts to cause me to remember, I guess it was 2017, when we had a good 12 to 18 months like this, with no corrections, and, ultimately, we started to get nervous about excesses and imbalances building, et cetera. So I don't know that that means anything, but I just thought, you know, we have time—I'm about to have a stiff drink. [Laughter] That's a concern I have about the aftermath of the previous meeting.

MR. CLARIDA. I do think, though, that at a meeting at which core PCE inflation is running at 1.6 percent, if we drop "muted inflation," it's—but we've had "muted inflation," which certainly predates July. Thomas, remind me: Didn't we have "muted inflation," earlier this year? So I do think that, with core inflation at 1.6 percent, if we drop "muted," it's going to be very tough to explain what "muted" ever meant. There may come a time when core PCE inflation is at 2 percent or above and we can think about it, but I would be very nervous about eliminating that from the statement.

MR. LAUBACH. Unfortunately, I don't have at my fingertips when, exactly, "muted inflation pressures" was introduced into the statement, but it seems—the 12-month rate of core inflation has rarely been below 1.6 percent, if I recall correctly. In any case, core inflation is not any more encouraging than it has been at any other point.

MR. CLARIDA. Right.

CHAIR POWELL. President Daly.

MS. DALY. Largely, I'd just like to follow up on Governor Clarida's and Vice Chair Williams's remarks. I mean, the "muted inflation pressures"—we were talking this morning about, how can we convince the public that we care about inflation below 2 percent? And this is one way to talk to the public—that we expect inflation to come back up to our target, but we will be watching for that to occur. That's the spirit in which I read it—that we want to have our eye on things. And sometimes it's helpful to point out to the public about what we are having our eye on, especially when there is a perception that 2 percent is a ceiling as opposed to a symmetric target.

CHAIR POWELL. Let me just say, obviously, there were people on both sides of this issue. I think the risk of us being seen as suddenly "dovish" again at this meeting is basically zero, unless it can go negative. We're saying material—we've set up a stand of materiality, which we didn't have to do, about further cuts. So, honestly, we went around and around on this, too, but it splits the Committee right down the middle. I promise to think about it again overnight, but you should think, though, that there are views all over the place on this. It's quite evenly split, if that. Governor Brainard.

MS. BRAINARD. I just wanted to come back to a point that I think President Evans was raising. You have changed that sentence in paragraph 2 so that, before, we were supporting a set of things, but now we're saying policy is appropriate. I wouldn't feel policy was appropriate if we were just "near" our symmetric inflation target, so you might want to look at that word. It's a little different in this—I like the sentence. I like these changes that you're making. But I wonder: Are we really happy to have inflation "near the Committee's symmetric 2 percent objective," or should we be saying "appropriate to support . . . inflation moving to"? I mean, you might just want to think about that. I don't have strong feelings.

MR. LAUBACH. All right. So my recollection is that this outlook sentence was introduced, I believe, sometime early this year, and I don't believe that the "near" was ever intended to have a one-sided meaning. I think the "near" was intended to convey something about a limited ability to perfectly control the outcome, right? So I think it was more intended as, it could be 1.9 percent or it could be 2.1 percent—that there is a limited ability. Because I remember that there was discussion of whether it should be "near" or "at," and I think the "at" left a little bit too much of a sense of precision. That's my recollection of the occasion when that language was originally discussed. But it certainly was never intended to be one-sided.

MS. BRAINARD. So I agree, but you could use "centered on," you could use "around"—but "near" does—I mean, I do remember having this conversation. "Near" does imply, since we're approaching it from below and we've been below consistently for a long time—it does have that quality.

MR. EVANS. If we ever get inflation above 2 percent just once, we can take greater comfort in the strict logic, which I agree with, that Thomas just laid out. But, as we've always been below, it just seems that a little more thought—

CHAIR POWELL. I will point out that if I counted correctly, I think seven of us wrote down an inflation overshoot under appropriate policy. And I will say that if anyone mentions that—the "near" thing.

MR. EVANS. I mean, it just sounds like—I mean, Thomas's answer to me, which was perfect, was that the SEP has us at 2 percent. And all I'm saying is, then why don't we—this is a forecast—just say "return to 2 percent"? But it's the history of the statement, how markets are going to interpret this, and how that—it seems to me that's getting believed.

CHAIR POWELL. Let us take both of these away overnight. We can think about these and talk about them. In terms of the last language, I think Thomas characterized it perfectly—it was, really, not wanting to be seen as really slamming the door on this. I think we're in a really good place, and I don't want to mess it up. I thought there was a risk at the time that it would come across as saying, "We're just done with that." And we're not, but we've separately set up a test of materiality that it would have to flow through. But I thought it would send quite a "hawkish" signal to take it out. This was an attempt to stay right on the middle line and not change people's thinking. I don't know that it'll precisely accomplish that.

Anyway, are there any more changes? [No response] If not, let's now adjourn. Thank you very much. I look forward to tomorrow morning at 9:00. Thanks.

[Meeting recessed]

December 11 Session

CHAIR POWELL. Okay. Good morning, everyone. Let's start with an update from Stacey on this morning's economic data before we go to the go-round.

MS. TEVLIN.[7] Sure. This morning we got the CPI, and you have a handout in case you want to follow along. The short description is, there aren't any big surprises in the CPI data. Total CPI prices rose 0.3 percent in November, just a little above our 0.2 percent expectation. As you can see, energy prices came in higher than expected, but, given the volatility of that series, that's a pretty small miss. The core CPI rose two-tenths in November, exactly as expected, and that brought the 12-month change to 2.3 percent, which is not that different from where it stood a year ago. Not shown here on the table is that our quick translation suggests that the 12-month change in core PCE prices based on these CPI data will probably remain at 1.6 percent, as expected.

CHAIR POWELL. Great, thanks. Any questions for Stacey? [No response] Okay. Great, thank you.

So before we get started on the go-round, I wanted to come back to the second paragraph language. I did promise to think about it overnight and, in fact, did—in the middle of the night. And I'm inclined to leave it as is, and I'll give you two reasons. First, inflation is 1.6 percent. I think it's not a great time to be taking that out of the statement for consideration and, in effect, saying, "Mission accomplished." So that's the first reason.

The second one is, I think the language in question works fine as part of the guidance that we've laid out. Again, what we're saying is that we think the stance of monetary policy is appropriate and likely to remain appropriate as long as incoming information about the economy

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[7] The materials used by Ms. Tevlin are appended to this transcript (appendix 7).

remains broadly consistent with our favorable outlook, and that we'll be monitoring the effects of our recent policy actions, along with other information bearing on the outlook. If developments emerge that cause a material reassessment of our outlook, we would respond accordingly. Policy is not on a preset course. That's what we're saying.

All through the year, we've been calling out global developments and muted inflation. There's a risk, I think, that eliminating the direct reference to global developments and muted inflation could be read as suggesting that these are no longer concerns. But none of these issues are actually resolved, and they all are remaining concerns. They are subject to the same sort of forward guidance that we've given them. I think it may be taken as a bit "dovish," but I don't think it's going to be taken as a particularly important aspect of our communications at this meeting. So there's that.

MR. EVANS. May I ask you a question, Mr. Chair?

CHAIR POWELL. Sure.

MR. EVANS. Could you elaborate a little bit more on the first one—that, with inflation at 1.6 percent, you're not ready to declare "Mission accomplished"? I assume that's about the "near 2 percent"? I didn't interpret it that way.

CHAIR POWELL. Well, I was referring to the reference to muted inflation pressures in the second paragraph.

MR. EVANS. Oh, okay.

CHAIR POWELL. To take that out—it seems to me, that has to be in there. And I also think that leaving the reference to global developments in there doesn't take away from the other guidance. It essentially amplifies it. So that's my thinking.

MR. EVANS. Got it. Thank you.

CHAIR POWELL. And on your suggested change, I have some sympathy for it. I don't want to make that change at this meeting. It's certainly something we can consider down the road.

So that is my thinking. And with that, let's begin our go-round, starting with Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. I support alternative B as written and the policy decision to maintain the target range for the funds rate at 1½ to 1¾ percent.

I note that in the statement, we continue to acknowledge that "measures of inflation compensation remain low." While true, they remain at historically low levels relative to the pre-crisis experience when we were last in the neighborhood of maximum employment and price stability. As I pointed out yesterday in my outlook go-round, the Federal Reserve staff term structure models which strip out risk and liquidity premiums, indicate that expected CPI inflation five years forward is running at 1.9 percent, which would imply, given the wedge, a PCE inflation rate of 1.6 percent, in expectation five years forward.

We continue in the statement to say that "survey-based measures of . . . inflation expectations are little changed." This is technically correct, but many measures—not all, but the Michigan measure, for example—are at historically low levels. This is why I like the staff work on the CIE index, which is agnostic but looks at a range of inflation expectation indicators. And that CIE index is now at an all-time low level, which again indicates that if it was consistent with well-anchored inflation expectations before the crisis, it's running somewhat below that now.

I do believe that the current target range for the federal funds rate is somewhat accommodative relative to my personal estimate of long-run nominal *r** of 2.5 percent, and thus that our cumulative 75 basis point adjustment in the rate should be sufficient, under my baseline outlook, to provide the policy support needed to offset the global headwinds and muted inflation pressures that we refer to. But for this to happen, my view of appropriate monetary policy, as I indicated in my SEP submission, will be that the current stance of policy and range for the funds rate will need to persist for some time, so markets and individuals can expect that policy will remain accommodative until inflation moves up to—and, indeed, in my projections, somewhat above—our 2 percent objective. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. After smoothing through the recent labor strikes, it appears that employment remains quite strong, with payroll employment increasing by 205,000, on average, over the past three months, the unemployment rate returning to 3½ percent in November, and the trend in wage inflation up over the past two years. The current Tealbook forecast has tight labor markets, growth slightly above potential, and core inflation moving within 0.1 percentage points of our inflation target by the end of 2020. In addition, monetary policy and fiscal policy remain accommodative, and financial conditions are supportive of the economy, as evidenced, for example, by the rising stock prices since our October meeting.

After three easings in a row and taking into account the fact that monetary policy's effect works with lags, I would prefer to leave rates unchanged unless there's a substantial change in the forecast. Thus, I support the recommendation to maintain the funds rate at its current level at this meeting. However, as discussed yesterday, the language in alternative B seems to imply a fairly low threshold for additional easing and may tilt markets more strongly toward the presumption of easing early next year.

While I, too, would like to get inflation at or over our 2 percent target, I expect that the current level of accommodation will generate that result over time. In my forecast, core PCE inflation rises above 2 percent in 2021, as the lower profit margins and increased wage pressures brought on by an unemployment rate well below the natural rate cause firms to raise prices somewhat more quickly. In a world with a flat Phillips curve, it may be better to stick with modest accommodation for an extended period rather than add significant accommodation in the hope that inflation will return more smartly to target. A more vigorous approach to returning inflation to its target may risk pushing the economy too hard and generating financial imbalances that would be inconsistent with maximum employment over the cycle.

Finally, I'm a bit concerned that any further easing will place us in a precarious position whenever the next downturn arrives. With the funds rate at 1⅝ percent and the economy performing quite well, I prefer to reserve some policy space for offsetting a recession rather than buying additional insurance against events that, so far, have not proven sufficient to derail the economic expansion. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I support the policy decision in alternative B. In my view, the economy is on stable footing, and risks are largely balanced. I believe that this was the case even before the series of stimulative policy moves the Committee took in the preceding meetings.

Given all of that, I see no need for further stimulus at this time. We should instead take stock of the effects of our actions and see how the economy evolves before determining that a different stance of policy is needed. And I share President Rosengren's desire to preserve policy space for a time when we actually are going to really need to use it.

Now, I was going to suggest tweaks to the statement that will accompany this decision. But that was covered yesterday, so I will spare you. Today I will just note that I think the statement eventually needs to be tightened up.

And, finally, I'd like to wish everyone a happy, healthy, and safe holiday season. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. I support alternative B, although, as I noted in my question to Thomas, I do have concerns about the language.

To start, I agree that policy is in a good place today. I also agree with the rationale that the Tealbook presented. Given the current and projected low unemployment rate path and the lags in the effects of our recent rate moves, we have the accommodation in place to generate a return of inflation to our symmetric 2 percent objective. So I believe that I agree with President Rosengren and President Bostic, in terms of, policy is in a good place right now. I don't see the need for additional accommodation at this point. So I like the setting of the federal funds target range, but I don't like the "near 2 percent" language.

The SEP also shows our return to 2 percent, as Thomas pointed out yesterday. So this is more straightforward language to include it that way. I will vote "yes" on the current language, so I'm recognizing—that's the way it is.

Now, why do I make more of a deal about this than others—1.8 percent versus 2 percent? And, you know, I heard President Bostic and others speak quite well. Is it false precision to want 2.0 percent as opposed to 1.8 percent? We are in a good place—we clearly are. I think an unknown is, the language that we use is "current stance of monetary policy." This is a very artful term. The current setting of the federal funds rate target is 1½ to 1¾ percent, but what's the path of the funds rate? We're not committing to anything like that. The SEPs have that in there, but a different path would lead to a different outcome. Would all paths support inflation rising to 2 percent? I don't believe that. And if you start having people wonder about, "Well, what are we going to do? Are we going to raise rates sooner than I have in my own SEP that requires that to overshoot?" then that could be a concern. So I worry that that facilitates more of this uncertainty.

This isn't as much about now, either. It really isn't. It's more about the next downturn. President Bostic said, "We have inflation credibility in terms of our policies in supporting inflation. Times are good now, so I think that's how people think." I worry about, at the next recession, when the unemployment rate goes up—say, to 8 percent—and inflation is lower and goes to 1 percent, maybe lower than that, and we hit the effective lower bound, and we start doing QE. And QE is unlikely to be generously embraced by everybody—there will be criticism, I would expect, of the optics. And there'll be concern about savers at low interest rates and things like that. The Chair is going to get up at some point during that and say, "We are providing a lot of accommodation, and we are going to get inflation up. We're going to get it up to 2 percent." And I think a response could be, "They couldn't get it up to 2 percent when unemployment was at 3½ percent. They were satisfied with 1.8 percent."

I think if we think that we have enough accommodation to overshoot, we should support that. I really don't see why it's such a big deal to sort of say that we would return to 2 percent. But, at any rate, that's why I favor a little more precision, perhaps, in that regard. But that's my view. Thank you very much, Mr. Chairman.

MR. BULLARD. Mr. Chair, may I just ask a question?

CHAIR POWELL. President Bullard.

MR. BULLARD. Thank you. President Evans, what was your suggested language on the—

MR. EVANS. Well, I just think that, in paragraph 2, it says—

MR. BULLARD. You're talking about "inflation near."

MR. EVANS. —"inflation near the Committee's symmetric." And I would say "inflation returning to the Committee's symmetric 2 percent objective."

MR. BULLARD. "Returning to."

MR. EVANS. Yes.

MR. BULLARD. Okay. Thank you.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chair. I support alternative B. I believe it is reasonable to say the federal funds rate is appropriate in light of my current economic outlook. I would not advocate a change in the setting of the federal funds rate unless there is a material change in the economic outlook.

I do believe that technology and technology-enabled disruption—along with, to some extent, globalization—are negatively affecting the pricing power of businesses, thereby muting inflation outcomes. I expect this trend to continue and maybe even intensify. I'm working with my team to further the debate and try to better understand how monetary policy interacts with this secular trend.

Separately, regarding inflation, I would pick up on the comments of President Bostic and, I think, President Barkin—and, previously, President Rosengren—about welcoming a further discussion about the wisdom of an articulation of an inflation range from 1½ to 2½ percent, with a midpoint target of 2 percent over an averaging period. I think this would be an excellent discussion, and I hope we would take up this discussion of a range in future meetings in the near future.

Lastly, I am glad that, early in 2020, we will debate again the idea of the standing repo facility and discuss in more depth how that facility might interact with the size of continued Treasury bill purchases and have a further debate about the appropriate size of the Federal Reserve balance sheet. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I support alternative B as written. Monetary policy is in a reasonably good place, with an equal likelihood of a future change in the funds rate being in either direction. By my reckoning, that is the definition of a good place. A material change in circumstances that would induce me to favor a change in the funds rate would require a significant departure from trend-like growth in either direction, an appreciable unexpected weakening in employment growth, or persuasive evidence that we are departing from our inflation target. So, for now, it seems prudent to wait and see how the previous three rate cuts play out.

Lastly, as we start the new year next month, it may be time to take a fresh look at the statement and, instead of tweaking a word here or there, really think about maybe refreshing the entire statement in the next meeting. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I support alternative B, though, as I hinted yesterday, I'd prefer moving the reference to global developments and muted inflation pressures to the previous sentence. To me, putting in the action statement makes it more directional than our previous statement and our recent communications at a time when the outlook today remains consistent, in my mind, with the outlook we envisioned at our October meeting. I do appreciate the clarity in the statement you read earlier and hope that will avoid this risk.

In thinking about future policy, I continue to see current monetary policy as accommodative. In contrast, I see government policy, in its effect on the broad climate for business, as restrictive. The net of those two, I believe, is taking the economy toward roughly trend growth.

It may well happen that caution in the new year has the seasonal effect I described yesterday. If so, I would urge us to be patient and give our recent rate moves, explicitly targeted at such a scenario, a chance to have their effects. Similarly, while I do forecast some increase in inflation in my base case, the potential effect of trade and political uncertainty could slow the pace of its return to target, which would not concern me much. As I said last time, I think we have to accept that our monetary policy levers have less effect in an environment that includes such significant headwinds.

I do accept, as the Tealbook box suggests, that interest-sensitive consumer spending seems to be responding as we'd hope. But I'd align myself with research by Vavra, Bloom, and others referenced in those footnotes on the negative effect of high uncertainty on firms and their investment spending.

Now, circumstances could change. The breadth of our 2022 SEP forecast certainly suggests that. Our recent rate moves could break through the policy barriers and stimulate growth and result in inflation. Some of the major uncertainties like trade could be settled in a way that provides positive support for economic growth. In contrast, the election cycle poses further risk to business confidence, and there's no guarantee the news won't worsen. If these circumstances do change materially in either direction, I read our statement as giving us the leeway to take appropriate action. Thank you.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. Let me start with just a brief comment on money market issues. I agree with President Kaplan. I think it's time to start seriously exploring setting up a repo facility to handle money market developments. I hope we can get that going in the first quarter of 2020. This would help the Fed meet an international standard about how operations are done. I think there's a lot that could be done there, and I think it would serve us well on that particular issue.

During 2019, this Committee has made considerable progress in changing the outlook for U.S. monetary policy, and I want to stress that I think that the amount of accommodation that has been provided during 2019 is considerably more than what would be suggested by just the three rate cuts that occurred at our previous meetings. Last year, in the November time frame, if you look at the two-year Treasury yield, it was trading at or around 3 percent. The two-year Treasury yield is often taken as a good approximation of the stance of monetary policy, because it takes into consideration not only the current very short-term yields, but also the outlook for FOMC policy according to markets. And at that time, we were raising rates, and markets thought we were going to raise rates even further during 2019. This morning the two-year Treasury is trading to yield 1.61 percent. That's a large decline, depending on exactly where you measure it from—on the order of 130 basis points or more. So you may want to interpret the change in the stance of monetary policy over the past year as being something more akin to five rate cuts than three rate cuts.

But I think this is important. This is a substantial change in the policy stance of this Committee, and now may be a good time to wait and see what the effects actually turn out to be during the fourth quarter of 2019 and into the first half, and even the whole year, of 2020. Milton Friedman taught us that there are long and variable lags in the effects of monetary policy, and we should be cognizant of that.

I'm hopeful that our 2019 policy realignment, combined with business decisionmakers creating new strategies that are better acclimated to the very persistent trade policy uncertainty of the era, will help lead to good macroeconomic results in 2020 and 2021. Nevertheless, we need to be watchful and cognizant of the fact that trade policy uncertainty has a larger effect outside the United States than inside the United States. So it is entirely possible that global growth will not rebound as expected, and that the global drag will continue to feed back to U.S. economic performance in 2020 and beyond.

I see the coming and continuing framework debate in the first half of 2020 as quite important for the Committee. I have two comments on issues that were brought up yesterday. One is on the measurement of inflation, and two is on having a target range, or "comfort zone," for the inflation target. On the measurement of inflation, this issue, to my knowledge, has not been reviewed by this Committee in depth since the 1990s. Some of you—I think only a few people—were actually here at the time, but in the 1990s, we had the Boskin Commission. And the eventual outcome of the review was that the Boskin Commission said that there was upward bias in the CPI. Chairman Greenspan then led the Committee to shift toward PCE inflation as the key measure and the focus of the Committee. And core PCE is our most commonly used metric in judging how we're doing on the inflation front.

I think the bottom line of that review was that PCE inflation provided a broader measure of inflation than others. And the strategy implicitly adopted at the time was that the Committee should commit to one best measure, sort of an official measure, as opposed to an alternative strategy that would have referred to multiple measures and would have done a better job, possibly, of acknowledging the uncertainty in the measurement of inflation. So, for better or worse, we went ahead and committed to that, we're living with that today, and we've not really reviewed that decision from the 1990s.

But I would stress, with many around the Committee mentioning this and wondering about tenths of a percent on inflation—I mean, measurement uncertainty is considerable, and it's very possible that we should do a better job of acknowledging the measurement uncertainty that's out there. So I could see this as being an important part of the framework debate in the first half of 2020.

Another related issue is what to do about core PCE inflation. I've argued for a long time that focusing on core PCE inflation is indefensible—it's indefensible to throw out certain categories of goods arbitrarily. These are prices that people actually pay, and, worse than that, these are the interactions with the markets that people are most familiar with. So, what do they do? They go to the grocery store, and they buy gas. And so when they hear us say that we're going to throw out those prices, even though those are the ones that they're paying, I think this is not very good.

There are much better ways, statistically, to handle the issue of trying to get a sense of the trend in inflation or the underlying inflation. The Dallas Fed trimmed mean is one—and I've often spoken approvingly of that particular measure—but there are many others. So maybe it's time to move into the modern age on this? This is really something that came from the '70s. It's now approaching 50 years old. Couldn't we do this better? If you want to hear more about this, I gave a speech on this a long time ago called "Measuring Inflation: The Core Is Rotten." [Laughter] That reviews all of these issues in some detail.

I would say that, overall, we have to have a headline measure of inflation as the target, but there is an issue of, well, how do we want to get a sense of the trends in inflation? So that's where the core part comes in.

On the comfort zone issue or the target range—I hear a lot of people referring to this, including President Kaplan just now, and I would welcome a debate on this—I'll refer people to an older speech by former Governor Mishkin, who was on this Committee about a decade ago, that had one of the great titles ever of FOMC speeches, "Comfort Zones, Shmumfort Zones." [Laughter] So he came down a little bit negatively on the zone issue. [Laughter] I think the main idea that the debate has to center on here is that the zone creates a region of policy inaction. So the problem is, if you're inside the zone, what is the message? Are you going to do anything, or are you just going to do nothing at that point? And what can happen is that inflation can linger in, let's say, the lower half or the upper half of the zone because of the inaction element of this.

The second issue, I think, to address is the ECB's experience. The ECB has a 2 percent inflation target, but it's expressed as "2 percent or less." That's because, broadly speaking, Germany and others weren't sure that they could go with 2 percent, and that's where they ended up—2 percent or less. So, in effect, they've had a zone, and the zone I would interpret as not working very well. They've ended up with inflation in the lower part of that zone and ended up with the idea that 1 percent inflation was okay, and they're really struggling with that today and have become embroiled at the effective lower bound. The new president, Lagarde, faces a considerable challenge on that. So I think if we're going to go in this direction, we have to be very cognizant. And I'd like to hear arguments about what you think about the ECB's experience.

But most importantly, in my view, naming a zone now that captures the current reading on inflation would signal satisfaction with the current level of inflation and inflation expectations. So if you said 1½ to 2½ percent today and you say, "Well, core inflation is at 1.6 percent," that's going to say that that's okay. And I think that that is likely to entrench us at low levels in the current environment. So one thing I would say about this is, now may not be the time to do this. If you did get to 2 percent and you wanted to acknowledge measurement issues, then you could say, "Okay, now we've got the zone, and now we intend to be symmetric around that zone."

All right. Well, I would just gently put out the idea that, to stay away from the effective lower bound, we may want something more in the spirit of "close to but higher than 2 percent," which sounds like a radical proposal. But the idea is that we want this buffer to keep us away from being enmeshed in the problems of Japan or, now, Europe. So, yes, we want to keep inflation low and stable—that notion came from the Volcker era—but we also want this buffer, to keep us away from those problems associated with the effective lower bound. So I put that out there as something to consider. I look forward to these debates taking place.

I do support alternative B for today, Mr. Chair. I'm happy to support your judgment on the inclusion of the sentence in paragraph 2, including "global developments," and appreciate your arguments on that. I do have a suggestion, though, on the question of, in paragraph 2, "inflation near the Committee's symmetric 2 percent objective." I was influenced by the commentary around the table here yesterday and today. I would support a change here. The word "near"—Governor Brainard suggested, I thought, the words "centered on" instead of "near" in that part of the statement. You know, I think the "near" does have a little hint that the 1.6 percent is okay. This is probably not a good time to send that kind of a signal.

We've talked extensively around the Committee about the symmetry of the inflation target. I do think we want inflation to be centered on 2 percent, so maybe we should consider that today. It's a small change. I don't think it would materially change the reception given to this particular statement, but it might get away from this tinge of acceptance of 1.6 percent on core inflation for 2019. So I'm picking up a little bit on President Evans, who had a little bit different language suggestion, but I think the Committee should consider that in this discussion.

But, broadly speaking, I'm very supportive of alternative B, and I think we're in good shape for today. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. I'm just going to say that, as I mentioned, I do have some sympathy toward this, but it comes in three or four possible different flavors, and I think Wednesday morning is a really bad time to be trying to have a discussion. I want some time to think this through, thinking about "centered around" or "returning to." There are a bunch of different formulations. I don't want to try to do that on a Wednesday morning, if that's all right. I'm happy to do it for the next meeting. Vice Chair.

VICE CHAIR WILLIAMS. I was going to make the same point. I think that this is something we should be discussing in between this meeting and the next meeting. I also think that the word "symmetric" is in the sentence. Whenever I think about these ideas, which are good ones, the "symmetric" is there, and I'm wondering what the word "symmetric" then means in that sentence. So I think, again, it's something we should be thinking about—how we best formulate that and have some shelf life to it.

CHAIR POWELL. Let's have that discussion, by all means. It's a good thought. But, I would say, not today. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chair. I support alternative B as currently written. I continue to expect that the domestic economy will perform well in 2020. As we saw on Friday, the labor market continues to be very strong, and the recent readings on inflation have continued to come in below our 2 percent target. But in light of the strong labor market and my expectation that real GDP growth will remain above its long-run trend rate in 2020, I'm optimistic that we will see inflation move up closer to our target at some point next year.

So I'm comfortable with our current state of monetary policy. With inflationary pressures still muted, I think we can afford to wait and see how the risks surrounding the outlook evolve over the end of this year and into next. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you. I support alternative B as written. I think the current stance of policy is appropriate to support growth while we continue to monitor the incoming data and assess the evolving risks. Given that there are continued signs of weakness in the global economy and given the domestic issues regarding investment and manufacturing, the outlook has some fragility even as the overall U.S. economy continues to show momentum. And it makes sense in these circumstances to stop and assess the economic environment before we decide on our next move.

If the data were to turn decidedly worse or risks to the outlook were to increase meaningfully further, we could consider further policy easing. But with continued strong data, a global economy that appears to be stabilizing, and a chance of positive developments with regard to some of the key risks, I don't think we're near the threshold for action at this point.

That said, I do view the current stance of policy as being very accommodative. Eventually, as the growth outlook stabilizes and inflation moves further toward target, I think we'll have to begin gradually removing this accommodation, although, with the economy performing well and inflation pressures absent, we can be cautious in our approach.

And then, I will not repeat the arguments, but just for the minutes, when the Secretary preparing them counts heads: repo facility, good. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President—

VICE CHAIR WILLIAMS. Any repo facility? [Laughter]

CHAIR POWELL. President George.

MS. GEORGE. Thank you, Mr. Chairman. I support alternative B as written. Although I did not support this year's rate cuts as the most appropriate path of policy, today's decision to hold rates steady is a prudent one, in my view, as we look to assess a number of factors going into next year.

With an economy growing at or above potential, a strong labor market, and low and stable inflation, we will need time to judge the stance of policy—whether the previous adjustments prove to be insurance cuts that will be reversed if headwinds fade; whether the adjustment proves to be a reset to a neutral policy stance; or whether downside risk and uncertainties persist in a way that keeps investment spending weak and spills over to the consumer, altering our modal outlook and requiring further policy action. Not only will the Committee need to retain policy flexibility as it assesses incoming data, but also the prospect of changes coming from the monetary policy framework review suggests the Committee will need to pay particular attention to its communications strategy going into next year, in order to help ensure that we effectively meet our objectives. Thank you.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. I support alternative B. I'm fairly comfortable with our current policy stance. I echo President Bullard's comments. If you look at where the Committee was a year ago and compare that with today, it's a huge shift and, I think, a very positive shift for the economy, so I applaud the changes that we've made.

I think the current level of the federal funds rate is close to the inflation rate—both around 1.6 percent—so the real rate is close to zero. As we discussed yesterday with Thomas—I guess I had a different view than Governor Quarles had—I think it's highly uncertain how much accommodation we're providing today. I think we're probably providing some, but maybe not. I mean, the long-run neutral rate is uncertain. The short-run neutral rate is even more uncertain than the long-run neutral rate.

For this SEP, I had a big debate with my staff, and I lowered—over some of their objections—my long-run federal funds rate to 2 percent. So now I'm the lowest dot. Again, it was a point of active debate, but, so far, I've regretted not lowering it. I have yet to regret lowering it too far. So this is something I'm paying close attention to.

Given inflation below target and low inflation expectations, I think we should be providing some accommodation. The economy is continuing to create jobs, as we discussed yesterday—huge benefits to workers across the country. And we're going to need a "hotter" labor market—or a stronger labor market, as President Williams said—to achieve our 2 percent inflation target. Are we doing enough? I see the case for pausing now while our earlier policy changes filter through the economy. But I think there's a decent chance we will need to make further cuts.

Looking forward, I'm going to be paying close attention to, obviously, inflation, to labor market developments, and to signals about the outlook from financial markets. On the inflation front, I'll be more comfortable if we see actual inflation rise in the next few months, as the staff expects. If we don't, then we're going to learn that we were, again, too optimistic on inflation returning to target.

I'm also going to closely monitor the labor market for signals about not only the strength of the economy as jobs continue to get created, but also, more importantly, wages—and are we, in fact, achieving maximum employment? And then I'm going to, finally, pay close attention to the yield curve. The curve is uninverted because we lowered the front end, which is great, but the long end is still at pretty low levels relative to history, so that's not an optimistic outlook about the future growth prospects.

Thinking ahead to next year, I think it's very important that, if inflation does start to firm, we don't revert to old habits and say, "Well, we're just going to get out ahead of it and raise the federal funds rate." I thought the Chair's answers in the press conference last time were wonderful. When asked what it's going to take for us to raise rates, you said something about, "We're going to need to see a meaningful uptick in inflation." I thought that was very appropriate. And you're seeing markets embrace that, meaning, we had this big jobs report last week, and you didn't see the markets respond by saying, "Oh, there goes the Fed. They're going to go hike now to try to clamp down on either the stock market or the federal funds market." Both of them seem to understand now that we're going to be patient and actually let inflation climb to target—and I think that's a really positive development—so that we can get inflation expectations to 2 percent and get inflation to 2 percent.

And I would—I've been saying this for a while—take it further if it were up to me and have us formally put in the statement a commitment that we're not going to raise the federal funds rate until we get core inflation back to target on a sustained basis. I think that that would demonstrate our solid commitment to achieving our symmetric 2 percent target. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. I support alternative B as written. As I noted yesterday in my economic statement, I see the data as broadly in line with moderate real GDP growth, slightly above my estimate of the trend rate. And this is despite ongoing trade uncertainty and weak global conditions, which continue to be headwinds against the domestic momentum.

Now, I attribute this good outlook, in large part, to the policy moves we have made this year, which have helped sustain the expansion. And here I concur with Presidents Bullard and Kashkari that these are moves that look bigger than just the three rate cuts we've taken.

So with our policy modestly accommodative right now—and I would put it "modestly," because I have a neutral nominal federal funds rate of 2.5 percent—I expect growth to remain slightly above trend over the next couple of years, which will further strengthen labor markets and help push inflation closer to our 2 percent objective. But as I don't expect inflation to hit 2 percent until 2021, I've written down a flat path of the policy rate—no change over the next two years.

So while I see policy as appropriate right now, I think it's important to consider what conditions might change my view. And here I want to back up from today's decision and even next month's decision and actually think about what the future would look like. Certainly, as many others have noted, a recessionary shock or evidence of an unwanted run-up in inflation or an unsustainable boom would warrant lower or higher rates, respectively. There's no doubt about that. In my experience of listening to the Committee and being on the Committee, these types of situations, positive or negative, are actually relatively straightforward for us to identify, agree on, and take offsetting measures against. We don't seem to have as much trouble aligning in these cases.

The harder and somewhat less obvious challenge for us would be if, despite the actions we've taken, realized or expected inflation remains muted. As many discussed yesterday, inflation has serially disappointed throughout this expansion. Indeed, if we look at the numbers—I think it's always useful to remind ourselves, and I like to do that—since 2012, when we publicly committed to a 2 percent inflation objective, headline PCE inflation has averaged just 1.4 percent, and core PCE inflation has averaged only 1.6 percent. I actually looked back, and, since we adopted the word "symmetric" in our statement, core and headline inflation rates have averaged just 1.7 percent.

So this is not a stellar record in terms of meeting our symmetric inflation goal. I find this problematic for several reasons, and I'll just repeat them either for the minutes or in the hope that it'll influence. First, as President Evans said yesterday and others have noted, when we say 2 percent, we actually need to hit 2 percent over time to keep our commitment to maintain long-run credibility. I think the literature on inflation expectations being well anchored supports that view.

Second, in the proximity of the lower bound, we need all of the policy space we can get, and I do not want to enter the next downturn with one or two fewer rate cuts at our disposal because inflation and inflation expectations have slipped further. I think it may not seem like much, but you could say, in the low interest rate environment we face, every tenth matters. And while President Bostic noted that it was just one or two rate cuts, that's a lot when you're thinking you're starting at 2.5 percent as the neutral rate.

Third, though my policy rate path balances the risks as much as possible, in the world that we face today, the pressure on inflation and the risks to the inflation outlook are still likely tilted to the downside. Here I'm influenced by work that many have done, but Vice Chair Williams and coauthors have looked at signs of an increasing downward pressure on inflation. And if we don't get it back up to 2 percent in the good times, it's really hard to fight this downward trend.

And, finally, as I discussed in my framework review statement, communicating that we view our 2 percent inflation objective as vitally important will be much easier if we actually achieve it on a sustained basis.

So, in sum, fighting inflation from below our target is, to me, a new reality. I'm hopeful that the actions we've taken this year are enough to sustainably achieve our inflation objective. However, if the policy accommodation we've taken thus far should fail to move inflation back to 2 percent, I would envision, barring substantial increases in financial vulnerabilities, providing further accommodation and would, as Governor Brainard said yesterday, work hard to develop communications plans that communicate our rationale in a simple way to the public.

To conclude: I see the language in alternative B that we have for today as balancing the good place we are in today—and I do think we're in a good place—with the reality that we will need to continue to monitor both the world around us and the path of expected inflation. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. Based on my assessment of incoming economic information, my outlook, and the risks to the outlook, I support no change in the federal funds rate at this meeting, as in alternative B. The economy is in a good spot for us to take the time to assess the effect of the recent rate cuts and the flattening of our policy rate path and see how the employment and inflation situations evolve.

I also support the language in alternative B today. At some point, I think we're going to need to consider how best to characterize the labor market in paragraph 2. We've been in a very good situation for a while. The unemployment rate is quite low, and job growth has been well above trend. So we've been able to call the labor market conditions "strong" in paragraph 2. But once employment slows to trend, we might want to think about whether that language needs to be amended even if the unemployment rate is low. And if the Tealbook's alternative view of employment is right and employment growth is actually weaker than we think, we may want to change the language to something that's more in line with that possibility.

Now, you've heard me talk in a number of previous meetings about our FOMC statement and the structure of our statement. I prefer to see them evolve, toward giving more sense of our outlook and our policy reaction function than the current format allows. Now we have a situation in which we are reluctant—yes, and rightly so—to make changes to particular words in the statement because of the signal that that may send. I think the framework review is actually an excellent opportunity for us to really escape the "Hotel California" aspects of our statement, and we can take a broader view, think about the structure and the content of those FOMC statements, and then package that, with any changes that we might make, with the consensus statement. I hope that that might be part of our framework review.

You've also heard me say before, regarding the consensus statement, that whatever we end up focusing on as potential changes—whether it be a range or whether it be an average inflation over some period—I'd like to put those through some scenario analyses. I'd like to really think about, okay, had we had this as the way we frame our goal, how would that have changed our policy rate path?

I think also the discussions that we had over the past couple of meetings, including yesterday, really emphasize that just saying something isn't enough. We really need to have a strategy for how we're going to get there. It's really trying to engender some kind of commitment, like "How can we better do that?"

So there are things that you can imagine doing. Some of the Cleveland staff are investigating whether there are ways to use the SEP—maybe giving a little more prescription about what "appropriate policy rate path" is, like when you're actually saying something. So you can imagine saying, "Appropriate policy is bringing the average inflation rate up to 2 percent over the next two years." Being more prescriptive about what you actually are asking us as participants to use in our SEPs might actually be a way of engendering better thoughts about how we're going to actually implement policy.

So I'm really looking forward to the framework review next year and what we're going to go through. I think thinking about financial stability issues is very important. I'm glad we're having that discussion in January. But I also think that we now need to focus in on a couple of suggested ways of where we're leaning toward going and then put it through its paces. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. Every financial conditions index I consult is now in the lower part of its historical range, and it's likely to remain there, given expectations of monetary policy. I am increasingly concerned about financial imbalances in this late-cycle environment, particularly given deregulatory pressures. The prospect of prolonged accommodative financial conditions, with growth running above potential, can be expected to fuel imbalances. Indeed, the mid-1990s mid-cycle adjustment was followed by a prolonged period of rising valuations of risk assets in a deregulatory environment. And that did not end well.

We learned in recent cycles that we should not wait for financial vulnerabilities to be flashing red to strengthen our safeguards. Risk appetite and leverage are strongly procyclical, and we see signs of this, clear signs, in current elevated risky corporate debt and the valuations of risk assets.

It would be prudent in the context of the anticipated trajectory of financial conditions, with growth running above potential, to guard against these kinds of amplifications by active use of macroprudential tools and resisting weakening of through-the-cycle safeguards. That, in my view, would be the best approach to free up monetary policy to achieve its dual-mandate goals. So let me turn to that.

Since we last met, data on spending and employment have been stronger than anticipated, and they provide reassurance that the economy's momentum is solid and suggest a deceleration from the first to the second half of this year has been relatively modest. Employment is strong, and, in fact, the payroll data suggest that there's some acceleration rather than deceleration from the first to the second half even after accounting for idiosyncratic factors. The spending data have been solid, consumer sentiment is upbeat, and consumer spending remains solid.

Business investment, trade, and manufacturing remain downbeat, reflecting weak growth abroad and trade conflict. But, so far, there's still no sign that the softness in these sectors is spilling over to the broader economy.

Risks remain, but financial market indicators suggest market participants see a diminution in downside risks and greater resilience of domestic activity to headwinds from abroad, and recession probabilities implied by models using market data have declined significantly.

Inflation, by contrast, remains stubbornly below target, and survey-based measures of inflation compensation, as well as market-based measures of inflation compensation, are, on net, little improved and, as Governor Clarida said, suggest that inflation expectations are somewhat below our target. As Presidents Evans, Bullard, Daly, Kashkari, and others have noted, this means our job is not done. Core inflation of 1.6 percent is not okay.

In recent months, the Committee has taken significant action to provide insurance against the risks associated with trade conflict and weak foreign growth against a backdrop of muted inflation. Since July, we've lowered the target range for the federal funds rate by ¾ percentage point, which is a lot, given that the size of the overall buffer is much smaller. The federal funds rate is now well below the Committee's median estimate of the long-run neutral rate. It'll take some time for the full effect of this accommodation to work its way through economic activity, the labor market, and inflation. With policy now appropriate, this is a good moment to move to the sidelines and allow those effects to play out.

Since our previous meeting, communications have been handled extremely well, and market expectations seem well aligned with what I perceive to be the Committee's reaction function. The Survey of Market Participants suggested little to no expectation of changes to our policy stance language today relative to the October language. And, like many others, my inclination would not have been to include global developments in the statement about monitoring the implications of incoming information. Our actions have helped buffer domestic consumers and employment from the headwinds associated with trade uncertainty and weaker foreign growth.

In addition, because inflation is our target and not purely an exogenous development, now would be a good time to clarify our determination to achieve true symmetry on inflation outcomes. So I also would prefer to replace that word "near," because the meaning of that sentence has actually now changed. As we have said that we now judge policy to be in an appropriate place to support these outcomes, inflation near 2 percent is no longer acceptable.

That said, I know that the Chair has weighed all of these considerations, and I am very happy to support alternative B as written. Thank you.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I support alternative B as written as well. Recent developments point in the direction of the expansion remaining on track, and economic and financial conditions are supportive of achieving our dual-mandate goals. Although uncertainties on trade and geopolitical developments remain a concern, I, like President Bullard, am increasingly assigning these to the category of the new normal that we'll have to navigate for the foreseeable future rather than an unusual or unique risk to the outlook today.

Barring unforeseen contingencies, our policy stance appears well calibrated. A current assessment of appropriate policy sees us staying at the current target range through next year, consistent with an economy growing about at trend, an employment rate staying close to its current level, and inflation moving back to our 2 percent target.

In looking at my forecast, which is very similar to the median of the SEP, what is striking when you look at the median SEP—and I'm going to pick up on some themes that President Kashkari talked about yesterday and today. I'm going to agree with him, so he may want to rebut my comment in a moment. [Laughter] Look at our forecast. I'm just going to take the average. Basically, the median GDP growth forecast is 1.9 percent over the next three years, equal to its long-run value. The unemployment rate forecast averages 3.6 percent, roughly where it is, relative to a long-run of 4.1 percent. The inflation average is about 2 percent, and the real federal funds rate averages around zero or slightly negative throughout the end of 2022.

So this issue—what are the long run and the short run?—I think we need to be better at talking about this and communicating this. When I look at this forecast—when I look at my forecast—I'm essentially saying that, for all intents and purposes, maximum employment is roughly the unemployment rate today, and it will be for the next few years. So I don't see this issue about, are we trying to stimulate the economy to get inflation back to target? Absolutely. But we're also trying to provide the economic conditions to keep the unemployment rate where it is today or maybe even a little bit lower, and I think that's consistent with both of our dual-mandate goals. And, in a way, that 4.1 percent number, my personal estimate for the long-run natural rate of unemployment, may be getting in the way of our thinking about really what we think our dual-mandate goals are.

Similarly with the natural rate—although I kind of feel like I should be in a race to the bottom on *r** estimates with President Kashkari here. The idea that many of us, including myself, are holding to an *r** of ½ percent, real, or 2½ percent, nominal—but when you look at our forecast, at least the median, real interest rates are zero for as far as the eye can see, and that's not leading to any inflation or an economy significantly overshooting the target.

So, from my point of view, what does it mean that the economy is in a good place? It's basically for the economy to be as strong as it is today, or maybe even somewhat stronger; real interest rates to be roughly zero; and, I hope, inflation to be at 2 percent or maybe even slightly above that. And I just think that's something, as we think about how we communicate and talk about the economy and as we think about the framework review and some of these issues that President Mester mentioned about how we frame our statement, that we should keep in mind.

The last thing is, I am still a huge fan of the SEP and the dot plot. I know it's not everybody's cup of tea, but I think it is helpful here. It shows that nobody on the Committee is calling for—at least in the baseline, under appropriate policy—rate cuts. Generally, the Committee participants see the funds rate as flat next year and there being, at most, one or two rate cuts in 2021 and 2022—which I think is probably just a statement about the economy getting back to some kind of long run or steady state that we have out there.

So I think that the SEP, in this case, both the baseline forecast of what we think "good" looks like—an unemployment rate around 3½ percent, inflation around 2 percent or maybe a bit above, and real interest rates that are very low—and the dot plot, is actually very helpful to explain our thinking. I know that the dots aren't perfect, and Chairs have not always loved the dots at every point in time, but I do think that these are capturing pretty well where many of the people on the Committee are. Thank you.

CHAIR POWELL. Great. Thanks very much. Thanks to everyone. Let me now ask Jim to make clear what the FOMC will vote on and to read the roll. Following the FOMC vote, the Board will vote on the interest rates on reserves and discount rates. Jim.

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 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
President Bullard	Yes
Governor Clarida	Yes
President Evans	Yes
President George	Yes
President Rosengren	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 action with respect to the interest rates on reserves as set forth in the first paragraph associated with policy alternative B on the last page of Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

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

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Before we confirm the date of our next meeting and conclude, I am very pleased to tell you that the comprehensive selection process for choosing a new SOMA manager has concluded, with superb results. And I turn it over to Vice Chair Williams, who will tell us more.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. And, yes, we did have an extensive search, as everyone knows, and great collaboration with my colleagues here at the Board and in the System on that.

I'm pleased to propose that Lorie Logan be named the SOMA manager. You all know Lorie and her accomplishments—her expertise in financial markets and deep understanding of how they are connected to monetary policy. She's been outstanding throughout her career in this area, but I would point specifically to the past several months. This is obviously with respect to developments in the repo markets and related issues, which occurred while the whole ample-reserves framework was being developed—the implementation of that—and, obviously, the past three months, with the disruption in repo markets.

Lorie and her team acted very quickly to diagnose what happened, came up very quickly with an immediate plan to bring calm to the markets, and then quickly turned to developing the medium-term strategy, which we discussed in our October 4 meeting and executed starting October 11, to bring both calm and effective implementation of monetary policy. The speed, the expertise and understanding on the issues, and coming up with that plan, I think, were really key parts of the success.

Not only were Lorie and her team doing that, but they were also thinking ahead to the medium-term objectives. How do we not just get through September? How do we not just get through October? And, obviously, how do we get through December? But, also, how do we prepare for the longer-term future in terms of ample reserves? You saw the work that's under way on that and the issues that we are working on and her team has been working on in terms of early next year—completing the process of getting to ample reserves, planning ahead along the various dimensions that we've been talking about yesterday and today, and making that successful.

So my full-hearted recommendation is for the Committee to approve Lorie Logan as the SOMA manager.

CHAIR POWELL. Thank you very much, John. Do I have a motion to approve Lorie Logan to manage the System account?

MR. CLARIDA. With great enthusiasm, so moved.

CHAIR POWELL. A second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Lorie, congratulations. [Applause]

Lorie's selection needs to be acted on by the Federal Reserve Bank of New York. So, because of the timing of their board of directors meeting, the public announcement of this selection won't be until Thursday. Please be sure to keep Lorie's selection confidential until the announcement. In the meantime, you're more than welcome—and even encouraged [laughter]—to offer your congratulations to Lorie.

Our final agenda item is to confirm that the next meeting will be on Tuesday and Wednesday, January 28–29, 2020. That concludes this meeting—buffet lunch soon. Thanks, everyone, and have a great holiday.

END OF MEETING