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

A joint meeting of the Federal Open Market Committee and the Board of Governors was held by videoconference on Tuesday, July 28, 2020, at 10:00 a.m. and continued on Wednesday, July 29, 2020, at 9:00 a.m.

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

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

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

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

Shaghil Ahmed,[1] Michael Dotsey, Beverly Hirtle, Trevor A. Reeve, Ellis W. Tallman, William Wascher, and Mark L.J. Wright, Associate Economists

Lorie K. Logan, Manager, System Open Market Account

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

[1] Attended through the discussion of economic developments and the outlook, and all of Wednesday's session.

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

Daniel M. Covitz, Deputy Director, Division of Research and Statistics, Board of Governors; Brian M. Doyle, Deputy Director, Division of International Finance, Board of Governors; Rochelle M. Edge, Deputy Director, Division of Monetary Affairs, Board of Governors

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

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

William F. Bassett, Antulio N. Bomfim, Wendy E. Dunn, Ellen E. Meade, Chiara Scotti, and Ivan Vidangos, Special Advisers to the Board, Division of Board Members, Board of Governors

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

Eric M. Engen and David E. Lebow, Senior Associate Directors, Division of Research and Statistics, Board of Governors; Gretchen C. Weinbach, Senior Associate Director, Division of Monetary Affairs, Board of Governors

Edward Nelson and Robert J. Tetlow, Senior Advisers, Division of Monetary Affairs, Board of Governors

David López-Salido,[2] Associate Director, Division of Monetary Affairs, Board of Governors; Paul R. Wood, Associate Director, Division of International Finance, Board of Governors

Eric C. Engstrom and Christopher J. Gust,[2] Deputy Associate Directors, Division of Monetary Affairs, Board of Governors; Luca Guerrieri, Deputy Associate Director, Division of Financial Stability, Board of Governors; Norman J. Morin, Deputy Associate Director, Division of Research and Statistics, Board of Governors; Jeffrey D. Walker,[3] Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Brian J. Bonis and Etienne Gagnon,[2] Assistant Directors, Division of Monetary Affairs, Board of Governors; Viktors Stebunovs,[4] Assistant Director, Division of International Finance, Board of Governors

[2] Attended through the discussion of the Statement on Longer-Run Goals and Monetary Policy Strategy.
[3] Attended through the discussion of developments in financial markets and open market operations.
[4] Attended the discussion of economic developments and the outlook.

Brett Berger,[5] Adviser, Division of International Finance, Board of Governors

Penelope A. Beattie,[6] Section Chief, Office of the Secretary, Board of Governors; Dana L. Burnett, Section Chief, Division of Monetary Affairs, 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

Marcelo Ochoa, Senior Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams, Senior Information Manager, Division of Monetary Affairs, Board of Governors

James Narron, First Vice President, Federal Reserve Bank of Philadelphia

David Altig, Kartik B. Athreya, Joseph W. Gruber, Daleep Singh, and Christopher J. Waller, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Kansas City, New York, and St. Louis, respectively

Michael Schetzel,[5] Senior Vice President, Federal Reserve Bank of New York

Eugene Amromin, Kathryn B. Chen,[5] Matthew Nemeth,[5] Joe Peek, and Patricia Zobel, Vice Presidents, Federal Reserve Banks of Chicago, New York, New York, Boston, and New York, respectively

Robert Lerman,[5] Assistant Vice President, Federal Reserve Bank of New York

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

Mark Spiegel, Senior Policy Advisor, Federal Reserve Bank of San Francisco

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

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

July 28 Session

CHAIR POWELL. Welcome. Coming to you live from the Board Room at Eccles. It's good to see everyone. This meeting, as usual, will be a joint meeting of the FOMC and the Board, and I need a motion from a Board member to close the meeting.

MR. CLARIDA. So moved.

CHAIR POWELL. Without objection. Before we move to our formal agenda, let me review some logistics. We again have a parallel Skype session that participants and others can use to indicate that they have a question. Please use the Skype session only for indicating your desire to speak. Following each staff briefing, if you'd like to ask a question or a two-hander, please indicate that in the Skype session, which I can and will monitor here. I'll also call for any further questions at the end of each Q&A session, in case anyone is having difficulty with Skype.

A link to a single file containing all presentation materials was distributed yesterday evening. You can open the file at that link and follow along during the briefings.

Finally, the video element of this meeting involves some relatively new technology. We hope that it continues to work well. But if there are unexpected problems, we may again need to revert to an all-audio call. In that case, everyone will drop off the video and dial back into the meeting using the conference number, and individual PINs, distributed to all participants. We certainly hope that will not be necessary.

First up today is our discussion of the Statement on Longer-Run Goals and Monetary Policy Strategy. To kick us off, I will say a few words about the review and the consensus statement. At the end of the go-round, I'll also add my own comments, sum up, and talk about the path forward.

I want to begin by thanking the many people throughout the System who have made important contributions to the review since we began it in late 2018. And I'm particularly grateful for the careful thinking and constructive discussions that took place among us earlier in the year and then over the past month or so, as we worked to bring the process to conclusion even as the economy has actually demanded our attention.

The idea behind this project was to open ourselves up formally to a public discussion of our conduct of monetary policy. The decade that had passed since the Global Financial Crisis surely held lessons that would be addressed in the review and then reflected ultimately in the consensus statement. With Rich Clarida's arrival and under his leadership, the review really started to take form.

I believe that we have already reaped significant benefits from opening ourselves up—in *Fed Listens*—and from all of the work and the discussions we've had in the FOMC process on our strategy, tools, and communications. A number of other central banks are following in our footsteps, even now.

One key output was always going to be the changes that we make to the consensus statement as a consequence of the review. At this point, we've been through multiple rounds of discussions, as we've given written form to the insights we're drawing from our collective work and discussions to try to develop the widest possible consensus and to address differences and concerns that will arise in a group with strong and diverse views. I think we've made great progress in doing so, and I again thank each of you for your input and, not least, for your patience.

As for today, we're not going to vote, because this is the first time we have discussed the consensus statement as a group. This go-round is the opportunity for you to share your

comments on the document and the issues that it addresses as well as to state your tentative position, if you feel so moved.

After today's discussion, the plan is to make any further adjustments and circulate this document for a vote, either by notation or by way of another telephone meeting, in the week of August 24. At that time, in keeping with our usual practice, the positions of those who happen to be nonvoters at this time will be reflected as well. If approved, the document would be released that week, and I would address it in my remarks at the virtual Jackson Hole symposium. We also contemplate a virtual conference to discuss the new consensus statement sometime after the September FOMC meeting.

And with that, Ellen Meade will now provide a briefing before our go-round on this topic. Ellen, would you like to begin, please?

MS. MEADE.[1] Thank you, Chair Powell. I'll be referring to the first pages of the handout "Material for Briefing on Draft Statement on Longer-Run Goals and Monetary Policy Strategy."

Following the research conference at the Federal Reserve Bank of Chicago in June 2019, you began discussing issues associated with your review of monetary policy strategy, tools, and communication practices at your meeting—exactly one year ago. Those discussions continued through the January meeting this year. You then turned to potential changes to the Statement on Longer-Run Goals and Monetary Policy Strategy in February.

After pausing to deal with the consequences of the pandemic, you resumed your discussions over this past intermeeting period. The draft statement you are looking at today reflects many considerations voiced during your discussions.

The text on page 2 of the handout is a clean version of the draft statement. As I give my remarks, you may find it helpful to look at the red-and-black version on pages 3 and 4, which compares the draft statement against the one you reaffirmed at your January 2019 meeting. This is shown on the fifth page.

The first paragraph is unchanged, and it reaffirms the Committee's commitment to its statutory mandate, from the Congress, to promote maximum employment, price stability, and moderate long-term interest rates. It also describes the benefits

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

associated with a practice of explaining policy actions to the public as clearly as possible.

Paragraph 2 outlines the current challenges that confront monetary policy. After saying that economic variables fluctuate in response to disturbances and that "[m]onetary policy plays an important role in stabilizing the economy," the paragraph says that your "primary means of adjusting policy is through changes in the target range for the federal funds rate." The paragraph notes that the neutral level of the federal funds rate "has declined relative to its historical average," and, therefore, the policy rate is more "likely to be constrained by its effective lower bound . . . than in the past." It then notes that, due in part to the proximity of interest rates to the ELB, "the Committee judges that downward risks to employment and inflation have increased."

Your 2012 statement treated your inflation and employment goals in a single paragraph. The draft before you today discusses the goals in separate paragraphs. In addition, your 2012 statement addressed price stability before maximum employment. In the draft statement, "maximum employment" appears before "price stability," in keeping with the Federal Reserve Act and the traditional ordering of the dual-mandate goals.

To that end, paragraph 3 turns to maximum employment. The draft statement says that maximum employment "is a broad-based and inclusive goal." You might see this as consistent with what you heard at the *Fed Listens* events or with the FOMC briefings and *Monetary Policy Report,* which over the past four years have provided metrics on the labor market and other economic developments broken down by demographic group or income class.

Paragraph 3 retains points from your earlier statement: that the employment goal is not directly measureable, and that it changes over time and depends largely on nonmonetary factors. Instead of saying that your policy decisions are "informed by assessments of the maximum level of employment," the draft says your decisions are informed by "shortfalls of employment from its maximum level"—signaling that low unemployment will not by itself be a cause for policy action. At the end of paragraph 3, the "callout" to your projections of the longer-run normal rate of unemployment in the Summary of Economic Projections has been dropped.

Paragraph 4 leaves intact your definition of the longer-run goal for inflation. The treatment of inflation expectations follows next. The draft communicates your judgment that "inflation expectations that are well anchored at 2 percent" will foster your goals and enhance your ability to achieve them "in the face of significant economic disturbances." The final sentence of the paragraph says that, "[i]n order to anchor expectations at" 2 percent, you seek "to achieve inflation that averages 2 percent over time," and therefore you judge "that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time."

> Paragraph 5 says "[t]he Committee is prepared to use its full range of tools to achieve" the dual-mandate goals. In addition, it notes that policy actions influence the economy with a lag. "In setting [monetary] policy, the Committee seeks over time to mitigate shortfalls of employment from [the Committee's] assessment of [its] maximum level and deviations of inflation from" 2 percent. The paragraph then notes in a new sentence that "sustainably achieving" the dual-mandate goals "depends on a stable financial system." The final sentence of the paragraph—about your policy decisions reflecting your goals, outlook, and risk assessment, including risks to the financial system—is not new to the statement, but it has been relocated from paragraph 2.
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> Paragraph 6 says "[t]he Committee's employment and inflation objectives are generally complementary," but when they are not, the Committee "takes into account the employment shortfalls and inflation deviations and the . . . time horizons over which" the goals are expected "to return to levels judged consistent with" the dual mandate. The paragraph leaves out the "balanced approach" language that was in the 2012 statement.
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> The seventh paragraph notes your intention to revisit your statement every "January and to undertake" a review of your "monetary policy strategy, tools, and communication practices" every five years.
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> Your final exhibit on page 6 reproduces the question that was circulated last week to help guide today's discussion. Thank you, Chair Powell.

CHAIR POWELL. Thank you, Ellen. I'd like to now turn to Governor Clarida to begin our go-round on this topic. Over to you, Rich.

MR. CLARIDA. Thank you very much, Chair Powell. Before I offer some observations on the draft statement, I would like to step back and remind us of the process that has brought us to the point today, when we will consider an important evolution of our strategy and statement. This is the first such review since 2011 of our strategy—and is the first-ever public review undertaken by the Federal Reserve of our monetary policy strategy.

From the outset, it was conceived that the review would build on three pillars: a series of *Fed Listens* events, a flagship research conference, and a series of rigorous briefings to the Committee by the System's staff at a succession of five consecutive FOMC meetings between

July 2019 and January 2020. Please allow me a moment to say a few words about each of these three pillars.

The *Fed Listens* events turned out to be, quite simply, a grand slam. It built, of course, on a long-standing practice at the Reserve Banks and at the Board of hosting outreach events with community groups. But by focusing on a common format in which underrepresented groups were encouraged to tell their stories about how monetary policy affects their daily lives, it became a potent vehicle with which we can better connect with the public that our policies are meant to benefit. Although many people across the System were involved in making *Fed Listens* the success that it was, I would be more than remiss if I did not single out Ellen Meade, both for her indefatigable contributions, and for her attention to the detail and organization that were essential in pulling this whole thing off.

The second pillar of our review, a research conference hosted by President Evans and Anna Paulson at the Federal Reserve Bank of Chicago, expertly—and on short notice, I should note—brought together some of the world's leading academic experts on monetary economics to present "bespoke" papers on a range of topics central to our review. These papers and the robust discussion at the conference they stimulated were an important input into our review process. And I should also note that, with Loretta Mester's energetic assistance, the proceedings at the Chicago conference were published in February of this year, in a special issue of the *International Journal of Central Banking*.

The third important pillar of our review is a collection of 13 memos prepared by the System and Board staff and the presentations of these memos to the Committee at five consecutive FOMC meetings between July 2019 and January 2020. These memos were commissioned and overseen by a System steering committee under the leadership of Thomas

Laubach and also included Jeff Fuhrer, Marc Giannoni, and Dave Altig. And I would like to thank them for their contribution.

Before I move on to some thoughts on the statement, please allow me to say a few words about the peerless leadership, energy, and commitment that Thomas Laubach has brought to the framework-review enterprise. We simply would not be here today discussing this evolution of our framework without Thomas and the insights, inspiration, and good judgment that he brought to the project and the ambitious process that he designed and worked with us to execute.

So, to Thomas, on behalf, I'm sure, of all Governors, presidents, and the staff at this virtual meeting and throughout the System: We offer a hearty "Thank you" for all that you've done for this review. And we look forward, as always, to the continuing leadership, advice, and counsel that you provide as director of Monetary Affairs as we assess the complex policy alternatives that the Committee will face in the years ahead.

I'll turn now to the statement that was circulated last week. In preparation for this meeting, I went back and reread the transcripts of the five meetings that we devoted to the review last year and in January. At those meetings, of course, there was much discussion about our existing strategy and statement and the ways they might be refined so that we might better address the challenges we face today as policymakers.

During the fall of 2019, the communications subcommittee reached out individually to all 17 of us to get an initial "read" of where each of us stood on the review. And though it's fair to say there was a range of views and priorities among us, some common themes did emerge and did form the basis of the first draft of the revised statement that was sent to you in early February of this year.

Broadly, we agreed that a lot has changed since 2012, and that the existing statement and our strategy, when assessed in the context of the challenges that we face, need to evolve. For example, in our discussion, a number of us mentioned that the symmetric inflation objective as described is not well understood and is taken by many to mean that following periods when inflation has been below 2 percent, the Committee sets policy with the aim—indeed, the hope—that 2 percent will be a ceiling.

Many of us commented that the existing statement is also silent on the decline in r^* and the cost of the effective lower bound (ELB) and its implications for our ability to achieve our objectives on a sustained basis. I would point out that if the staff's current projections are realized, by 2023 our policy rate will have been at the effective lower bound for 10 of the 15 years since 2008. And core PCE inflation year over year will have been below our objective for 169 of the 180 months in that period.

As for expectations, the existing statement does mention expected inflation—but only in the context of asserting that the mere announcement of a 2 percent target helps anchor inflation expectations. If only it were that easy.

Many, and perhaps most, of us agree that the existing discussion of maximizing employment and minimizing deviations of unemployment from u^* does not align well with how we have actually made policy in a world of below-target inflation and unemployment below our ever-changing estimate of u^*. Several of us noted and argued that the statement should also reflect the fact that achieving our objectives on a sustained basis requires a stable financial system.

Finally, and most importantly, after receiving a staff briefing at our September meeting on rules-based makeup strategies, there was, I believe, unanimous agreement that we not adopt a

formal price-level target, a temporary price-level target, or any average inflation target defined over a fixed window of time. The Committee's skepticism about numerical price-level and average inflation-targeting rules was summarized in the minutes of the September 2019 meeting and was widely understood at that time to rule out either the expectation or the possibility that we would adopt a formal makeup strategy.

Now, let me say upfront that while I was not a member of the Committee in 2012, had I been, I would have voted enthusiastically for that January 2012 statement. And, indeed, at that time I did praise it publicly, as a Fed watcher employed in the private sector. It was the right statement at the right time, and it has served us well. But I think we agree, after going through the review, that times change, and that our strategy and statement need to change and evolve as well, in order to give us the best chance in the world in which we operate today of achieving our objectives on a sustained basis.

I think the draft statement that we are discussing today reflects the input that you provided to the subcommittee last fall and to the Chair in no fewer than 45 individual bilateral conversations in February and again earlier this month in July. I think this statement addresses all the key priorities that the review identified for refining our strategy, so that it is best suited to meet the challenges we face today. In particular, I would note the following items of our new statement and strategy. And I think they represent a necessary and significant evolution—or, in some cases, importantly, a clarification—of our strategy.

Paragraph 2 now notes that the neutral funds rate has declined and that monetary policy is more likely to be constrained at the effective lower bound, and that this binding constraint is likely to impart a downward bias to inflation that we need to consider in calibrating our policy.

Regarding our maximum-employment mandate, paragraph 3 retains the existing language that the employment goal is not measurable directly, and that it's influenced primarily by nonmonetary factors. However, instead of saying that the policy decisions are "informed by assessments of the maximum level of employment," we say that we'll be informed by "shortfalls of employment from its maximum level." This signals that low unemployment, in the absence of price inflation running above our mandate-consistent levels, will not by itself be a cause for policy action.

At the end of paragraph 3, the "callout" to our projections of the longer-run unemployment rate in the SEP has been dropped. This change has been made simply to reinforce the point that we look at a wide range of indicators to assess mandate-consistent levels of employment and will not single out any particular one.

Now, with regard to the SEP, let me say that the subcommittee will be recommending unanimously at a future FOMC meeting that all existing SEP content and exhibits—yes, including the dots, *u**, and *r**—should remain, but that they should reside in an expanded SEP that would, subject to your approval, add new exhibits and new questions aimed at better conveying our initial assessment of the balance of risks and uncertainties that we factor in as policymakers.

Paragraph 4 leaves intact our definition of the longer-run goal of inflation at 2 percent, but it elevates the importance and the challenge of keeping inflation expectations anchored at 2 percent, in order to foster our goals in the world that we operate in today and for the foreseeable future. To this end, it does acknowledge that in order to anchor inflation expectations at 2 percent, we will seek to achieve inflation that averages 2 percent over time and that, therefore, "following periods when inflation has been running persistently below 2 percent,

appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time."

I believe there is unanimous support on the Committee for the explicit overshoot language. And I know that the statement very precisely chooses words such as "likely," "aim," "moderately," and "for some time" to convey the aspirational nature of this desire to achieve inflation that averages 2 percent over time—not, I would note, over any fixed number of years, or even over a business cycle.

Finally, although the "money" sentence is rather long, its construction serves a specific purpose. It defines precisely what "average over time" means. It means—and to me only means—quote, "following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time"—full stop. That's what it means.

Paragraph 5 makes the point, important to many of us, that sustainably achieving our dual-mandate goals depends upon a stable financial system. And the existing language, currently in paragraph 2, on risk management is still included; it's just moved to paragraph 5.

Paragraph 6 indicates, just as we do in our existing statement, that the Committee's employment and inflation objectives are complementary, and we'll note that the Committee will take into account both the time horizon over which the goals are expected to return and other factors. It is true that the "balanced approach" language has been removed from this draft. But this reflects the reality that the "balanced approach" language has been subject to various interpretations over the years—and has been taken by many readers to mean that we give equal weights to our dual-mandate objectives in setting policy.

The final paragraph notes our intention to revisit this statement not only every January, but also to undertake a public review of our policy strategy, tools, and communication practices roughly every five years. I believe that we all agree that we've been well served by this review, and I believe that the existing language creates a presumption that a future Committee should, at least periodically, undertake this exercise—of course, tailored to the circumstances and times in which it's conducted.

In sum, a lot has happened since 2011 that has affected monetary policy, and our strategy and our statement need to evolve to give us the best chance in the world in which we operate today of achieving our dual-mandate goals on a sustained basis. This new statement and our new strategy do that and, if approved by this Committee, I am confident will serve us well in the years ahead. Thank you, Chair Powell.

CHAIR POWELL. Thank you. Let's continue with Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I strongly support the new Statement on Longer-Run Goals and Monetary Policy Strategy. This represents an important evolution, both in our characterization of success regarding our dual-mandate goals and in our strategic approach to achieving these goals. And like the previous version, it appropriately stays at a high level—and leaves the details on execution and tactics to Committee decisions that are tailored to the specific circumstances and considerations of the moment.

The original statement issued back in January 2012 represented a historic step in the Committee's progress toward greater transparency and clarity about its goals and strategies. And I did enthusiastically support it at the time.

But the case for change is clear. In the past eight years, basic facts that shaped that original document have fundamentally changed. In the interest of time, I will focus on just two.

First and foremost is the dramatic decline in the neutral federal funds rate. Since January 2012, the median estimate of the neutral rate in the SEP has fallen 1¾ percentage points—from 2¼ percent to ½ percent. The secular decline in *r** is not limited to the United States. It is also seen in many other countries. It reflects longer-run trends in demographics and other global forces that are unlikely to go into reverse anytime soon.

A lower *r** constrains the ability of monetary policy to offset the effect of negative shocks to the economy. And in a standard inflation-targeting policy framework, this asymmetric constraint causes inflation and inflation expectations to be below the target rate on average—an observation that Dave Reifschneider and I made in our 2000 paper on the zero lower bound. And, as shown in that article and in subsequent research, including my more recent work with Thomas Mertens, aiming for an inflation rate that's above the long-run target when monetary policy is not constrained by the lower bound can be effective at anchoring inflation expectations at the target in a low-*r** world.

Second, the experience of the past decade has shown that a standard inflation-targeting approach, as enshrined in our existing long-run goal statement and in the strategies of many other central banks around the world, has simply not been up to the task. Inflation has been below target most of the time, and measures of inflation expectations have drifted down. This decline in trend inflation creates a pernicious feedback loop of reduced policy space, and even lower inflation expectations, and so on.

Again, this experience is not unique to the United States—indicating that it stems from factors common across countries, rather than from idiosyncratic developments in individual countries. Indeed, most inflation-targeting advanced economies have struggled to achieve their inflation targets on a sustained basis over the past decade.

The new statement directly and effectively addresses the problems caused by low *r** and persistently low inflation. First, it stipulates that a temporary overshooting of the inflation target will likely be desirable in order to keep inflation and inflation expectations centered on the 2 percent long-run target. Second, it makes clear that we seek inflation that averages 2 percent, consistent with our longer-run target. And, finally, the "employment shortfall" language clearly demonstrates that we are committed to our maximum-employment goal.

Taken together, these changes will meaningfully improve our ability to achieve our dual-mandate goals in an environment of very low *r** and persistently low inflation. Thank you.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you, Mr. Chair. The proposed statement brings our longer-run strategy and goals into alignment with key longer-run features of the economy and thereby strengthens the ability of monetary policy to achieve a timely, full recovery in employment, and inflation of 2 percent on a sustained basis.

Three related features of the economy's "new normal" called for this reassessment of our longer-run goals and strategy. First, the equilibrium interest rate is very low—which implies a large decline in the conventional policy buffer. That was abundantly clear in March, when we were able to cut the policy rate only 1½ percentage points before hitting the effective lower bound, in contrast to previous decades, when the policy rate would have been cut 4½ to 5 percentage points on average. The loss of conventional policy space can be expected to increase the frequency and duration of periods when the policy rate is pinned at the lower bound, unemployment is elevated, and inflation is below target. In turn, the experience of extended periods of low inflation at the lower bound risks eroding inflation expectations and further compressing conventional policy space.

Second, underlying trend inflation is somewhat below the Committee's symmetric 2 percent objective, according to various statistical filters. With inflation short of 2 percent for almost all of the past 10 years, there is a risk that households and businesses could come to expect inflation to run persistently below target and change their behavior in a way that confirms that expectation.

Finally, the sensitivity of price inflation to labor market tightness is very low compared with earlier decades. This means that we should take care not to withdraw support preemptively on the basis of on a historically steeper Phillips curve, one that isn't currently in evidence.

Four important changes in the longer-run goals and strategy statement respond to these features of the "new normal" in what I find to be a compelling and pragmatic way. First, in defining our goals, the statement replaces a numerical estimate of the natural rate with a broad-based and inclusive concept of maximum employment. This formalizes a profound change in the approach the Committee has taken over the past few years, consistent with research and experience indicating that price inflation is much less sensitive to labor market tightness than it historically has been.

Had the Committee been content to remove accommodation when the U-3 unemployment rate reached a then-prevailing estimate of the natural rate, we would have walked away from a significant portion of the working-age population at great cost. By allowing the labor market to continue healing after the U-3 rate reached the SEP median definition of the natural rate of roughly 5 percent in the fourth quarter of 2015, it created conditions for the entry of a further 3½ million prime-age Americans into the labor force—a movement of nearly 1 million people out of long-term unemployment and opportunities for 2 million involuntary part-time workers to secure full-time jobs. It supported a further 3½ percentage point decrease in

the Black unemployment rate, a 2¼ percentage point decrease in the Hispanic unemployment rate, and a nearly 3 percentage point increase in the labor force participation rate of prime-age women.

The observation that employment gains come late to the communities facing the greatest challenges was one of the key "takeaways" from *Fed Listens*. Recall Juan Salgado describing how the tight labor market this time last year was finally giving his students at the City College of Chicago, who are largely Black and Hispanic, the opportunity to apprentice with local businesses in jobs that historically have not been open to them.

Second, to address the downward bias to inflation associated with the decline in the neutral funds rate, the statement defines our price-stability goal as the achievement of inflation that averages 2 percent over time. This means that monetary policy will likely aim for inflation moderately above 2 percent for some time following an undershoot, which is the case at present.

Although there appears to be uniform agreement in the Committee on the need for that overshooting, I recognize that a few of us may be uncomfortable with a reference to average inflation. It sounds too formulaic for some and insufficiently well-specified for others. In light of that range of views, my sense is, the language achieves a delicate balancing act pretty well. The "average inflation" language is a faithful reflection of the Committee's discussion in January of a pragmatic approach to implementing a makeup strategy—which I view as essential to arrest the downward drift in inflation expectations, while avoiding the communications challenges and rigidity of a formal AIT rule.

Along with many others, I suspect that policymakers would find communications to be quite challenging under a formal AIT rule, in part because of time-inconsistency problems and in part because of the rigidity of it. Analysis suggests it could take many years, using a formal rule,

to return inflation to target following an ELB episode, and an AIT rule is likely to become increasingly difficult to explain and implement as conditions improve over time. I prefer the proposed flexible approach that is encapsulated in our new consensus statement.

In my mind, the commitment to undertake a review of the new strategy and goals in five years is a pragmatic way to address the time frame for the makeup period. Inflation has now run below 2 percent for almost all of the past decade. I suspect that there would be considerable discomfort in choosing such a long makeup window when following a largely untested approach. So, instead of locking ourselves into a specific makeup window without any experience on which to draw, the five-year review will provide a vital checkpoint to see how well the new approach is working and adjust course as appropriate. Depending on conditions prevailing at the time of the review, the Committee will have the opportunity to refine the flexible inflation averaging approach or to move away from it entirely.

Third, the statement formalizes the asymmetry of the Committee's reaction function with respect to employment and the symmetry with respect to inflation by minimizing shortfalls of employment and deviations of inflation. In the context of low underlying trend inflation and a flat Phillips curve, the Committee effectively has been setting monetary policy to minimize the welfare costs of shortfalls of employment from its maximum.

In contrast, with respect to inflation, we recognize there are costs to persistent deviations from target on either side. The statement also reiterates our commitment—which has been given concrete expression during the present crisis—to use our full range of tools. And it drops language about a "balanced approach"—whose meaning was not clear to me—in favor of a more accurate description of how we pursue our dual-mandate goals in parallel, using those tools.

Fourth, and finally, the statement codifies the key lesson of the GFC that the stability of the financial system is necessary for the achievement of our statutory goals of maximum employment and price stability. The same changes in the environment that prompted our monetary policy review have important implications for financial stability.

Historically, when the Phillips curve was steeper, inflation tended to rise as the economy heated up—which prompted the Federal Reserve to raise interest rates to restrictive levels, which would tighten financial conditions. More recently, with underlying trend inflation low, a flat Phillips curve would have to sustain the federal funds rate below the neutral rate for much longer in order to push inflation back to target sustainably. The resulting expectation of low-for-longer interest rates, along with sustained high rates of resource utilization, are conducive to increasing risk appetite, "reach for yield" behavior, and incentives for leverage. With risks to financial stability consequently more tightly linked to the business cycle, it would be preferable to use tools other than tightening monetary policy to temper the financial cycle.

Finally, it's important to pay tribute to the thorough and deliberate process of engagement that the Chair and Vice Chair have led us through over the past year, as well as the excellent and indispensable contribution of Ellen Meade. Each of the changes emerged from thorough Committee deliberations over five meetings informed by 13 excellent staff memos expertly orchestrated by Thomas Laubach, along with Marc Giannoni, Jeff Fuhrer, and David Altig. Our deliberations were greatly enriched by *Fed Listens* engagement with communities in every District of the country, as well as excellent papers presented by outside experts.

In my view, the statement breaks important ground. It defines maximum employment as a broad-based and inclusive goal and price stability as the achievement of inflation that averages 2 percent over time. It explains monetary policy will seek to mitigate shortfalls, rather than

deviations, of employment, and deviations of inflation from its target. And it notes that safeguarding financial stability is necessary to achievement of the dual mandate.

While we could not have anticipated the extreme challenges posed by the COVID-19 crisis when this exercise was launched, the key changes in the statement put us in a much stronger position to facilitate a return to full employment and the achievement of 2 percent inflation on a sustained basis. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. When this exercise was first conducted, I believe the view by many of the participants was that the document would change relatively little over time. As we have learned, both the economy and circumstances can change significantly, and this statement does a nice job of capturing many of the needed changes.

The 2012 statement highlighted the dual mandate but had a reaction function that did not anticipate long periods at the effective lower bound and a sustained period of undershooting our inflation target. As a result, the Committee adapted and has implicitly followed a reaction function over the past several years that seems to be much better captured in the current statement. The statement more clearly acknowledges that anchoring long-run inflation expectations at the Committee's 2 percent target might require achieving inflation outcomes that roughly average 2 percent over time. Without any explicit time dimension, this should not be interpreted as the Committee now following a price-level targeting strategy or strict inflation averaging. Rather, it is a statement of the Committee's intention to overshoot the 2 percent target after periods of sustained undershooting if it is needed to center long-run inflation expectations at 2 percent. I would expect the overshooting to last only for the time needed to ensure that long-run inflation expectations remain well anchored at the 2 percent target.

I view this change in the Committee's statement of its reaction function as necessary. It now seems possible that sustained periods at the effective zero lower bound have skewed realized inflation outcomes below 2 percent and weakened long-run inflation expectations, absent an explicit commitment to overshoot the 2 percent inflation target in good times.

This is not, however, the only change in the Committee's stated reaction function, compared with the one described in the 2012 statement. Importantly, the new reaction function appears to be asymmetric in its response to employment, as monetary policy now responds only to "shortfalls," rather than to "deviations," from full employment. My own personal preference would have been to maintain the language on deviations from full employment, rather than moving to an apparently asymmetric stance. If the natural rate has fallen so significantly, it is not a shortfall that disappeared but, instead, the deviation that narrowed before the pandemic. Distinguishing between a declining natural rate and reacting only to shortfalls in employment still requires calculating our best estimate of full employment.

I am also concerned that rising inflation and financial instability can lag labor market developments. Pushing the unemployment rate too low may ultimately result in the Committee finding itself "behind the curve" in addressing financial-stability issues, for example. In fact, one of my current concerns is that the high corporate leverage prevailing at the beginning of this year is likely to exacerbate bankruptcies and unemployment in this downturn, slowing the subsequent recovery. However, on account of the strengthened attention to financial stability in this statement, I am comfortable with the characterization of our reaction function. If we push the economy too hard, it is possible that if the costs are not evident in terms of inflation for some time, they will appear with less of a lag in terms of financial instability—which would justify reflecting increased vigilance regarding financial risks in our policy stance.

I would mention that, in light our experience with the previous recession and the current COVID crisis, the long-run statement seems likely to need adjustment over time. So I fully support reviewing this publicly every five years—or even at a four-year frequency, reflecting the term of the Chair. One can easily imagine the large increase in government debt or policies that result in too much inflation that would cause future Committees to alter the statement we have before us today. However, this statement captures well the challenges we are likely to face over the next five years, and I support it. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chair. As others have said, I think this was a very good process. Like many others, the language is not exactly what I wanted, but I had the opportunity to give language suggestions on issues like shortfalls versus deviations and other comments here. I ultimately believe compromise was needed, and I am very comfortable with the current phrasing and the fact that the phrasing took into account a number of the comments that I made. I am very comfortable with, and support the aim of, seeing inflation run moderately above 2 percent following periods in which inflation has been running below target. I just did not want to see this as a rigid commitment, and I think this language reflects that.

I am very mindful of the fact that the future is very unlikely to look like the past, and I believe that it will differ in ways that are probably presently very hard to predict and may even surprise us. I would like to see future FOMCs have the ability to adapt to future circumstances. As President Rosengren mentioned, some of the things that I think may cause a surprising change—the amount and growing amount of U.S. government debt, changes in technology, and particularly changes in the role of the dollar as the world's reserve currency—may cause future

circumstances to be very different than the ones we are looking at today. And I think this statement gives us the flexibility to adapt to those.

While the "balanced approach" language has been, I guess, taken out, I still believe, reading this current statement, that financial-stability issues will be explicitly considered. I'm glad that's the case, and that we will not rely solely on macroprudential policy in thinking about financial stability. Excessive debt buildup, search for yield, and particularly embedded leverage buildup in markets are issues that I worry about—they can be hard to identify, and they can happen silently in response to monetary policy developments. All of these have implications, and I do believe—and I'll talk about this later today—that deleveraging embedded in some of these markets was a contributing factor in the seizing-up of markets we saw in March and caused us to take some action, in addition to the COVID crisis, and accelerated some of the instabilities that we saw. I think these fragilities are hard to see, and they can be costly to deal with. I believe this statement continues to give us good latitude to deal with those issues.

Lastly, as I've said before, in terms of our communication with the public, I think the public understands why high unemployment is bad. They understand why high inflation is bad. I don't think they understand why low unemployment and low inflation can be potentially dangerous. And I do believe that, in our public communication, it would be wise if, increasingly, we at least linked low inflation with—and talked about it in the context of—nominal GDP, and we have explained why low inflation can have real dangers of leading to low nominal GDP growth and why, in a country that is this highly leveraged, you need nominal GDP growth that's healthy in order to service debt. I think tying those concepts to nominal GDP in the future may, when we get to that happy situation in which we have low unemployment and low inflation, if we still have low inflation, help us explain it better to the public. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you, Mr. Chair. Like others, I appreciate the effort that everyone has made in moving toward a revised longer-run statement. The process itself gives me confidence that we have done our best to adapt to a changing landscape, putting us in a better position to achieve our goal. So I want to say a special thanks to Chair Powell and Governor Clarida for navigating through this, and to Ellen Meade, of course, and all of the other staff members who were instrumental in getting it done.

Now, in thinking about our new statement, I went back to what I liked about our previous one in 2012, although I was not a Committee member at that time. First and foremost, the 2012 statement helped us navigate the challenges of the Great Recession and take action unpracticed by previous Committees. In particular, by openly defining and agreeing on our objective, the statement facilitated internal policy discussions in the Committee and among the staff across the System. And as a member of that staff, I remember how helpful the statement was in knowing what we should be aiming for.

It also made explaining our actions and the rationale easier both to the public and to other policymakers who are not part of our System. Importantly, the clarity of objectives also provided greater policy space—something Governor Brainard mentioned in her remarks earlier. Clearly stating our inflation target helped anchor inflation expectations at around 2 percent—reducing the risk of further disinflation that could certainly have come out of the Great Recession, but also tempering fears that our policies with the balance sheet would generate runaway inflation.

Of course, the world has changed since 2020, when the original statement was written. We face ongoing downward pressures on inflation, r^*, and potential growth. These are structural

pressures related to demographics and productivity, as Vice Chair Williams commented, and they are both domestic and global. And they mean, together, that monetary policy would be more regularly constrained by the effective lower bound, not only when shocks are large—as they are with COVID—but also when they are more moderate and at the historical average. As a result, the risks to our dual-mandate goals are to the downside.

Now, on our goals, our understanding of maximum employment has also evolved. We know that labor supply is much more elastic or flexible than we had thought, and that the costs of overheating the labor market are more theoretical than actual. Most importantly, as we saw in the recent expansion and heard in the *Fed Listens* events we had, the gains to less-advantaged workers—including racial and ethnic minorities, those who have less education and experience, and even those who have disabilities and are often left behind—are magnified when the economy builds sufficient momentum to "run hot," relative to our standard measures of a sustainable pace.

To my mind, the revised long-run statement accurately acknowledges these issues and outlines a strategy for responding to them as we work to achieve our goal. And here I want to emphasize the word "strategy." What I particularly like about the revised statement is that it lays out the challenges and our overall policy approach without resorting to specific rules or precise formulas that could constrain our ability to respond to emerging or evolving conditions. So it's at a high level, but it gives us a series of guideposts.

And on those specifics of the statement and the revision, I appreciated several things, and I'll just "call out" a few. I appreciated the context-setting in paragraph 2. I thought it was a really nice summary, which allows readers to understand how we see the world and why changes in our strategy are needed.

I also appreciated the revised discussion of maximum employment. It's far simpler, it's transparent, and it's reflective, I think, of our evolving views that, absent inflationary pressures, our goal is to offset shortfalls from full employment. This clarity will strengthen the public's understanding about how we think about our employment mandate, in particular. And I think, for those who participated in *Fed Listens,* it will be able to be directly tied to how their voices were captured in the statement draft.

Of course, in the current economic conditions, what we say about inflation is critically important. As we discussed last year and the work by John Williams, Thomas Mertens, and many others shows, with more frequent lower-bound episodes limiting our ability to provide monetary accommodation, we should actively move inflation moderately above 2 percent in good times in order to keep inflation expectations firmly anchored at our objective during periods of inflation shortfalls. This is crucial, as any slippage in inflation expectations translates one-for-one into less monetary policy space when we need it. So I strongly support the statement language that reaffirms our 2 percent inflation objective and the importance of anchoring inflation expectations. And I also support the explicit statement that moderate inflation overshooting following sustained periods of below-target inflation will likely be the best strategy to achieve this goal.

I also appreciate the clear message that, despite the poor history of hitting our target and the strong disinflationary pressures we face, we are committed to achieving our inflation objective. Most importantly, the statement shows readers that we have a strong strategy in place to try to deliver on that.

Finally, although I hope the next five years are much less eventful than the past, I support the idea of a periodic public review. A regular review is best practice for an evidence-based

institution and allows us to source diverse ideas, revisit our own thinking, and ultimately recalibrate our strategy as needed to achieve our goal. I see the review that was undertaken here, led by those whom I have already mentioned, as setting the standard for future work—how to do it inclusively, thoughtfully, and completely. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari, please.

MR. KASHKARI. Thank you, Mr. Chair. I strongly support the proposed revision of the strategy document. I think it does a very good job of incorporating what we've learned over the past decade on both inflation and the labor market. I agree that the issue of the effective lower bound and low r^* is an enormous ongoing challenge for monetary policy, and the statement rightly draws attention to it.

The downward anchoring of inflation expectations is concerning, and it's related obviously to our undershooting of our inflation target since 2012. I fully support a strategy that allows for moderate overshooting of the inflation target. As others have said, theory suggests that expected overshooting is useful for dealing with the effective lower bound, and I think our bygones-are-bygones approach was detrimental to us achieving our dual mandate post the 2008 recovery.

I strongly believe that referring to "shortfalls" of maximum employment is much better than referring to "deviations." I've never believed that we should be trying to increase unemployment. And I've certainly never wanted to try to explain that to the public. And I think that this is a much better framework for us to have.

Like others, I'm glad we did the review over the past year. I was more sympathetic to something like a price-level target or a formal average inflation target until we did the analysis. And then—like many of you, I think—I realized that tying ourselves to a strict formula has a lot

of downside risks. I think this statement does a very good job of giving us many of the benefits of an average inflation-targeting framework without the downside of tying us to a strict formula, and I think that's a real achievement of this proposal.

I think each of us, if we had the pen, would have our own tweaks. My one concern with the statement is that I still think the financial-stability language is too broad. Every time people talk about it, it sounds great—until I stop and think about it, and then it collapses as I actually think about what we would do differently. My example is: Should we have tightened monetary policy in 2018 or 2019 if we knew COVID was coming? I can't think that that makes any sense to me, even if that would have reduced some of the leverage in the financial system. So I'm going to continue to push us really hard, as we talk about financial stability, to think about how this would actually work in practice, because, again, every time I think about it, it collapses when I think about it. So anyway, thank you, and my congratulations to the Chair, Governor Clarida, and Ellen Meade for leading a great process.

CHAIR POWELL. Thank you. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. Let me start by thanking you, Chair Powell, and Governor Clarida for guiding us through this important project. Developing and forging agreement on a new consensus strategy statement is difficult in normal times. I remember all the work it took to produce the first strategy statement in 2012 and then to add symmetry in 2016. Carrying on such a task while we are dealing with a national crisis obviously requires even more effort. I greatly appreciate all that has been done to formulate the document and to build consensus among the Committee.

I also would like to thank the staff from around the System for all of their hard work during the framework review and the *Fed Listens* events. This goes well beyond the review *per*

se, because much of the fundamental research that has helped inform our thinking on framework topics was conducted by economists within the Federal Reserve System. Everyone's support in the Committee's discussions has been outstanding.

I fully support the long-run strategy statement in front of us today. I will note that this is a consensus document, arrived at following many discussions. I would have written some parts more strongly, but I see this as a very manageable, strategic approach that captures our broader and more diffuse perspectives on inflation and employment risks.

To me, the biggest requirement for updating our monetary policy strategy came from the undeniable realization that the effective lower bound on the federal funds rate was not just an anomaly we stumbled into during the Great Financial Crisis, but a persistent threat to the achievement of our dual-mandate goals. The research on this point is exceedingly clear, and today's policy setting at the ELB is further confirmation. I didn't tabulate all of the months that we've been at the ELB as Governor Clarida did, but it's really an extraordinary number.

For all the well-known structural reasons, the long-run equilibrium real federal funds rate is much lower now than it was in the 1980s and '90s. This means even average business cycle shocks will drive the funds rate to its lower bound. Under traditional monetary policy strategies, the proximity to the ELB will impart a downward bias to inflation and inflation expectations relative to our 2 percent target.

I want to emphasize, the research is very clear that this is a downward bias to inflation—something that is always present and not just a periodic risk associated with a negative shock. The ELB will also impede the achievement of our maximum-employment mandate. I think it is important for us to communicate this fundamental ELB issue up front, and so it seems appropriate that it is addressed in the second paragraph of the statement. I think the inflation and

employment risk language given there conveys the issue adequately—though I would have preferred a stronger reference to downward bias for inflation.

Once it is acknowledged that traditional policy approaches will routinely deliver average inflation and inflation expectations below 2 percent, two things are quickly evident. First, some kind of regular, persistent adjustment is needed to correct this problem. Second, this bias-adjustment at times will require the central bank to deliver inflation above 2 percent, in order to position inflation and inflation expectations at its target. Now, let me just add a little folksy commentary for clarity here: "If inflation never exceeds 2 percent, only in Lake Wobegon can everyone enjoy inflation that averages 2 percent."

The update deletes the previous strategy statement's reference to a symmetric inflation objective. This deletion must be addressed somehow or else it would be seen as moving toward the view that 2 percent is a ceiling on inflation. That would be problematic. The new statement's explicit declaration that at times we will aim to overshoot, so that inflation averages 2 percent over time, is thus crucial for avoiding this misrepresentation.

So, overall, I think the language in paragraph 4 captures the policy imperatives we face today. It says we will seek inflation averaging 2 percent over time. It recognizes the key role of aligning inflation expectations at target, and it acknowledges that achieving these outcomes will require purposely overshooting 2 percent following periods when inflation has persistently run below target.

The research we cover in the framework review put forth a number of specific policy approaches that could offset the ELB inflation bias. I have found a couple of these attractive. One is found in the paper by Mertens and Williams, which also has been written about in the business-economics press by Ethan Harris. Here the central bank targets inflation above

2 percent and expansions to offset lower-than-target outcomes when constrained by the ELB during recessions.

Another related approach comes from work by Bianchi, Melosi, and Rottner, in which policymakers follow an asymmetric policy rule that responds more aggressively when inflation is below target than when it is above target. Of course, the strategy statement does not mention such specifics or any operational details. And I think that's appropriate, for reasons that many have already mentioned.

I've long believed that there's little chance any particular, formulaic monetary policy rule will be robust to all of the changes in the economic environment that inevitably will occur. Yet the principles set out in the statement could easily justify us issuing guidance along the lines of one of the more general policy approaches I just mentioned, if circumstances warranted.

The new statement delivers on another point that is important. I routinely emphasize that outcome-based policymaking is key, and we should focus aggressively on achieving maximum employment and price stability. And when doing so, we should critically gauge our progress and the risk to that progress at every step of the way and use all our policy tools as necessary to achieve our goals. Paragraph 5 conveys these commitments well.

I also strongly support the changes in the description of our employment mandate. What we do matters significantly for people across the distributions of income, wealth, education, job skills, and geography. So it is appropriate that our strategy statement recognizes this diversity by declaring maximum employment as a broad-based and inclusive goal.

The change to emphasize "shortfalls" for maximum employment, instead of "deviations," also is important. We are all aware of the great uncertainty surrounding the linkages between the unemployment rate and inflation pressures. This point certainly was highlighted by our recent

experience with low inflation, even as the unemployment rate fell well below what we imagined the natural rate was just a few years ago.

And as our *Fed Listens* events brought home so vividly, a very strong labor market expands opportunities for individuals and communities often left behind when the rest of the nation prospers. I especially recall one comment given at a panel during the System event that we held in Chicago. When asked about the dangers of a recession possibly following a period of very strong labor markets, Maurice Jones, head of LISCC, responded that in the communities in which his organization works, it always feels like a recession. He noted that it had only been in the middle of last year, when the unemployment rate was at historic lows, that meaningful opportunities had reached these communities.

So I see potentially large benefits associated with us probing how low we can go, particularly today when the risks to inflation are on the downside. This also means that, whenever the Committee pursues restrictive financial policies that limit job market gains in the pursuit of reducing inflation risks, we need to ensure that these actions are calibrated so that they actually achieve an average inflation rate of 2 percent over time and not something more restrictive. We need to remember that the economic and policy environments are quite different now from those prevailing in the 1970s and '80s. And, for me, this consensus statement lands in a good place, by describing how we should act in such times when the pursuit of our employment and inflation objectives are not complementary.

Finally, formalizing a five-year review process is helpful. The world has changed a lot since we first formulated our strategy statement in 2012, and it undoubtedly will change a lot in the future. We have to be ready to adapt to circumstances to deliver as best we can on our dual-mandate objectives.

In sum, I'm on board with the new Statement on Longer-Run Goals and Monetary Policy Strategy. It is a well-stated description of general principles that our monetary policy should follow. And I think it will serve us well in supporting whatever specific operational tactics we choose in the months ahead as we support the recovery from the pandemic crisis. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard, please.

MR. BULLARD. Thank you, Mr. Chair. I want to join others in congratulating those involved in putting this process together. This is the first-ever review of our framework. I'm recalling now that only a few members here were around at the time of the 2012 statement. I'd remind the Committee that that statement was really designed to establish an inflation target for the United States—that was the main goal—and then include, in connection with that, explanatory factors based on ideas coming from Chairman Bernanke, who wanted to do that as soon as he became Chair—indeed, much earlier than that.

So I think the original statement did accomplish that. It established an inflation target for the United States in an environment in which we had previous Committees that did not want to do that. Notably, former Chair Alan Greenspan did not want to do that. So it was a massive change, I think, in U.S. policy to establish that target. And I think former Chair Bernanke, in particular, wanted to maintain credibility for the inflation target during a major crisis. That comprised a lot of the thinking behind establishing the inflation target in 2011 and 2012. And some people around the table today, including me, were very closely involved in that process.

Now, this is the first-ever review of that framework. This is an important milestone. I think we are meeting an international standard that is evolving on best practice in central banking—that you would try to be more transparent about what kind of framework you're using,

even with a big committee like this, and you would review that framework on a regular basis. So I think we're establishing an excellent best practice here, and I think this process has resulted in meaningful changes. For those of you who heard me talk during earlier incarnations of these discussions, I was concerned that we would go through this process and reaffirm our long-run statement, and that that might ring a little bit hollow. But that is not what has happened. Instead, we've got a very meaty set of changes here, which I'm going to run through in just a minute. But I think that's also something that has to be managed now as we go forward with this statement. We've got a lot of moving parts and a lot of very good changes, I think—but a lot of them.

I take the view that a lot of what's going on here is that the current document is codifying the actual framework that the Committee uses, with more emphasis on six areas, which were not really talked about that much in the previous document. First of all, there are ideas here revolving around price-level targeting, its close cousin nominal GDP targeting, and other rubrics that are closely related, including average inflation targeting and makeup strategies. I think during the academic side of our policy review, we heard a lot about these ideas. There are a lot of frameworks for which something like nominal GDP targeting or price-level targeting turns out to be the optimal policy. Those are theoretical frameworks, but I think these ideas help better align the Committee with current thinking in academia about what an optimal monetary policy would really look like.

Now, I agree with those who are saying here today that you don't want to get into some kind of explicit formula for actual policymaking, because we know that we operate in a world that's changing all the time and that models can be wrong and all kinds of other things matter. So I definitely would not want to go to an explicit formula. That would be much too difficult for

actual policymaking. But we're taking a step in the direction of something like nominal GDP targeting or price-level targeting with the idea that we'll try harder to hit the inflation target on some sort of average basis.

I very much appreciate the comments made earlier by Vice Chair Williams and President Evans and others that if you don't do this and the effective lower bound is sitting out there, you're going to get too-low inflation, on average, over a very long period of time. And I especially would emphasize President Evans's comments just now that that happens regardless of how often you hit the effective lower bound. Just the fact that it's out there and you can hit it every so often is enough to create a downward bias in inflation.

This makeup strategy, or average inflation target—whatever you want to call it—is going to help us on that dimension, we hope, and that's why I'm very supportive of this aspect of the changes. And so I think that's a good change.

Second, the new statement does a better job of just simply acknowledging the difficulties of the effective lower bound and acknowledging that this is the main challenge for central banking globally over the past 10 years and again over the next 10 years. We're in the middle of a process in which we're trying to cope with the effective lower bound. These difficulties have dominated global central banking, and we have to acknowledge that. With the new statement, I think we're doing a much better job on that dimension.

I think we're also doing a better job in this statement of stressing the inclusivity of the Committee's employment mandate. In my view, having been a macroeconomist for a long time, this has always been true. In the models I work with, you care about everybody who's in the model—rich and poor all together. But I think we have not communicated that effectively. So

now we're communicating more effectively on that dimension as well, and I think that should help increase the transparency of the Committee's policy as we go forward.

The new statement also stresses that, with respect to the employment mandate, the concern is with cases when unemployment is too high, and not so much concern with cases when unemployment is "too low." I think this also reflects the actual behavior of the Committee, the comments by Governor Brainard earlier about the flatness of the Phillips curve, for which the evidence has become overwhelming over the past 15 to 20 years. I think this will help us enormously. It does mean an asymmetric loss function on the employment side of the mandate. This is something that I think will change some of the analysis we do as we go forward, but I think it will help us greatly in communications, again, and transparency on how the Committee is really thinking about this issue. And for those who are concerned about inflation, we still have the inflation side of the mandate. So, if inflation gets out of control, then, obviously, we're going to act on that as well. So I think it's just, again, better transparency and better communication.

I think this statement does a better job also of acknowledging that risks to financial stability have an important role to play in the assessment of the current stance of monetary policy. As we all know, all of us have worried about and fretted over what seem to be financial market bubbles. I think we're well aware that in our public communications the Chair has indicated that the past two recessions before this one were caused by financial bubbles, which seem to explode and cause a recession. We're certainly keenly aware of this, and I think we need to have that be part of the statement. This has been a challenging thing for the Committee, since at least the 1996 Greenspan speech on irrational exuberance, and will continue to be an important consideration in the future. So I think we needed to acknowledge that that comes into

the policy debate, that we do have an eye on that, and that we are thinking about it when we're making monetary policy.

Finally, this statement establishes a commitment to a regular review process—which, again, I think is part of an evolving international standard in this area. It makes sense for any business or any public entity that's making policy to have this kind of process in place. And this first-ever review is showing that when you do this, you really get great input and great ideas about how you can better communicate and better reflect what we are actually doing. So I am very supportive of all of these changes, and I think that the review process has accomplished quite a lot.

However, in order to keep this discussion from continuing in the "love fest" tradition, I'm going to suggest a few changes that might be made. I do think that "good writing is in the rewriting." And I do think there is some slight risk here with respect to the current statement, so I'll just make three comments on how this might be mildly improved just in the next few weeks here.

First of all, many of you have talked about the word "averages" in paragraph 4, but I'm supportive of the language here, and I think it will strengthen our commitment to 2 percent. So I would actually leave that one alone.

My main point, though, on the writing would be that paragraph 2, as written, ends abruptly. Let me just remind you what paragraph 2 says. It's talking about the effective lower bound, and the last sentence is "Owing in part to the proximity of interest rates to the effective lower bound, the Committee judges that downward risks to employment and inflation have increased." Now, if you just stop with that, I think the interpretation might be that the Committee feels it is out of ammunition when it hits the effective lower bound, or it has nothing

else that it can do, or that we're making excuses for missing our targets once we hit the effective lower bound—which I do not think is reflective of the spirit of the Committee and the very strong commitment to use other policy tools in that circumstance. And because we're going to be at the effective lower bound for quite a while, I'm not sure we want to send that message.

I would like to add a sentence at the end of paragraph 2 that is really just bringing a sentence from somewhere else. The new sentence would say "In circumstances where the effective lower bound is encountered, the Committee is prepared to use its full range of tools to achieve its goals." So that would complete that paragraph, in my mind. Again, here is the addition: "In circumstances where the effective lower bound is encountered, the Committee is prepared to use its full range of tools to achieve its goals of maximum employment and inflation at target."

I think what this would do is complete this paragraph. It would say that we're encountering the effective lower bound more often. Governor Clarida, I guess, gave the statistics on it. It's depressing how often we have been at the effective lower bound and are expected to be in the future. So I think here we want to say that we have other things that we can do in this circumstance, and we plan to use those tools aggressively as we have over the past decade.

So I think that would help us. With that change, you wouldn't need the same statement at the beginning of paragraph 5. So what you're really doing is bringing that first sentence from paragraph 5—I'm not sure why it's there, by the way—over to the end of paragraph 2 to emphasize that, at the effective lower bound, we would do everything we can and go from there.

I have one final change, which would be in paragraph 7. The last clause is to undertake a five-year review or roughly every five-year review. I would change that slightly to say—and I've heard this language here today already—"periodically undertake a thorough review."

"Periodically undertake a thorough review." I think to put the "five years" in there might tie down Jay or a future Chair, because you get to the five-year mark and people are kind of demanding that you get going on your review right at that moment, and it may not be the most opportune moment. So I would like to give future Chairs the flexibility to do it when they see fit and when it sort of fits into everything else that's going on. I wouldn't want to delay it too long, but I would like to see the Committee with a little bit more flexibility on that.

Overall, though, I would say that we're in great shape on this framework review. I think we've learned a lot about our own framework. I appreciate that the Committee's views on these matters have evolved quite a bit in our own understanding—my own views have evolved quite a bit—and I think this document reflects that. And I think we'll get a lot of kudos for having done this and be a leader in global central banking in thinking about how to cope with the effective lower bound going forward. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker, please.

MR. HARKER. Thank you, Mr. Chair. It's very clear that a lot of great thought and hard work went into this revised draft and all the drafts that we've seen. Again, I want to offer my thanks to everyone involved.

I strongly support the key changes to the Statement on Longer-Run Goals and Monetary Policy Strategy suggested by the framework review. However, I have a few concerns regarding language, and I do believe that greater clarity and wording would be helpful. In particular, I think the asymmetric approach to inflation targeting should be clearly spelled out. Thus, my few remaining comments are meant to clarify, and possibly simplify, the language.

Now, the Chair and Governor Clarida have heard these comments before—twice, actually. So I thank them for their patience and for listening. But I figured I'd give it one more

shot. The paragraphs that concern me are paragraphs 4 and 5. These comments are roughly in descending order of priority.

The draft could be interpreted as—and I have to say, when the research team, the Class I team at our Reserve Bank, kicked around the draft, there were different interpretations regarding paragraph 4 with respect to what I think is a critical point. Paragraph 4, as you know, discusses appropriate policy only in the case when inflation is running persistently below 2 percent but does not explicitly state that the goal is asymmetric. I actually see no reason to avoid being clear regarding asymmetry. So perhaps we should alter the clause of paragraph 4 to say "that averages 4 percent over time will require a stronger reaction to the undershooting of inflation and therefore judges"—et cetera.

Now, I realize that, in the context of average inflation targeting, "symmetry" raises issues of time consistency. So I am very sympathetic with the notion of asymmetry. I'm also supportive of treating the employment objective asymmetrically, as well. So maybe it's the case that, instead of doing so in the statement, we handle the explanation of this point in subsequent FOMC statements. And we can do that to make it abundantly clear exactly what we mean by this language.

But I do have to say that there was some ambiguity found by members of my team when they were interpreting some of this. So I just think it may be worth explicitly using the word "asymmetry."

Paragraph 5, of course, introduces financial stability, and I believe the last sentence could be modified. So I agree that financial stability should be addressed in the framework. But the language about financial stability should indicate that supervision and regulation, as well as macroprudential tools, remain the primary tools, and only in exceptional circumstances—really

threatening the goals of price stability and maximum employment—should financial stability be a primary policy driver.

Now, I realize that financial stability is a matter that comes under the governance of the Board. But the Board—and I applaud the Board—has been very open in seeking the full Committee's views on what we think, and that indicates that we make our policy in a very collaborative way. Indicating the collaborative nature of this institution, I think, is a worthwhile communication, again, in any changes we make here.

The final sentence of paragraph 5—here I want to echo what President Bullard just said, in terms of maybe clarifying some of this in an edit—appears a bit cumbersome, and I have to say that it appeared a bit cumbersome to my team. So we suggest deleting the parts concerning the medium-term outlook and the balance of risk by simply saying, "Therefore, the Committee's policy decisions will take into account risks faced by the financial system," and just finish there—and let the rest be handled by subsequent FOMC statements.

The last thing I think nobody mentioned is, we've dropped any reference to the SEP. And, from talking to the Chair and Governor Clarida, I understand that we can handle that in the press conference and other ways. But that clearly will be noticed. And so I just think we have to note that some will interpret this as we're not doing the SEP anymore. I don't think we mean that; I wouldn't support such a move. And, again, the Chair can handle that in the press conference. But just note that that is something that will be noticed by the press and by the public more generally, because they love the dot plot.

So, in sum, I just offer these comments and suggestions to strengthen the document. However, I truly understand the difficulty in achieving consensus on such a document and would support the current draft without changes, if that is the collective wisdom of the Committee. But

if we're going to do some final editing, at least think about some of these changes. And the reason I say that is that I believe it's much more important right now to complete this process as soon as possible rather than to continue to iterate on drafts. The public is expecting us to finish this, and it is time to finish this. Thus, I can support the document.

And, again, I want to thank everyone involved for implementing not just a good process now, but a process that I really think sets us up for every time we do this. This is a great process, and I frankly wouldn't change it too much. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester, please.

MS. MESTER. Thank you, Mr. Chair. I've been very supportive of the Committee's review of our monetary policy framework, which has assessed possible enhancements to our strategy, tools, and communication practices in light of changes in the economic environment that are expected to continue to prevail over coming years. This review has been informed by our experience during the Great Recession and its aftermath and by economic theory, empirical analysis, and outreach to our constituents.

The revised Statement on Longer-Run Goals and Monetary Policy Strategy is an important output of the framework review. Now, one important change in the economic environment that has implications for monetary policy is the decline in the longer-run neutral interest rate. This decline reflects several factors, including the aging of the population, changes in risk preferences, and slower productivity growth. Lower neutral rates mean that it's more likely that the Committee's policy rate will be constrained by the effective lower bound, and that a number of tools, including forward guidance and the expected path of the policy rate and balance sheet policy, will need to be used more often than in the past.

Another change in the economic environment in recent years pertains to inflation dynamics. Resource slack has been less correlated with actual inflation than in the past, and inflation expectations may be playing a larger role in determining inflation outcomes. The lower general level of interest rates likely to prevail in future years, the proximity of interest rates to the effective lower bound, and changes in inflation dynamics all may impart a downward bias to inflation and inflation expectations. And these are important considerations in our monetary policy strategy as we go forward.

Now, when the process for revising our consensus statement began, I had hoped that the revised statement would elaborate on the nexus between monetary policy and financial stability. The lower general level of interest rates, which is discussed in the revision, also has the potential to increase risks to financial stability to the extent that a prolonged period of low interest rates spurs search-for-yield behavior, encourages higher debt levels, and erodes lending standards.

We might have included language that spoke about the first line of defense against these potential risks being sound through-the-cycle financial system regulation and supervision coupled with macroprudential tools, including stress tests and the countercyclical capital buffer. And the statement could have explained that, in light of the importance of financial-system stability for the achievement of its longer-run monetary policy goals, the Committee does take into account the potential effect of monetary policy on risks to financial stability. However, revisions like this will likely have to wait for the next review, in five years' time.

So let me concentrate on the revised draft in hand. Now, in evaluating the proposed changes to the document, I'm using two criteria. First, do the changes reflect a strategy that would be more effective in meeting our goals in light of changes in the economic environment? And, second, do the changes do a good job of communicating our strategy? The latter is

important because effective policy communications will help align the public's policy expectations with those of policymakers, thereby making policy more effective.

In my view, the draft consensus statement includes two important changes to our strategy. One pertains to our inflation goal and the other to our employment goal. With respect to inflation, the significant change is the language that says that "when inflation has been running persistently below 2 percent," the Committee "will . . . aim to" have inflation run "moderately above 2 percent for some time." This is considerably stronger than saying that when inflation has been running low, we would tolerate inflation being above 2 percent for a time, and it's stronger than indicating an inflation range that is symmetric around 2 percent. The new language makes it clear that not only will we tolerate serendipitous shocks that move inflation above 2 percent, but that we will take policy actions intended to move inflation above 2 percent for a time after inflation has been running persistently low. I view this as a significant change. And I support it, because it clarifies our intentions and because it's appropriate in light of changes in the economic environment. And it's also consistent with our longer-run goal of 2 percent inflation.

I have concerns about the other change, in which we indicate that we seek "to achieve inflation that averages 2 percent over time." As currently written, I don't think it makes our intentions clear. "Average" is a mathematical construct. Referring to "average inflation" without giving the time frame over which the averaging occurs and the starting point for the averaging will foster confusion about what the Committee's effective inflation goal will be over the next few years. Furthermore, it will be hard to judge whether the Committee has met the "average inflation" criterion. Rather than aligning the public's policy expectations with ours,

this language could make the public more uncertain about the future course of monetary policy, undermining the purpose of communicating the strategy in the first place.

Consider the following example. Some people may think that the Committee intends to bring average inflation since 2012 up to 2 percent in three years. If so, they'll think that we will be aiming for inflation to run at around 3 percent over the next three years. Other people may think that the Committee is aiming for inflation since 2017 to average 2 percent. This means they'll think that we'll be aiming for inflation to run at around 2¼ percent over the next three years. These shorter-run inflation intentions are very different, and the associated expected policy rate paths will also differ. Without offering more information, the Committee would be increasing uncertainty about future policy, not reducing it, and potentially misaligning market expectations with those of policymakers.

I also have concerns about the language on inflation expectations in the current draft, which says we want to anchor inflation expectations at 2 percent. First, I think it's important to indicate that it's longer-term inflation expectations that we want to be well anchored. In fact, if you're aiming for inflation to run moderately higher than 2 percent for a time, you'll need to have short-run inflation expectations above 2 percent for a time as well.

Second, I prefer that we say that we want to anchor longer-term inflation expectations at levels consistent with the longer-run 2 percent inflation goal, rather than saying we want to anchor expectations at 2 percent. There are many measures of inflation expectations, and a level consistent with our longer-run 2 percent inflation goal differs across measures. For example, three-year-ahead inflation expectations in the Federal Reserve Bank of New York's Survey of Consumer Expectations have been above 2 percent ever since its publication began in 2014. I don't think our policy actions are trying to bring this measure of inflation expectations down to

2 percent. So my preference would be to drop the reference to "average inflation" and go back to the "inflation expectations" language in the first draft of the revised statement.

In the interest of consensus, in lieu of the former, I think there are ways of adjusting the language to soften the quantitative aspect of "average." Namely, after the first two sentences that focus on the longer-run goal of 2 percent, we could add "In pursuit of this objective, the Committee" before "judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time," which is the same language that's in the current draft. But then we could say "Inflation averaging 2 percent over time will help keep longer-term inflation expectations firmly anchored at levels consistent with the Committee's longer-run goal of 2 percent, thereby fostering price stability and moderate long-term interest rates and enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances."

Now, the other significant change in the strategy document concerns our employment goal. The Committee has struggled with the fact that our assessments of maximum employment have changed significantly over time, as well as with the fact that some have interpreted the statement's language about deviations of employment from the Committee's assessment of maximum employment as meaning that the Committee sometimes sets policy with an aim of bringing employment down.

The statement changes the language from "deviations from maximum employment" to "shortfalls from maximum employment," so these proposed revisions seem to shift the employment objective from one that is historically focused on the maximum sustainable level of employment to one that focuses on the maximum level of employment that's possible.

Now, one could read this language as saying that, in the absence of inflationary pressures or risks to financial stability, monetary policy will not react to strong employment. And that's certainly understandable as a communications approach for the general public. But, taken at face value, this objective runs counter to our structural economic models—in which there is an efficient level of employment, and, in order to maximize social welfare, policies should mitigate deviations from this efficient level. In addition, the proposed language doesn't address one of the issues that we've struggled with—namely, that there's considerable uncertainty regarding our assessments of maximum employment, particularly in an environment in which the Phillips curve is flat, like it's been recently.

Rather than the revisions offered, I think a better way to capture the message we want to send to the general public and to deal with the fact that our assessments of maximum employment involve a lot of uncertainty is to avoid explicit references to deviations or shortfalls from maximum employment and discuss instead our aim to stabilize inflation and employment at levels consistent with our longer-run objectives. My preference would also be not to reorder employment and inflation throughout the document. I think this is going to bring back questions about whether we view our dual-mandate objectives as hierarchical—and that was a conversation that went on at the time of the creation of the 2012 statement—especially because the draft omits the "balanced approach" language that indicated we view the goals as equally important.

The document is clear that inflation over the longer run is primarily determined by monetary policy, so we can set an explicit numerical goal for our inflation objective. And, in contrast, various nonmonetary factors affect employment. It was for this reason that the inflation goal was discussed before the employment goal in the original 2012 statement, and I imagine that's why it was maintained that way in the first version we got of the revised statement that was

circulated to us earlier this month. So my preference is to retain that ordering, in order not to signal something we don't want to signal.

Finally, I've heard what people around the table have said about the language "The maximum level of employment is a broad-based and inclusive goal." But I'm not sure the public is going to understand the intent here. Labor market conditions vary across different demographic, income, and education attainment groups. In recent years, the Committee has appropriately been looking at these differences. But it's been careful not to imply that monetary policy will be used to overcome differences that reflect more structural factors or to achieve employment objectives for particular demographic groups. In fact, one could read the proposed new language as saying that the Committee is now going to only concentrate on looking at employment in the aggregate. After all, the headline employment numbers are broad based and inclusive. I don't think that's the intention, nor do I think it should be.

Instead of the shorthand language, why not be more explicit? When we say in the paragraph that when making assessments of maximum employment we consider "a wide range of indicators," why don't we say these indicators include those measuring differences and labor market conditions by demographics, income, and educational attainment? And we could even acknowledge that, though monetary policy cannot effectively address the structural factors that influence these differences, a monetary policy that fulfills the Committee's statutory mandates benefits all groups. I think that would be a stronger statement that we're committed to hitting those goals.

I want to thank Chair Powell and Governor Clarida for the opportunities that they've provided to the Committee for engagement on the consensus statement language and also Ellen

Meade, Thomas Laubach, and the staff for the great work that they've done in getting us to this point. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin, please.

MR. BARKIN. Thank you, Mr. Chair. I've spent 30 years in a profession in which a big part of my role was to help people with different views come together on a common strategy. I know—and listening to the discussion to date has validated—that drafting by committee is painful. As a consequence, I'm going to try hard not to focus excessively on particular words or phrases. Instead, I'll focus on what I think the new statement suggests we've agreed on, in hopes that we, in fact, do.

It suggests we're willing to tolerate lower unemployment than we might have in the past, unless we sense higher-than-desired inflation or risks to financial stability. It suggests we're willing to allow inflation to run moderately over our target after extended periods below, in part because of concerns over r^*'s proximity to the lower bound. It suggests we're not adopting a formulaic approach to inflation targeting. It acknowledges that achieving our mandate depends on a stable financial system. I agree with all of these.

Coming back to my experience: Defining a strategy is one thing, implementing it is another, so the "heavy lifting" for this framework, I think, is still in front of us. Like President Mester, I do worry that people will misconstrue the sentence about averaging to try to hold us accountable to a formulaic approach. And, independently, I'd made much the same suggestion on language that she has made. I appreciate Governor Clarida's clarity on this upfront, as well as everyone else's clarity on this during the discussion. And I guess I just hope and expect that, in our upfront communication and in the minutes, we'll make clear what we mean and what we don't mean here.

Like others, I also worry that we'll struggle with how to treat risks to financial stability in our decisionmaking process. This has been a challenge historically, as President Bullard said. Like many others, I believe extended stays at low rates amplify "reach for yield" behavior and contribute to excessive leverage. But what would have to happen for us to act on these risks to financial stability, and what actions would we take? I would welcome further work on those questions. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chair. Like others, I want to begin by thanking you, Chair Powell, and Governor Clarida for the methodical and inclusive process that generated this document. And thanks to Thomas, Ellen, and the entire team for their work on this.

It's always difficult to construct a statement that will totally satisfy all of the wishes of a large and independent committee like this one. And I very much appreciate the effort to find a "sweet spot" that can generate consensus. I also appreciate the fact that all of us have to enter into this deliberation with a spirit of compromise and individually seek "good enough" and not perfection.

Although I have some issues to raise concerning the draft statement, I want to be clear that I share the view of my colleagues that many of the changes more accurately reflect how we will approach policy in the near term, and possibly medium and long terms. This is, indeed, a good document.

But, in general terms, my concern about the draft statement in its current form is that it seems to exist uncomfortably in a zone between a general statement of long-run strategy and an operational statement that is strongly conditioned on current and medium-term economic conditions. In fact, in my reading, it leans strongly to the latter type of statement.

Now, this may be appropriate, as the most important of those conditions—low r^*, below-target inflation, and persistent overestimation of the NAIRU—have been with us for a long time. But these are facts until they're not, and at times the statement reads like we are unable or unwilling to contemplate any alternative configuration of economic circumstances. Now, I think this problem—and at least it's a problem in my view—can be resolved with some relatively straightforward adjustments. I'll return to that momentarily. But I'll first discuss some specific things that I think we need to think through.

Beginning with paragraph 2: I share the concern that President Bullard expressed about the final sentence. This sentence "calls out" the lower bound as having increased downward risks to employment and inflation. Now, I fear that this, left alone by itself, may imply a presumption that the tools we can deploy at the lower bound are less effective at stabilizing the economy than our traditional interest rate instrument. I suppose that we should say so if we believe it. But I, for one, am not sold on that idea. And if I did believe that the lower bound substantially altered the downside risks to the economy, I would want—in view of the stakes involved for people's lives—to be giving a lot more thought to adjusting our inflation target in order to keep us much more reliably away from the lower bound.

Now, I know this is tricky territory, and I'm not suggesting that we go there. But I think that the final sentence of paragraph 2 is problematic and is not necessary for making the broader point. My initial reaction is that we should be just deleting it. But I actually like President Bullard's recommended additional sentence and would support that.

Regarding paragraph 3, like President Mester and others, I have concerns about the "shortfall" language associated with employment. I think the shift to an emphasis on shortfalls of employment from its maximum level is a fairly radical departure from the framework that has

informed both policy and macroeconomic theory for decades, and I don't think it has to be. The rationale for the traditional symmetric treatment of the unemployment mandate is that deviations from maximum employment are inefficient and unsustainable and ultimately entail costs that we want to avoid. I think that logic is still valid. But I also think it's reasonable to concede, as we all do, that the measurement of maximum employment is highly uncertain, and that the Committee judges that the risks of being wrong are weighted in the direction of us winding up with employment being too low.

The statement, as written, gets close to that sentiment. But it doesn't quite get there, in my view. I'm not sure others share my opinion on this. But if they do, I think we should just come out and say, in plain language, that uncertainty about the measurement of full employment makes us cautious about reacting to a fuzzy notion of employment that seems high on the upside. Alternatively, I would support the language that Governor Clarida used in his opening statement, and it went something along the lines of "Low unemployment, absent concerns about inflation, will not trigger a policy response by the Committee." The passage in paragraph 5 does not say this nearly as clearly as he did.

Finally, on the inflation objective, I like the emphasis on stabilizing inflation expectations, and I'm certainly in favor of supporting stable expectations by shooting for inflation that averages 2 percent over time. That obviously means that I am fine with there being a period of inflation above 2 percent when we have been running persistently below 2 percent for some time and expectations appear to be soft relative to our target. But I am left confused about what we are intending to say about a different set of economic conditions in which inflation runs persistently above inflation for some time.

Paragraph 5 seems to indicate that our views about average inflation performance are symmetric. That is, if we experience a protracted period of inflation running above 2 percent and become worried about inflation expectations becoming unanchored to the upside, we will be willing to let inflation run moderately below 2 percent for some time. This suggestion seems reasonable to me, but I am unclear as to whether that is what we are actually agreeing to. So I share the confusion of President Harker's team with regard to this—which brings me to my original point once again.

I can live with making this document a statement that is highly focused on recent economic history. In this case, there's no need to wring our hands about crafting a statement of strategy that is good for all potential circumstances that might arise, but then I think we should just be clear about that. Given where we're at and where we have been for the past decade, we are going to react vigorously to employment and inflation shortfalls relative to targets and show forbearance when they run "hot" to those targets. In different circumstances, these views might be revised or even reversed. So if the former statement is what we are thinking, then let's just say it as clearly as we can—and not raise expectations that we are articulating longer-run principles beyond the general notions of maximum employment and stable prices. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. As we wrap up the review of our monetary policy framework, like others, I want to thank you and Governor Clarida for your leadership and Ellen Meade, Thomas Laubach, and all the many staff who supported this review. I thought that the process proved worthwhile. It contributed insights to our understanding of monetary policy and certainly demonstrated a commitment to transparency and thoughtful deliberation.

Now, the rubber hits the road, as we consider how we'll reframe our longer-run goals and monetary policy strategy in this consensus statement. Overall, I support many of the changes that aim to deal with words that did not age well in the period since the statement was first adopted in 2012. I was among those who supported the initial statement and the broad meaning of the language that came out of that earlier deliberation, and I think the document has generally served us well. But having observed the dynamics in the economy over the past decade and listened to the consternation that grew over terms like "symmetry" and "balanced approach" and over "maximum employment" metrics, I support incorporating what we've learned and clarifying how it influences our policy decisions.

I see our consensus statement serving primarily as a guidepost for the long run. As we consider changes to the statement, it's important to continue a long-run focus, while being clear about both the problem we're trying to solve and the extent to which changes to this document can address that problem. Throughout this review, I heard few stakeholders "call out" an inflation rate that is too low as a primary economic concern. From this perspective, I see inflation outcomes over the past several years as posing a challenge to our communications more than to economic outcomes. So it seems right to me that we focus on refining our communications regarding the inflation leg of our mandate.

As we restate the strategy for achieving our long-run inflation goal, the new draft retains the conviction that inflation over the longer run is primarily determined by monetary policy. This foundational premise has not been challenged, and I'm not suggesting it should be. But low inflation has been a global phenomenon for some time. Indeed, inflation running below 2 percent has been a feature of the U.S. economy for two decades. That may lead some to

conclude that monetary policy has not tried hard enough to achieve fully the Committee's 2 percent inflation goal over the past decade.

But recent inflation dynamics may also demonstrate the success of the Committee's 2 percent inflation goal, consistent with the 2012 statement's longer-run focus. A protracted recovery from the Global Financial Crisis, low rates of global inflation, and once-in-a-lifetime innovation in the energy industry brought about multiple waves of disinflation that risked bleeding over into longer-run inflation expectations. Yet despite these forces, research by my staff suggests that longer-run inflation expectations have remained reasonably well anchored since 2012.

I do support clarifying our inflation goal. Confusion about the meaning of "symmetry" and concerns that 2 percent might be seen as a ceiling threshold have been a distraction. I support being as clear as we can about our policy reaction. And that comes through, I think, in the proposed language, with an explicit willingness to allow inflation to run moderately above 2 percent. But I find that, in its effort to clarify, the proposed language overcommits and potentially confuses our aim by introducing a new concept—or perhaps even a medium-run objective—according to which we seek "to achieve inflation that averages 2 percent over time." This sets us on a course to fine-tune inflation outcomes to a degree beyond our control and involving potential costs related to financial stability or a misallocation of resources.

It also introduces a mathematical rule of sorts, with undefined parameters, that seems unlikely to have much effect on public expectations or their understanding of our policies. On the other hand, I do expect that it will create waves in the cottage industry of Fed watchers and other market participants as they attempt to back out the parameters of average inflation by studying our policy actions and communications. Under the current outlook for inflation, the

practical implication of this change is a promise that interest rates will remain low for some time. From that perspective, this message can be delivered just as effectively through our postmeeting statement without the unintended complications that the shift toward "soft" versions of makeup strategies or average inflation targeting may create.

In the end, I worry we've traded words like "symmetry" and "balanced approach" for potential new communications challenges at a time of tremendous economic distress and uncertainty.

The process to reach consensus on the 2012 statement left us with some unresolved interpretations of its language, and I anticipate this new draft statement will, as well. But, in that spirit, I can support this new draft, appreciating that we are collectively committed to achieving our mandates as best we can. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Bowman, please.

MS. BOWMAN. Thank you, Mr. Chair. The public announcement of the Committee's revised Statement on Longer-Run Goals and Monetary Policy Strategy, our consensus statement, will be a key milestone in the monetary policy framework review we embarked upon late in 2018. In the history of monetary policy and the Federal Reserve, this has been an impressive effort, and I'm honored to have been able to participate in the process. I have greatly benefited from the many helpful insights offered by my colleagues and the staff. And I'd also like to emphasize the importance of the role of our *Fed Listens* events and the role they played in the review. The outside perspectives shared by participants at those events were invaluable for our subsequent discussions and for my understanding and thinking about these issues.

Crafting a revised consensus statement that is sufficiently appealing to each of the Committee members has certainly been no small task. And I say "sufficiently appealing"

because I think it would be impossible to arrive at a meaningful Statement on Longer-Run Goals and Monetary Policy Strategy that is 100 percent satisfactory to each one of us. And, with that in mind, I'd like to thank the Chair and Governor Clarida for their efforts and also thank the staff, Ellen Meade and Thomas Laubach in particular, for their contributions to this great work and especially in attempting to address our many questions and concerns.

After all, the challenge and also the beauty of our Committee structure is that, while we all work toward the same overarching goals, we bring our own perspectives and experiences to the table. For example, I would have preferred not to see a reference to average inflation in the consensus statement. I don't mind the concept of aiming for outcomes in which inflation fluctuations are centered on 2 percent. But I am concerned that the word "average" has a mathematical connotation—as others have mentioned—that could lead some Fed watchers or members of the public to interpret our revised strategy as one that would bind this and future Committees to follow some formulaic approach to keeping average inflation at 2 percent.

I'm also mindful of the challenge that was reinforced by a sentiment expressed by some of our guests at our *Fed Listens* events of explaining to the public at large why the Federal Reserve would, at times, be working to push up inflation above its own stated longer-run goal. That said, I do appreciate the effort in the current draft to reaffirm that the Committee judges an inflation rate of 2 percent, and not 2 percent on average, is most consistent over the longer run with the Federal Reserve statutory mandate.

I also appreciate the new language on the maximum-employment goal emphasizing that we will consider a wide range of indicators when making assessments of overall employment conditions instead of the narrower focus on the unemployment rate in the 2019 version. In addition, I like the notion that we'll seek to mitigate shortfalls of employment from the

Committee's assessment of its maximum level—a change that I see as a significant improvement on the original statement language that implied that the Committee could take deliberate action to increase the unemployment rate.

Let me conclude by touching on two additional aspects of the draft consensus statement. First, I feel that the draft strikes a reasonable balance between highlighting the importance of financial stability in achieving our dual mandate and avoiding giving the impression that it has somehow become a third leg of our mandate.

Second, I welcome the new paragraph that indicates the Committee will thoroughly review the principles of the consensus statement roughly every five years. Without this language, I would have found it difficult to support some of the judgments expressed in the current draft. I'm concerned, for example, that our country's fiscal policy trajectory might eventually challenge the assessment that short-term interest rates will remain structurally close to their effective lower bound and that, as a result, downward risks to inflation and employment have increased.

Without a clear indication that the Committee will thoroughly review the consensus statement on a recurring basis, the latter assessment in particular would seem more appropriate for our regular postmeeting statements than for our Statement on Longer-Run Goals and Monetary Policy Strategy. I look forward to the next step in this process and to closing this important chapter in the history of the Federal Reserve System. Thank you, Chair Powell.

CHAIR POWELL. Thank you. Governor Quarles, please.

MR. QUARLES. Thank you, Chair. As we move into the home stretch of this review and of this discussion of this review, let me again praise the level of transparency, the breadth of issues and options that we've studied, and the consistently high quality of the analysis that the

staff has provided during the process. As everyone has said, I think that's thanks to many people, but especially to Governor Clarida, to Thomas Laubach and Ellen Meade, and to the Chair. It's been a model for public-sector decisionmaking. I hope that future Committees will see it that way as well.

I'll start by saying, as almost all of you have, that I recognize that this is a practical consensus statement and not an intellectual or religious credo, and that allows me to be broadly comfortable with the proposed revisions. I have some reservations about average inflation targeting, even with this statement's nonformulaic approach to it. I'll say a few words about that, but that would not cause me to dissent from this pragmatic consensus communication.

I should first highlight some strong areas of agreement. Even before the COVID event, it was clear that we had entered into a period in which potential growth and equilibrium interest rates were going to be lower for some time than they previously had been. So I think communicating our expectation that this lower-interest-rate world will persist for some time is consistent with the type of increased transparency that I generally favor. Similarly, the changes we've made to the sentences in the statement about our employment goal are an important reflection of the way the FOMC has actually conducted policy in recent cycles.

As I said when we discussed this topic a year ago, we all recognize that our estimates of the natural rate of unemployment are highly uncertain. And because of this uncertainty, because of the communications challenges inherent in making statements that would essentially translate as "Too many people have jobs," it's been difficult to motivate a tightening of policy on the basis of any particular target for unemployment. And I fully agree with President Kashkari, Governor Brainard, and others that we shouldn't do so.

This challenge was especially clear during the long period of expansion that ended in February, but, previously, the similar period of expansion during the late 1990s as the unemployment rate fell well below estimates of u^* without a rise in inflation. And as this played out most recently, many of us made public statements to the effect that we wouldn't see a need to raise interest rates solely because unemployment had fallen below current estimates of u^*. So I support the changes in the statement, which mean that we now emphasize the role of shortfalls in employment from maximum employment in our deliberations, rather than the more symmetric language of "deviations" in employment.

Let me now turn to what I see as a significant change to our inflation goal. I recognize that the economics and the mathematics behind using a system of average inflation targeting has been well developed and copiously analyzed over the past two decades. And the reasons given by those who prefer this approach to our previous, symmetric 2 percent goal are perfectly coherent. That said, I'm wary as we make such a prominent change in our implicit objective function. Let me note a couple of risks that I see as we transition to this regime. And probably most of them have already been noted.

First, making this change to the statement is only the initial step on the path to implementing the policy. The task will then turn to how we effectively communicate the change in the regime to the public. The public—or at least the Fed-watching public—has a pretty good idea right now of our current process for setting monetary policy: what the inputs into that process are, and how the process ultimately will be resolved.

Within that process, each of us refers to a number of different monetary policy rules, which the staff at the Board and at the various Reserve Banks estimate and occasionally tweak as part of a much broader information set. But with this change, we're focusing attention on the

details of rules governing average inflation-targeting regimes. What determines the start of the averaging period? How long is it? What relative weight is assigned to current inflation versus average inflation? All the questions that President Mester, President George, Governor Bowman, and others have talked about. And the need for FOMC participants to go out and answer those questions over the coming months could lead to an impression that rules and math will play a larger role in our deliberations from now on, or to pressure from the usual quarters to adopt a rules-based approach to setting policy.

The statement gives us an escape clause—which I think is a good idea—by saying that we'll remain accommodative for some time in pursuing a 2 percent average inflation rate rather than making a full commitment to achieving that goal. But the definition of "for some time" is another open question that the public will eventually want answered.

Second, as I've said to the point of monotony, the inflation rate is notoriously difficult to measure. Our imperfect understanding of the key relationships between inflation, output, and unemployment makes it difficult to pin down macroeconomic outcomes over the range of plausible inflation realizations with any degree of precision. So it is unclear to me why we should have a high degree of concern if inflation and inflation expectations were to deviate from the 2 percent target by a relatively small amount in either direction, even for extended periods. For example, the staff baseline forecast for this meeting has unemployment significantly lower by the end of 2022 and inflation running at 1.7 percent; 1.7 percent is maybe a touch low, but it is close enough to our existing 2 percent goal for my taste.

What's important is whether we can successfully convey that we are truly symmetric in pursuing our 2 percent goal. And I agree that moving to average inflation targeting—again, even in this non-Procrustean way that the statement directs us—is one way to make that clearer. But

allowing a considerable rise in inflation in pursuit of a longer-run average of 2 percent may be difficult to contain subsequently, without creating substantial damage to the economy in the event. And so, because of this, the public presumably has strong priors that the FOMC wouldn't tolerate large upward shocks to inflation. Those priors could serve as a limit on the degree of credibility that the new framework can achieve without further clarification.

So I think another important part of communicating this new policy will be providing some guidance about the maximum level of inflation that we'd be willing to accept during the makeup period. And the increased credibility gained by defining a plausible upper bound and carving out an exception for future FOMC members should offset any perceived loss of power in the tool arising from removing the largely empty threat of an even bigger increase in inflation.

I see the main near-term benefit of this change as making it clearer that the Committee will accommodate a period of modest, maybe even moderate, overshooting of 2 percent inflation in order to make up for the extended period of below-target inflation that we're currently experiencing. But such a commitment wouldn't be inconsistent with our current framework. We could simply make that commitment part of our forward guidance in coming meetings. As almost all market-implied and survey measures of inflation expectations show them to be stable or falling and with a long slog to go to get back to full employment, it may seem that inflation risks, which have been mostly dormant for more than a decade, remain a long way off.

But the past is not always prelude. As a couple of you have noted, we can be pretty confident that the challenges we'll face in the future will not track exactly the challenges we have faced in the past. And over the medium term as we eventually return to a time when the economy is in a robust expansion and we're operating near our inflation and employment mandates, the risks of having eased our inflation goal may be more salient. For example, a few

recent developments could alter the conditions that have been integral in keeping inflation low, even during robust expansions over most of the past quarter-century. The increasingly globalized economy has been an important source of competitive pressures on producer and consumer prices and labor costs.

And, even before the COVID event, we were already seeing what was, to me, a worrying pullback from the consensus of the economics profession that the benefits of international trade and the free flow of labor exceed the costs, and that those costs mostly could be managed through the existing safety net and investments in retraining displaced workers. Since the event, we're seeing countries—not just the United States—taking concrete steps to shorten global supply chains, particularly for key sectors like medicines and telecommunications. Google Trends shows that the phrase "Chinese decoupling" was nearly nonexistent in search queries in the five years before this spring, and that when it appeared, it generally was seen to refer to pandas. [Laughter] But it is now quite prevalent.

This protectionist trend or other shocks could lead to a period in which inflation runs well above 2 percent, leading into a future recession. For instance, a run-up in energy prices in early 2007 caused high inflation in the lead-up to the Global Financial Crisis. And had the Committee been using an average inflation-targeting policy at that time, it would have felt more pressure to keep interest rates higher than they otherwise would be—so it would be facing a very different time-inconsistency problem from what we face now.

Last on this topic, I promise—perhaps something that's still a speculative question. Should we be more worried about future inflation risks at a time when public-sector deficits are likely to be elevated for a long time? And, again, this is a point that more than one of you have also made. Many were already questioning the degree to which the United States needed to

flatten the curve of debt to GDP implied by the then-current fiscal policy, even before the COVID event led to an unprecedented level of ongoing fiscal support.

In fact, markets were sending warning signals. Last fall, some funding markets experienced significant strains. Market participants indicated that persistently high Treasury security issuance contributed materially to those strains. With this year's asset purchases that are supporting the economy and alleviating the strains caused by soaring federal debt issuance related to the COVID event, the Federal Reserve has purchased securities in an amount equal to two-thirds of U.S. Treasury securities issued so far in 2020.

Now, of course, the large increases in the Federal Reserve's balance sheet and deficits in the past decade didn't lead to an upward shift in inflation or in inflation expectations here in the United States. And in other developed countries, such as Japan, they've had similarly benign experiences with running large deficits and QE simultaneously. So let's hope that, in this case, to introduce a twist on what is becoming a cliché, "this time is not different."

And, finally, I will end simply by saying to President Evans that it will always be a source of deep professional regret to me that I was not the first member of the Committee to introduce a Lake Wobegon reference into this discussion. [Laughter] Thank you, Mr. Chair.

CHAIR POWELL. Thank you. And thanks to all of you for your thoughtful comments. As is not infrequently the case, I feel that what needs to be said has largely been said. Nonetheless, I am going to charge ahead, as I briefly mention what I see as some of the essential elements of the proposed changes to the consensus statement.

As many of you have noted, the proposed changes flow from an acknowledgment of the prolonged proximity to the effective lower bound and the implications for our conduct of monetary policy as we pursue the goals of maximum employment and stable prices. That

proximity is a function both of a lower real neutral rate and of lower inflation—in turn, a result of demographics, low productivity, and appetite for safe assets—forces that are likely to be with us quite persistently.

In part because of the proximity to the effective lower bound, the statement acknowledges that the risks to our goals are manifestly to the downside, and we say that we are prepared to use our full range of tools, now understood to include at least forward guidance and asset purchases—no longer thought of as unconventional. It's also important, in my view, that the consensus statement be informed by what we learned over the past few years about the relationship between employment and inflation and about what a tight labor market looks like.

For the first time in a half-century, we had close to 2 years below 4 percent unemployment, and yet there was only a modest increase in wage inflation and even less of an increase in price inflation. The flattening of the slope of the Phillips curve and the reduced persistence of inflation have been observed and analyzed for over 20 years. Even so, there were discussions at the FOMC around this table during my time here over whether there would be a nonlinear reaction of inflation once unemployment fell below our real-time estimates of the natural rate. In the event, inflation reacted to 50-year lows in unemployment even less than many had expected.

While we didn't see inflation moving up much, what we did see was that workers at the low end of the pay scale started getting the biggest increases, beginning roughly eight years into the expansion. We also heard from many in low- and moderate-income communities that this was the best labor market of their lifetimes to date, and that they were seeing opportunities they had not seen in a long time, as a couple of you noted. All of this underscores the need to be careful and not to rely too much on our real-time assessment of the natural rate of unemployment

when we set policy. And that, in turn, motivates a switch from "deviations" to "shortfalls" in the paragraph on maximum employment, as well as the statement that maximum employment is a "broad-based and inclusive" goal.

Finally, around the world, we see disinflationary pressures and measures of inflation expectations sliding downward. Major economies have been falling ever further below their inflation targets. The proposed statement acknowledges that, in order to achieve our 2 percent inflation goal, we need inflation to be anchored at levels consistent with that objective and says that the Committee will, therefore, seek "inflation that averages 2 percent over time."

Because we expect inflation to be well below 2 percent when at the effective lower bound, that will likely require deliberate overshoots when we are not. As a number of you pointed out, this is an asymmetric reaction function, just as I suppose Paul Volcker's objective function, had he one that looked something like this, would have been fully asymmetric in the other direction, and appropriately so. That statement about average inflation targeting and the overshoot does not commit the Committee or any participant to develop or use or discuss an arithmetic formula.

In the September 2019 meeting, there was no support on the Committee for such an approach. Instead, there were widespread concerns, which I share. The September minutes laid out those concerns, and commentators have understood since then that the Committee is not interested in such a mechanical or formulaic approach. The statement also does not commit the Committee or any participant to a specific form of forward guidance on rates, either today or in the future. The "big tent" language concerning inflation overshoot and averaging provides essential flexibility and leaves room to weigh all relevant factors in setting policy, including judgment.

This document is meant to express our high-level consensus on the conduct of policy. We'll continue to review it annually and more deeply roughly every five years. As the structural forces driving the economy evolve, the consensus statement will evolve as well. I think these revisions should be seen, and I think they will be seen, by the interested public as a strengthened commitment to conduct policy to achieve our goals, taking on board the very difficult challenges presented by the proximity of the effective lower bound.

I end there. And it is now 12:15. Why don't we take a one-hour lunch break? It's lunchtime here in Washington, D.C., in any case. And so we will resume at 1:15 sharp, Eastern Daylight Time. Thanks very much.

[Lunch recess]

CHAIR POWELL. Okay. Welcome back, everyone. Next, we'll go to the Desk briefing. Lorie, would you like to start?

MS. LOGAN.[2] Okay. Thank you, Chair Powell. My presentation on "Financial Developments and Open Market Operations" starts on page 7 of the consolidated package of materials. I'll refer to the slide numbers on the bottom right for the discussion.

As slide 2 indicates, over the intermeeting period, financial conditions eased slightly. On net, broad equity price indexes were roughly flat, shown at the top of panel 1, even as concerns regarding the resurgence in COVID-19 cases in the United States grew. At the same time, U.S. Treasury yields and other sovereign yields declined, nearing their mid-March lows, and the U.S. dollar weakened. Overall, volatility remained subdued in comparison with recent periods.

In this context, market functioning remained stable at significantly improved levels. New activity in Federal Reserve operations and facilities generally declined, although these are seen as continuing to serve as important backstops.

In reviewing these developments, I'll focus on three key questions, which are outlined on slide 3. First, amid the resurgence in COVID-19 outbreaks, how have market participants' economic outlooks changed and key asset prices responded? Second, how have monetary policy expectations evolved, particularly in the context of the strategic framework review? And, third, how has improved market functioning

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

impacted Federal Reserve operations and facilities, and what are some considerations that lie ahead?

Regarding the first question, considered in slide 4: Market commentary and Desk survey results suggest that while the perceived risk of very weak growth outcomes abated somewhat, the recovery is not expected to be rapid.

Over the intermeeting period, market participants were focused on the resurgence in COVID cases and the risk that it could damp the emerging recovery. Although many May and June economic data prints were not as weak as expected, panel 3 shows that the nascent rebound in real-time mobility and small business activity indicators slowed over the past month. However, our contacts observed that virus-containment efforts are likely to be less disruptive than in March and April, and they underscored the role of monetary and fiscal policy in attenuating a loss of momentum. Indeed, our contacts were increasingly focused on negotiations regarding additional fiscal support.

As shown in the far left in panel 4, a declining share of respondents in our July survey expected GDP to contract by more than 8 percent this year relative to June. Estimates of forward recession probabilities also ticked lower, as shown in panel 5. Together, these observations suggest a reduction in perceived tail risks to real GDP growth. On the other hand, as shown in panel 6, market participants, on average, placed the highest probability on GDP growth next year coming in between 2 percent and 4 percent—a range that suggests a relatively tepid recovery, considering the scale of the expected contraction this year.

So how were these crosscurrents reflected in asset prices?

With regard to U.S. equity markets—on the next slide—while the S&P 500 index was little changed, the effect of renewed outbreaks was clearly evident in differentiation across sectors. As highlighted in panel 7, virus-sensitive sectors and lower-quality firms underperformed, as they have over the broader pandemic episode. As you can see in the dark blue bars, airline and hotel share prices declined by double digit percentages, and share prices for banks—which faced earnings pressures from large loan loss provisions and compressing net interest margins—continued to underperform.

In addition, when we asked about the resilience of equity price indexes to signs of slowing momentum, some contacts pointed to compositional differences between capital markets and the economy. Several contacts, for example, highlighted the disproportionate effect of virus containment measures on small businesses, which are a large share of domestic output and employment but aren't well represented in capital market indexes. In contrast, the information technology sector, which comprises more than a quarter of S&P 500 market capitalization, accounts for only a small share of U.S. employment. These differences are observed in panel 8: The Russell 2000, which includes a wide range of smaller firms and is more representative

of the overall economy, has underperformed both the S&P 500 and especially the large-cap Nasdaq-100.

Some of our contacts also continued to highlight the point that low risk-free rates as well as the perceived responsiveness of fiscal and monetary policy to potential shocks are supporting risk assets. In particular, low yields have kept most measures of equity risk premiums toward the higher end of historical ranges, despite elevated price multiples, and have reportedly encouraged liability-driven investors to reach for yield to meet return targets.

Nevertheless, I'd note that some investors still express concern that equity valuations are high and thus may be more vulnerable to bad news—as Luca will touch on in the financial-stability briefing.

On slide 6, the effect of renewed outbreaks on the economic outlook, alongside expected monetary policy support, was reflected in both declines in yields and the dollar weakness. Nominal Treasury yields declined across the curve, as shown in panel 9, and the curve flattened despite an increase in net Treasury coupon security issuance.

Interestingly, medium-term TIPS-implied breakeven rates continued to recover despite limited changes in oil prices, as shown in panel 10. Contacts highlighted moderating risks of very low inflation outcomes and ongoing improvements in TIPS liquidity. Real yields dropped notably, and longer-dated real yields neared or reached historical lows, shown in panel 11.

Regarding panel 12, in explaining dollar weakness, several contacts noted early signs of diverging outlooks—especially with reopening proceeding more smoothly in many foreign economies—as well as expected Federal Reserve policy. As you can see in the panel, the largest contributor to declines in the broad trade-weighted dollar index over the period was the euro, which drew support from the EU recovery fund and its positive expected effect on the union's cohesion and future growth prospects.

I'll turn to my second question, starting on slide 7: How have monetary policy expectations evolved?

As shown in panel 13, the market-implied path of the federal funds futures rate shifted down a bit. The corresponding path implied by Desk survey expectations also fell, as the probabilities placed on rate hikes next year and in 2022 declined. The shift in the average PDF for the target rate at the end of 2022 can be seen in the shift from the red to the blue bars in panel 14.

The worsening virus situation and leveling off in real-time indicators was certainly a factor shaping these shifts, but, with market participants sensing that the strategic review is nearing completion, they're also increasingly viewing the outlook for policy in the context of expectations regarding your updated strategic goals.

Your next slide highlights these expectations. As outlined in the top left panel, most Desk survey respondents indicated that they expect some form of average inflation targeting to be adopted at the end of the review, and nearly all expect the forward guidance to be updated this year. As shown in panel 16, around 70 percent of respondents anticipate that the change to forward guidance will come at the September meeting. Roughly the same proportion expect outcome-based guidance, with the vast majority expecting it to be tied in some form to inflation. Some expect an employment objective as well.

With respect to expectations for the timing of liftoff, a straight read of market pricing indicates that the first increase in the federal funds rate above the current target range is expected to occur in 2024. This is broadly consistent with expectations given in the Desk survey. Panel 17 shows the distribution of liftoff timing expectations across survey respondents. As you can see, these are centered on late 2023 and early 2024 but range quite widely.

This dispersion in expected liftoff timing seems to be related to differing views about the conditions under which the Committee would lift rates. To assess this, we turned to a new question on the survey that asked respondents for the most likely levels of various economic indicators at liftoff. The bubbles in panel 18 show the distribution of expectations for the unemployment rate on the left and the 12-month PCE inflation rate on the right.

What I find interesting is how wide these distributions are—perhaps evidence that the variation in expected liftoff timing observed in panel 17 is driven to a significant extent by differing views of how policy will respond to conditions. Rochelle will explore this relationship in more detail in her briefing.

The varied views on conditions at liftoff seem related to expectations regarding the outcome of the strategy review. I noted earlier that most Desk survey respondents expect some form of AIT. But, perhaps not surprisingly, they appear to hold a range of views about the form an average inflation target might take, including the horizon over which the averaging might occur and the degree of flexibility in the framework. Just as an example: Many survey respondents suggest that the Committee will raise rates after inflation actually rises above 2 percent; but some others suggest that rates could increase when inflation is only projected to rise above 2 percent. This might help explain why nearly half of respondents expect liftoff to occur when inflation is at or below 2 percent, as shown to the right in panel 18.

Regarding asset purchases, on the next slide, survey respondents noted that they expect the Committee to reaffirm the role of purchases as a standard tool in the framework. And, in light of improved market functioning, many expect the Committee's communications regarding asset purchases to transition at some point from sustaining market functioning to providing accommodation.

Even as they expect the rationale for purchases to change, survey respondents have coalesced around the expectation that SOMA holdings of Treasuries and agency

MBS will continue to increase at the current pace over the remainder of the year, as shown by the flat paths in panels 19 and 20. Looking beyond this year, many expect purchases to continue in 2021, at a slower pace, before tapering significantly in 2022. This is shown for Treasury securities in panel 21 and for agency MBS in panel 22. For the few market participants who anticipate liftoff in 2022, most expect no asset purchases that year. This is consistent with the notion that an asset purchase program would be structured to end before liftoff.

With regard to slide 10, I wanted to highlight some work from Board IF colleagues showing that communications by other major central banks regarding asset purchase programs and other pandemic-related policies have been evolving recently. As market conditions have stabilized, many central banks—most notably the Bank of England and the Bank of Canada—have reframed their communications regarding purchase programs in the context of policy accommodation. Others, such as the ECB, have emphasized both market functioning and accommodation in their recent communications.

Now let me turn to the final question about market functioning and facilities and operations. I'd like to highlight three main themes, which were also discussed in the staff memos circulated ahead of the meeting.

First, market functioning remained stable at significantly improved levels and in many segments has now returned to pre-pandemic levels. In panel 23, conditions in short-term dollar funding markets were stable, with overnight rates trading close to IOER. Foreign exchange swap spreads, shown in panel 24, were also steady.

In Treasury and agency mortgage-backed securities markets, most market functioning indicators have returned to the levels prevailing before the pandemic. As an example, bid-ask spreads for Treasuries, shown in panel 25, and for MBS, not shown, are close to pre-March levels. Importantly, as the functioning of MBS markets has continued to stabilize, policy transmission in the housing market has also improved, and primary mortgage rates fell to all-time lows over the intermeeting period, shown in panel 26.

Regarding slide 12, market functioning across credit markets also continued to recover. As shown in panel 27, spreads in corporate credit, municipal, and asset-backed markets are now down significantly since March. In corporate bonds, bid-ask spreads across rating buckets have narrowed, and, for corporate ETFs, deviations of ETF prices from net asset values of underlying holdings have largely dissipated, shown in panel 28.

As discussed in the next slide, the second theme to highlight is that, in light of improved conditions across these markets, the balance sheet declined over the intermeeting period from $7.2 trillion to $7.0 trillion. The decline was driven by reductions in repo and dollar liquidity swaps outstanding. These more than offset ongoing purchases of Treasury securities and agency MBS, shown in light blue and dark blue, which were conducted at the minimum pace indicated in the directive to

the Desk from the Committee. To show these underlying trends, slide 14 narrows in on the amounts outstanding across the operations and facilities.

Panel 30 shows that repo outstanding fell from $185 billion to zero, marking the first time we had no repo outstanding since these operations began last September. As discussed at the previous meeting, we increased the minimum bid rates and moved the timing of the operations to the afternoon. These changes went smoothly and contributed to the decline in new activity. Overall, we view these shifts as having effectively transitioned the repo operations to a backstop role for now.

Similarly, as shown on panel 31, swaps have fallen fairly rapidly to around $120 billion, less than one-third of the peak reached in May.

Usage in many of the 13(3) facilities targeted toward funding markets has also been steady or declined. As shown in panel 32, the MMLF, PDCF, and CPFF outstanding amounts fell, and the total across these facilities is now down over 75 percent from its peak.

The final panel on this slide shows usage across the various lending facilities. As reflected in the leveling-off of the light blue area, the growth in the SMCCF's corporate bond and ETF holdings has moderated, as purchases have slowed to about $20 million per day. However, we did see continued increases in the PPPLF, the dark blue area.

In slide 15, I'll highlight the third key theme concerning market functioning, that although conditions are much better, market participants still see the presence of Federal Reserve operations and facilities as important in mitigating risks of renewed stress.

With better conditions and limited new activity, market participants' expectations for outstanding amounts at the end of September continued to fall, shown by the responses to the Desk's survey in the panel.

As Luca will describe in his financial stability briefing, however, the environment overall remains very uncertain: Vulnerabilities appear notable, and stresses in financial markets could reemerge. Our contacts note that dealers are more risk-averse than before the pandemic, and many expect to remain cautious with their balance sheets at least through year-end.

Your next slide outlines several key risks that market participants focused on in our outreach over the intermeeting period. These include the potential for more severe shutdowns related to the virus, the risk of a "fiscal cliff" if new stimulus is not approved, the prospect of escalating geopolitical tensions, and a challenging U.S. election process.

They also see heightened U.S. Treasury security issuance as an important consideration. The fiscal package now being negotiated could bring new coupon security issuance over the remainder of the year to over $1 trillion—a pace that could

strain dealers' already expanded balance sheets if renewed market stresses were to emerge.

Against this uncertain backdrop, an important focal point in markets is how the Federal Reserve will manage the facilities and operations in coming months. Market participants continue to see their presence as important in lowering risks and are attentive to whether or how funding and credit market backstops will evolve. In that context, they will, of course, be attentive to this morning's announcement on the extension of the 13(3) facilities.

In the memo circulated ahead of the meeting, the staff presented considerations associated with extending the temporary dollar liquidity arrangements and FIMA Repo Facility, in light of some of these risks. Keeping these arrangements in place would help mitigate potential volatility in dollar funding markets, particularly around year-end. Beth Anne and I request the Committee vote to extend the FIMA Repo Facility through March. And, provided that the Committee has no objections, following today's meeting, we would also seek the Chair's approval to extend the temporary liquidity swap lines. The extensions of these facilities would be announced following this meeting, and a copy of the draft statement is provided on the next and final slide.

The Desk resolution regarding the FIMA Repo Facility, a summary of recent and upcoming small-value operations, and detail on recent Treasury and agency MBS purchases are all shown in the appendix. Thank you, Chair Powell. Patricia and I would be happy to take your questions.

CHAIR POWELL. Thanks very much. Are there any questions for Lorie and Patricia?

MR. CLARIDA. Chair Powell, I have a question for Lorie. Lorie, on slide 8—and I think we discussed this with Ben Wensley the other day—if I look at your chart 17 and add all of the vertical bars, 2023 and earlier, it looks like it's north of 50 percent, around 55 percent. So, essentially, the current snapshot says that a little bit more than half of the folks who were surveyed think that we'll hike before 2024. Is that correct?

MS. LOGAN. Yes, that's correct—56 percent of the respondents think it will happen before the second half of 2023.

MR. CLARIDA. And then the next factual question. On page 9, chart 21, it's indicating that the median survey respondent thought that, in 2021, our purchases would be roughly

$700 billion for the year. Roughly, what was the pace at which we were purchasing in QE3, way back when? Was it in that range, around $700 billion to $800 billion a year?

MS. LOGAN. I don't have the numbers in front of me, but I think that it would be lower than where the diamond is placed here. This represents a decline from where we are today—the median.

MR. CLARIDA. Right.

MS. LOGAN. And I think it would be still higher, though, than where we were in QE3.

MR. CLARIDA. Thank you.

CHAIR POWELL. I think that the QE3 pace of purchases was $85 billion a month—which corresponds to about $1 trillion a year, right?

MS. LOGAN. I don't have the numbers in front of me, but I can look those up in a minute.

CHAIR POWELL. Okay. President Daly, please.

MS. DALY. Thank you. So, Lorie, on—I think it's slide 15 on page 8, you noted that most respondents expect some sort of AIT. And so what I was wondering is: On the basis of the drafts that you've seen of the FOMC's new longer-run statement, what is your sense of whether that will be satisfying, an upward surprise, or a downward surprise relative to their, albeit very dispersed, expectations?

MS. LOGAN. I think what I took away from looking at the survey responses was just a wide dispersion in views. So even though we see that most survey respondents indicated they expect some form of AIT, the conditions at liftoff suggest that there is just a really wide set of expectations. In reading all of the commentary, it was clear that even though each individual

might've thought there'd be some form of AIT, exactly how that was implemented was very different.

So I think that the current range of conditions would suggest that if there's more specific information coming from the review or following the review with respect to forward guidance, I think that could result in some more coalescing of those expectations, so we would see some market effects. Overall, I think there's just a lot of scope for more communication.

MS. DALY. Okay. Thank you.

CHAIR POWELL. Thanks. I don't see any more questions in the Skype session. Are there any other questions for Lorie and Patricia?

MR. KAPLAN. I might have one, Chair Powell. And this is just an observation, and it's one I hope we won't need to talk about in the future. On the balance sheet size, unusually, we have in effect—"put" is the wrong word—we have made contingent offers that we've made, which the market doesn't need to address right now because it is functioning so well. The Municipal Liquidity Facility is a good example, in which if you had a severe disruption in market conditions, we've already made an offer out there that we'll have to stand behind to the tune of literally $400 billion or $500 billion. It's just that it's not being asked.

And so, in the future, like any bank would look at its contingent liabilities, we actually have—a little different than we've experienced before—some contingent liabilities on our balance sheet. And I think, to the market, as it looks at the Federal Reserve's balance sheet, it adds to the actual size with, I think, the contingent—the "backstop." And so I think it changes the nature of our balance sheet from what we've had before, in that we've got some tail obligations in which we've actually already made an offer. And the market hit those, as opposed to us making a decision. And it might be worth just noting those. I hope we'll never have to

discuss them, but it means the balance sheet growth may be slightly different, if you take into account contingent liabilities. As we have learned historically, sometimes those things become "in the money" fast. It's just worth noting.

MS. LOGAN. Yes. I think that's a really important observation. You know, one of the things I focused on was the point that, in the grand scheme of the size of the balance sheet, it's a small decline. I would expect this pattern to reverse, because the repo went to zero and the swaps came down significantly and the other programs are very small. The Treasury security and agency MBS purchases will start to outweigh, and so I think the trajectory of the balance sheet is going to shift. And, as you say, there's a large scope for further growth if conditions were to change and the backstop facilities were to recap, so I think that's an important observation.

I just wanted to go back to the earlier comment. My understanding is that, in the case of QE3, we were purchasing Treasury securities at around $35 billion per month. It was the combined purchases of Treasury securities and MBS that got you to around $80 billion. And, in the chart I was showing you, we were looking at Treasury securities on the left and MBS on the right. So we'd have to add those two together.

CHAIR POWELL. Indeed. Okay.

If there are no further questions, we will, as Lorie indicated in her briefing, need an FOMC vote now in order to extend the expiration date of the FIMA Repo Facility to March 31, 2021. Are there any questions or comments on that before we vote? While you're thinking about that, I will note that the Board extended most of the 13(3) facilities this morning. That was announced this morning, as you will have seen. [No response] Hearing no questions or

comments, is there a motion to extend the expiration of the FIMA Repo Facility to March 31, 2021?

MR. CLARIDA. So moved.

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. All in favor? [Chorus of ayes] Thank you. Without objection. As Lorie mentioned, following the foreign authorizations procedures, I will approve the change, in terms of the temporary dollar liquidity swap lines, to extend them through March 31, 2021, as well. Next we need a vote to ratify domestic open market operations conducted since the June meeting. Do I have a motion to approve?

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. All those in favor? [Chorus of ayes] Thank you again. Without objection. All right. Moving along to our next agenda item: "Economic and Financial Situation." Eric Engen, would you like to start, please?

MR. ENGEN.[3] Thank you, Chair Powell. I'll be referring to the exhibits on the U.S. Outlook, beginning on page 28 of the packet. Let's turn to the first exhibit.

Since the May Tealbook, indicators of employment, spending, and production through June came in better, on balance, than we had expected, and—as shown in the first panel—we marked up our estimate of the level of real GDP in the second quarter. Nevertheless, we estimate that real GDP declined at a historically large 33 percent rate last quarter.

Correspondingly, as shown in panel 2, the national unemployment rate—the black line—declined further in June but was still over 11 percent. The improvement since April was relatively widespread across various racial and ethnic groups, although the unemployment rates for African Americans—the blue line—and Hispanics—the red line—remained well above the national average.

Looking back to the black line in panel 1, we think the bottoming-out of real GDP last quarter was not as deep as in the May Tealbook, but we now expect the recovery in the second half will be not as robust. This forecast reflects our judgment about the implications of two important developments: first, a substantial increase in the new

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

COVID cases in the United States since mid-June and, second, the recent slowing in some high-frequency indicators of economic activity. I'll discuss these in turn.

Panel 3 shows new virus cases per capita, broken out into three groups of U.S. states. The red line shows the increase since mid-June in new cases per capita for what we call the "states of concern," in which the rate of new cases is above the national average. These states have 49 percent of the population and include California, Florida, and Texas. On a positive note, the rate of new cases in this group may be appearing to level off. The blue line shows new cases per capita for the tri-state area of New York, New Jersey, and Connecticut, which was the epicenter of the outbreak back in March and April and has 10 percent of the population. These states now have a relatively low and flat rate of new cases. The black line shows the rate of new cases for "other states," which contain 41 percent of the population. This group has seen some increase in the rate of new cases, although the rate is lower than in the states of concern.

In reaction to increasing virus cases, many states and localities have slowed or scaled back the reopening of their economies, especially for businesses providing services that entail personal interactions, such as restaurants and bars. Individuals also may be adjusting their willingness to leave their homes. As shown in panel 4, decreases in the share of states' populations staying at home—measured by cellphone location data and broken out across the same groups of states in the previous panel—have slowed recently from the faster declines seen in May and June. Although it is quite difficult to gauge the effects of mandatory and voluntary social distancing on economic activity, these developments led us to moderate the pace of economic recovery in our current forecast.

With regard to the next exhibit, some high-frequency indicators of economic activity have slowed, a development that has also tempered our forecast. As indicated by the blue and black lines in panel 5, both the BLS data and the measure of paid employment that we construct using ADP microdata show that cumulative private-sector job losses since mid-February diminished through mid-June. However, the measure of paid employment (the black line), which has tracked the BLS measure reasonably well in recent months, points to a noticeable slowing in the pace of job gains in recent weeks. Taking into account the most recent ADP data, which we processed yesterday, we now estimate that private payrolls increased about 900,000 between the June and July reference weeks for the BLS payroll survey, a little above our Tealbook forecast of about 675,000, but still less than the pace of private job gains in May and June. In contrast, the red line's measure of active employment from the ADP data, which we think might be a reasonable proxy for more-permanent job losses, has yet to show any sign of improvement. Furthermore, as we described in our Friday forecast update, some other high-frequency labor indicators—in particular, the Census Bureau's Household Pulse Survey—point to job losses this month, although the pulse survey data are not seasonally adjusted, and the usual seasonal movement in jobs is negative in July.

The next two panels focus on some indicators of consumer spending. These show a mixed picture. Panel 6 plots daily retail sales relative to a year earlier, based on card swipe data, which are primarily for consumer goods; this measure is also separated into the three groups of states used earlier. Spending on consumer goods in all three groups of states currently looks to be around year-earlier levels. In contrast, panel 7 shows several indicators of consumer spending on services—such as restaurants, hotel accommodations, and air travel—relative to a year earlier. All of these measures remain quite subdued and have generally shown less improvement recently. As we think that social distancing will ease more slowly in the second half of this year than we previously assumed, it seems likely that consumer spending in the case of services will recover more slowly than spending has in the case of goods.

One sector of the economy that appears to be weathering pandemic-related disruptions and bouncing back strongly is housing activity. Panel 8 shows recent data on new home sales—the blue dashed line—and existing home sales—the black line—both of which have rebounded considerably, reflecting the effects of low mortgage rates and anecdotal reports of greater use of virtual home tours and closings. The red line shows pending homes sales, which help forecast existing home sales in the next month. The hollow red dot shows our translation of weekly data for pending sales in June. This points to another solid gain in existing home sales in July. In addition—not shown—the June readings on residential construction also were better than we had expected.

Regarding the next exhibit, our current forecast also incorporates our assumption of $1 trillion of additional fiscal stimulus to be enacted soon, $500 billion more than in our May projection. There is considerable uncertainty regarding this legislation, and the lack of progress in negotiating this phase of stimulus will likely lead to a temporary lapse in any extension of enhanced UI benefits for many individuals. That said, the upward revision to our stimulus assumption can be seen by comparing the red and grey bars in panel 9, which plots our fiscal impetus measure. The larger boost to GDP growth this year reflects the bigger "placeholder" for additional stimulus that I just mentioned, along with a larger-than-anticipated payout of UI benefits under the previously enacted CARES Act. The unwinding of this fiscal stimulus imposes a drag on GDP growth over the following two years.

A component of the fiscal stimulus—both enacted and expected—includes substantial aid to state and local governments, although the current stimulus negotiations could settle on an amount of additional aid that ends up being less than what we had assumed in the Tealbook. As shown by the rightmost bars in panel 10, the total amount of support assumed in the Tealbook would allow state and local purchases to contribute modestly to GDP growth over the next four quarters—light blue bar—rather than being a large a drag on GDP growth as it was following the 2007–09 recession—the center bars. Even so, the contribution of state and local purchases is expected to be a slight drag on GDP growth, on average, over the next eight quarters—rightmost blue bar—reflecting the strained state and local budget conditions.

The bottom two panels summarize how all the factors I have described are combined in our medium-term GDP projection. As shown by the middle bars in panel 11, we expect GDP to decline 5½ percent over 2020 as a whole—less than in May—as the slower expected unwinding in social distancing in the second half of this year is more than offset by the recent better-than-expected data and the upward revision to fiscal stimulus. GDP growth is expected to be somewhat less robust next year, largely reflecting the unwinding of greater fiscal stimulus this year, though we continue to expect that real GDP will outpace potential over the next two years.

Panel 12 decomposes some various factors influencing our projections for the level of GDP this year and the next—the black line. The most important influence this year is the effect of mandatory and voluntary social distancing—the light blue line—which does not fully dissipate until late next year, the time at which we assume a vaccine will become widely available. The gold line combines several influences that amplify the direct effect of the pandemic shock; these include the usual multiplier–accelerator channel, additional dynamics—such as confidence and uncertainty effects—that are particular to recessions, and some supply-side damage. On the positive side, fiscal stimulus, the dark blue line, provides significant support this year before slowly fading thereafter. Monetary policy, the red line, supports GDP throughout, although—as highlighted in the Tealbook—this estimate should be viewed as a lower bound, because it does not include all the improvements in confidence, uncertainty, and financial market functioning that likely occurred as a result of forceful Federal Reserve actions.

I'll turn now to my last exhibit. We continue to view as equally plausible as the baseline an alternative outcome in which the pandemic cannot be contained without more widespread and severe social-distancing restrictions, including lockdowns. The charts here contrasts this "Second Waves" scenario with our baseline projection.

As summarized in panel 13, the assumptions of this alternative are similar to the corresponding scenario we presented last round, except that we assume that intense social distancing begins later this quarter—one quarter earlier than in the previous Tealbook. As shown in panel 14, in this alternative, GDP begins to decline again later this year and does not start to recover until next year, and it remains well below the baseline through the medium term. Correspondingly, the unemployment rate starts to rise again later this year and remains well above the baseline. As shown in panel 16, core inflation in our baseline assumes that inflation expectations relevant for wage and price setting remain anchored, and, as a result, core inflation returns toward our unchanged measure of underlying inflation of 1.8 percent as the economy recovers. By contrast, the more-protracted disruption to activity implied by the "Second Waves" scenario, combined with an assumed modest erosion of inflation expectations, results in a noticeably lower path for the core inflation rate than under our baseline. Finally, not shown, the federal funds rate is assumed to be at its effective lower bound until late 2023 in the baseline, while in the "Second Waves" scenario, it remains at the lower bound for two additional years. And I'll now turn the presentation over to Beth Anne.

MS. WILSON.[4] Thank you, Eric. Everyone can hear me? [Affirmative response] Good. In the first quarter of this year, the world economy experienced the greatest synchronized global shock in our lifetimes. Even though the shock was to the real economy, it was manifested most immediately and dramatically in financial markets. In response, policymakers took rapid and decisive actions to keep the anticipated deep decline in the global economy from disrupting the flow of credit and exacerbating the economic shock.

As you can see in slide 2, we are now experiencing that deep decline in the economy. The left chart presents our near-term quarterly forecast of foreign GDP growth. After an 11 percent fall in the first quarter, we estimate a historic drop of 30 percent in the second. Positive incoming indicators support our expectation of a bounceback in the latter half of the year, and we have even revised this up slightly. However, as the right chart illustrates, this will still leave the level of output well below its pre-COVID path for years to come.

Furthermore, as shown in slide 3 and described in the Risks and Uncertainty section of the Tealbook, we can easily imagine a scenario in which second waves of the virus result in widespread shutdowns and commensurately slower recovery in both the advanced foreign and emerging market economies.

A key issue for us now and the focus of the rest of my remarks is how this real shock is transmitting to the foreign financial system and how vulnerable this system has become. Will the financial sector in most economies abroad continue to absorb, or will it amplify, the shock?

I begin with the epicenter of the COVID shock—households and businesses—starting on slide 4. One basic measure of the effect on households is unemployment. To date, the effect of the crisis on unemployment rates abroad has been mixed. Focusing on the advanced economies on the left, for some, unemployment has already spiked sharply, especially in North America. In contrast, in Europe, layoffs have been muted by government programs—specifically, short-time work schemes that subsidize firms to keep workers on the payroll. But we do not expect these programs to forestall a rise in unemployment forever. Even in Europe, we project the unemployment rate will increase as short-term work schemes unwind, demand remains weak, and firms are forced to downsize or close. So far, government support programs and forbearance by financial institutions and supervisors have limited foreclosures and nonpayment of rent and loans, but as unemployment rises or stays elevated and forbearance wanes, we expect nonperforming loans to increase. As this happens, countries with high household debt levels, shown to the right, will be more vulnerable. These include Canada, the United Kingdom, South Korea, and Hong Kong.

Businesses, discussed in the next slide, are also on the front lines of the shock, and we are starting to see the hit. Revenue losses from social-distancing restrictions

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

and generally weak demand led profits to collapse in the first quarter. Second-quarter earnings reporting season abroad is just starting, and the next few weeks will provide more clarity on how costly the global shutdown was for firms. Expectations regarding global earnings per share for the year as a whole, shown to the left, fell precipitously in the spring and have continued to decline. Profits are expected to recover next year. That said, a textual analysis of earnings call transcripts, shown to the right, searching on words related to uncertainty, saw references to uncertainty spike in the spring and remain above earlier levels. Firms are unclear about current and future prospects, and it will be a while before we know with confidence the cost of the virus to firms and businesses.

In the face of the huge COVID shock, most firms will take a beating. The spillovers to the financial sector become particularly worrisome, however, if the hit is so bad that a sizable fraction of firms cannot service their debt. Slide 6 describes the work we have done to get a sense of this risk. Specifically, we calculate interest coverage ratios—that is, the ratio of earnings over interest expenses for nonfinancial corporates by country. The dark shaded portion of the bars represents the share of total nonfinancial corporate debt that is owed by firms with interest coverage ratios below 1. Because earnings of firms in this category are lower than their interest expenses, this denotes the debt most at risk of nonpayment. The medium-red portion indicates debt for firms with ICR between 1 and 2, a level also considered at risk. Even firms with interest coverage ratios of between 2 and 3, the pink portion, might struggle to pay their debt in the face of the current decline in GDP, especially should it be prolonged by second waves of the virus. In most AFEs and Korea, risky debt comprises about 20 percent or less of total NFC debt, even under the most expansive definition of vulnerable debt. However, the level of potentially risky debt in Italy and most of the EMEs looks more alarming, at 40 percent or more of total NFC debt.

This exercise is just suggestive. It does not incorporate the damage wrought by COVID on small- and medium-sized establishments or account for the recent surge in precautionary borrowing by firms, which, if used to cover lost earnings, will strain the ability of these businesses to service debt. Nor does it consider government and central bank support, which can keep lending channels open and backstop losses. The exercise does, however, point to the vulnerability of businesses if they lost access to funding and the potential for sizable losses coming from this sector for the period ahead, especially in the case of the EMEs.

As earnings fall and unemployment rises, balance sheets of financial institutions abroad will likely experience a significant blow. Does the foreign banking sector have the capacity to withstand such a shock? As we turn to the next slide, to address this question, IF staff calculated the effect of the COVID crisis on foreign banking-sector capital ratios using the foreign real GDP growth forecasts in our baseline and "Second Waves" scenario and the elasticities of bank capital to changes in real GDP growth, based on official foreign stress tests and staff calculations. The grey bars show common equity tier 1 ratios as of the fourth quarter. The blue and red bars show estimated ratios at the end of 2021 assuming our baseline forecast and "Second Waves" scenario, respectively.

On average in our baseline, absent any policy action to preserve bank capital, common equity tier 1 ratios of the countries shown decline around 3 percentage points. The hits to bank capital are commensurately stronger if we use output losses associated with the "Second Waves" scenario. Most banking systems remain above the Basel III minimum, thanks to the buffers built up since the GFC, but, especially in the "Second Waves" scenario, a number of banking systems look very vulnerable. In addition, some individual banks could experience greater capital losses, and as capital losses mount generally, market pressure on banks may intensify well before the minimum is reached. As capital is depleted and market pressures rise, banks will likely pull back on lending, increasing the headwinds to economic recovery.

What are we seeing so far? Lending surveys in key advanced economies are shown next. The chart to the left presents the fraction of banks that reported tightening or loosening lending standards over the first half of the year. Aside from the United Kingdom, banks reported modest tightening in standards for households and mild tightening to significant loosening in standards for firms. This contrasts with the results for the United States, which Rochelle will discuss later. It also contrasts with the dramatic tightening in conditions seen during the GFC, shown to the right. Regulators and policymakers abroad have taken many measures to encourage lending—particularly to firms—and indications are that, this time, they have succeeded in keeping credit flowing to the economy. These measures have enabled banks, as well as markets more broadly, to serve in a positive role in supporting economic growth abroad. But the hit to the real side has yet to be fully manifested in the financial sector, and, at least for the euro area, lending surveys point to a tightening of standards going forward, as respondents expect government measures to roll off.

All of this discussion raises the question: Just how vulnerable is the foreign financial system after the COVID shock? Earlier this month, we completed our biannual assessment of international financial stability as part of the QS process, the results of which are shown, in all their glory, on your final slide. I would draw your attention to the two hot zones we just discussed. Not surprisingly, we see vulnerabilities as particularly high in the nonfinancial and financial sectors of most of the economies we examine. More broadly, much like the country, the whole heat map is warmer than in January, and we assess overall vulnerabilities and risks to the international financial system to have increased notably, implying that even a medium-sized shock would likely trigger financial stresses abroad that spill over meaningfully to the United States.

In sum, policymakers have restored market functioning and provided short-term support to the real economy. Recovery in China and better news coming out of Europe help lessen the probability of more dire outcomes in the near term. But the effect of unemployment on the capacity of households to service debt and the lack of income for businesses and firms will begin to show, and eventually the now-more-vulnerable foreign financial system will have to absorb these losses. We hope we're on the road to recovery, but, as one of my staff members described it, this may be

"the calm before the storm." Luca will now tell us how well positioned the U.S. financial system is to weather such a storm.

MR. GUERRIERI.[5] Thank you, Beth Anne. We last briefed you in January on the staff's comprehensive assessment of vulnerabilities in the financial system. Since then, much has changed, and we have also learned a great deal more about the system. We now think that, even taking into account all of the emergency measures put in place, the system is currently poised to amplify a further shock, were one to materialize, more than it usually does. In the dry language of the QS, we assess vulnerabilities to be "Notable," one notch higher than our assessment of "Moderate" vulnerabilities in January.

Moving to slide 2 on page 43, we start with valuation pressures. Before the pandemic, asset valuations were clearly stretched. They have since fallen considerably, although gauging fundamentals is more difficult than usual. We judge that, on balance, valuations are higher than usual—suggesting that additional bad news could result in a larger-than-expected drop in asset prices.

Slide 3 turns to corporate bonds. After surging in the spring, spreads are now within historical norms for high-yield bonds, the red line, and for investment-grade bonds, the black line. Both are now close to their median levels, up from the low levels they hit in mid-January. In view of the worsening outlook, this return to historical norms suggests elevated investor risk appetite.

Slide 4 turns to commercial real estate. The figure on the left shows price indexes for a range of property types. Because property sales have been depressed in recent months, these indexes are a little noisier than usual. Nonetheless, they show that prices continued to rise through June.

As shown to the right, however, vacancy rates across the commercial real estate market have ticked up in recent months, particularly for offices and retail establishments. Again, this combination is consistent with higher-than-usual appetite for risk among investors.

Let's turn now to the debt loads carried by households and businesses. As discussed on slide 6, declines in income and profits have left households and businesses more fragile. The chart shows a commonly-used gauge of debt sustainability—the gap between the ratio of debt to GDP and its trend. Households began the year with debt loads well below trend. However, as shown by the black line, the collapse in real GDP that we can pencil in for the second quarter of 2020 can be expected to make the household-credit-to-GDP gap positive for the first time since 2012. This development is in line with increasing signs of stress, such as the use of forbearance programs by households. Businesses, of course, were carrying historically high debt loads before the pandemic. As shown by the red line, the gap is

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

expected to jump in the second quarter—reaching levels rivaling those seen in the Great Recession.

Slide 7 shows debt levels of publicly traded firms measured relative to assets. These levels were also quite high coming into the pandemic. Gross debt, the black line, jumped up in the first quarter. Net debt, the red line, subtracts cash held by firms. As you can see, this measure stayed flat in the first quarter, because firms preemptively accumulated cash holdings, in many cases by drawing on credit lines at banks.

Beth Anne showed you measures of debt at risk of not meeting financial obligations for foreign economies. Slide 8 shows you an analogous measure based on data for U.S. publicly traded firms. By historical norms, this measure of debt at risk remained low through the end of the first quarter. Declining incomes will push this measure up in the coming quarters, but the ability of firms to refinance debt at lower interest rates will be an offsetting factor.

Indeed, as shown on slide 9, although markets for risky debt shut down in March and April, issuance rebounded strongly for the second quarter as a whole, a development accounted for entirely by high-yield bonds, the beige bars in the chart.

To wrap up business leverage, as shown on slide 10, financial distress at businesses is high and rising, in keeping with their elevated debt loads and falling earnings.

The left chart shows that defaults of nonfinancial firms ticked up in the second quarter of this year. However, the chart on the right points to further increases in default rates to come. Focusing now on downgrades in the investment-grade segment: The yellow bars show a high volume of "fallen angels" in the first quarter of this year. Although the pace of downgrades has declined since March, it remains elevated and widespread across sectors. Furthermore, market participants note that rating agencies are making downgrade decisions at a faster pace than they did in previous downturns.

Moving to slide 11, our assessment of vulnerabilities associated with financial-sector leverage moved from "Low" to "Moderate." The main reasons are uncertainty about losses, connected to business loans, for banks and a higher weight placed on vulnerabilities connected to leverage at nonbank financial institutions.

On slide 12, we turn to banks first. As the chart on the left shows, the common equity tier 1 ratio for the largest banks, the black line, dipped in the first quarter but is now roughly back to its level at the end of 2019. Capital ratios dropped in the first quarter because of significant loan loss provisions and an increase in assets as borrowers drew on commercial credit lines as well as, to a lesser extent, share buybacks and dividends. Capital ratios have since rebounded, as almost all banks remained profitable despite adding significantly to loan loss reserves, while risk-weighted assets declined.

The chart on the right shows the trajectory of undrawn commitments at banks. Commercial borrowers drew heavily on these lines in March amid the worsening news about the pandemic and tightening financial conditions. These drawdowns have since retraced significantly, as some firms repaid precautionary draws taken in March.

In sum, banks have made large provisions for pandemic-related losses, but there is the potential for even further losses, should the economy worsen. Nonetheless, so far, they remain resilient.

On slide 13, we turn to two categories of important nonbank financial institutions: hedge funds and mortgage REITs. Distress at these firms appeared to amplify the market turmoil in March. This consideration led us to rethink the somewhat sanguine view we had had about their leverage. Distress at such firms, it seems, can cause wider problems than we had appreciated.

As shown on the left chart, assets at these firms shrank significantly in the first quarter; data on hedge funds, the black line, are available through the second quarter and show that assets have since rebounded. The drops in the first quarter came from a combination of asset price declines and forced sales to meet margin calls amid those declining asset prices. Market conditions were notably strained through this episode, and they would have been much worse were it not for asset purchases by the Federal Reserve.

As shown on the right chart, results provided in the most recent SCOOS, which ran through May, point to 80 percent of dealers as having tightened price terms for hedge funds and for mortgage REITs.

Let’s turn now to the risks associated with maturity and liquidity transformation. Slide 15 focuses on money funds. The chart on the left shows substantial outflows from prime funds in March. Institutional prime funds, shown in dark blue, saw outflows as a percent of assets on par with the run of 2008. Evidently, the regulatory reforms implemented in 2016, which featured floating net asset values as well as the possibility of fees and gates, failed to prevent investors from racing each other for the exit.

The announcement of the Money Market Mutual Fund Liquidity Facility stopped the run in March. This facility backstops prime funds, the left bar in the panel to the right. It does not, however, cover their closest substitutes—dollar-denominated offshore prime funds, the middle column. A group of other vehicles, indicated in the right column, contains prime-like investments, as well as safer forms of investments that we cannot disentangle. All told, there are between $500 billion and $1½ trillion in assets in prime-like funds that are subject to similar run dynamics and are not eligible for the facility.

In the March turmoil, run-like dynamics were not confined to money funds. On the next slide, we turn to fixed-income mutual funds.

Considering now slide 16: We had previously noted vulnerabilities stemming from the mismatch between daily redemptions offered by fixed-income mutual funds and less-liquid underlying assets. However, our focus was mostly on high-yield bond funds and bank loan funds. The runs on bond funds in March were significantly more widespread than expected, creeping up the credit spectrum to investment-grade bond funds.

The figure shows flows out of investment-grade bond funds. As you can see at the far left, there were sizable outflows in 2008. Nonetheless, the outflows in March were historically unprecedented. And, as was the case for money funds, only the announcement of emergency actions by the Federal Reserve stopped the outflows.

Let's now turn away from everything that did go wrong to ask, what else could go wrong? On slide 18, I give the sparsest possible description of the output of the "Other Shoe" exercise for which analysts from all parts of the Federal Reserve System, a wide swath, offered creative ideas on adverse scenarios. The work resulted in a 200-page tome describing 13 separate scenarios that can be loosely clumped into three categories.

The first is vulnerabilities stemming from increased defaults of businesses and households. In particular, large-scale corporate distress poses spillover risk for mutual funds and ETFs, life insurers, and banks that hold business debt.

The second is heightened volatility connected to an intensification of the pandemic could once again stress Treasury securities markets and other critical markets.

The third is a set of novel risks peculiar to the unfolding pandemic. For instance, the reliance on remote work arrangements, for job functions that allow it, has magnified cyber risk for the financial sector.

We would be happy to arrange additional briefings for you given by the authors of any of these scenarios.

Finally, for your reference, my last slide, slide 19, reports the current status of the 13(3) emergency lending facilities. All of these facilities are now operational. As you know, the Board and the Treasury announced this morning that those facilities scheduled to end in September have now been extended to year-end. This concludes my prepared remarks. Eric, Beth Anne, and I will be happy to take your questions.

CHAIR POWELL. Thank you. Any questions for our briefers? Governor Clarida, please.

MR. CLARIDA. Chair Powell, thank you. This is a question, it's not a speech. On the shoe-drop exercise, which I found very valuable and somewhat sobering, I'm glad that you

mentioned the Treasury securities market as one of the ones here, because I do think that we weathered a once-in-a-century storm in March, through the able leadership of John and Lorie and their whole team.

But I, for one, think the coast may not be clear for two particular reasons. One is simply that, as Treasury yields get close to what we call the ELB, that's a potential issue, and also the broader issue of how Treasury securities are traded, as Darrell Duffie and others have indicated recently. So—this is not really a speech, but it is my saying that we got through March, but that I don't think that we can entirely relax with regard to the possibility of confronting that situation again.

CHAIR POWELL. I thought you said that was a question rather than a speech.

MR. CLARIDA. There's a question mark at the end of that. [Laughter]

MR. GUERRIERI. I agree with you. I think those are relevant risks. You make good points. And the paper by Darrell Duffie is very interesting and points toward problems regarding the capacity of dealers to withstand a similar episode in the future, in view of the fact that those balance sheets might already be stretched by the episode we have gone through.

MR. POWELL. Thank you. Tom Barkin, please.

MR. BARKIN. Beth Anne, a question for you. I found your slide 7 very interesting regarding the implications in a "Second Waves" scenario. Can you just describe a little bit more what happens to China in that scenario? In a baseline scenario, it looks like many, many other countries. In a "Second Waves" scenario, it looks like Turkey, and that doesn't sound like a place you want to be.

MS. WILSON. Right. Is your question about China or both China and Turkey?

MR. BARKIN. About China.

MS. WILSON. China, okay. I'll address this and ask my colleague, Viktors, who actually performed this exercise, to add anything else. What we see is that they have enough capital to get them through, but the Chinese banking system is actually fairly fragile. It's very overextended. It has a lot of corporate loans that look very, very—they have a huge corporate sector, they've done a huge amount of corporate lending, and a lot of that looks extremely risky.

And they also have involvement in sort of lending products and exposure to the housing sector so that, if in a second wave that sector went very poorly, they would also be extremely vulnerable to second waves through their housing sector as well. So we see that banking system as being particularly vulnerable. Viktors, would you like to add anything if you're able to unmute?

MR. STEBUNOVS. Yes. Hello, can you hear me?

MS. WILSON. Yes.

MR. STEBUNOVS. Okay, great. China indeed has a very vulnerable banking system, in part because the asset quality in general is very, very low. And it's a known problem for quite some time.

Specifically. in terms of this exercise, China's banking system has the highest elasticity of capital ratios to GDP shocks. In particular, there's no linearity built in this exercise, in particular for China. So, if a shock to GDP is particularly large, then we're going to apply a particularly large elasticity, which is going to result in particularly large declines in CET1 ratios.

So, yes, we are really worried about the Chinese banking system. But I would like to add that the sovereign support, or the central bank support, that probably will be warranted in case of the banking crisis could be really massive. So, even though we think the banks are really

vulnerable because of the central bank and sovereign uplifts, our concerns about the huge Chinese banking system crisis are a bit mitigated. Thank you.

MR. POWELL. Thank you. President Evans, please.

MR. EVANS. Oh, that's so unfair. I haven't figured out how to ask this question. [Laughter] I have a question I don't know how to ask. Let's see. Beth Anne used a statement at some point—I think it was you, Beth Anne—maybe this is just the "calm before the storm." Maybe there's more to come.

Chair Powell, let me give you credit. Every time I've heard you talk in testimony or out in public, you get this across very well. I'm struggling with—and it's a question—how do you help me think about this? I'm struck with how we describe our baseline outlook when the "Second Waves" scenario is about equally likely—let's call it equally likely—and then there are a couple of other scenarios. So this baseline is about 45 percent, if you're going to put a probability on it, and the second wave is about 45 percent.

Now, Mr. Chair, I'd say you get this right, because every time you've testified, you start talking about, "Well, it could get worse," and everybody gets very nervous, and I think that's kind of the right reaction in this environment. I did double-check something that I hadn't looked at very carefully: The optimal-control exercises, the policy rules—they do use the Tealbook baseline, recognizing that that's a 45 percent-ish kind of scenario.

So I'm kind of struggling with, how do we describe this in public, or—I guess just before this I came up with the—am I out of the mainstream if I'm pessimistic about the outlook? Because I think I'm kind of somewhere still in the center. I can't quite figure out how far away I am.

I think the staff has done a great job in putting these scenarios together. I know President Mester had a proposal in which she said: "What if we did the SEPs by scenarios?" That kind of gets at some of this issue, but—any help anybody could offer on how to describe these sort of bimodal events?

MS. WILSON. Is this a question for the staff?

MR. EVANS. Sorry. Yes, I guess the staff. [Laughter] I guess I could ask it like, is it possible that you put these scenarios together—the foreign outlook is baseline, but the United States is second wave? Or would you kind of think that those would be correlated?

MS. WILSON. There are two things I could say, and then my colleagues may want to opine. The first is, we're not the only central bank that is struggling with this. And we provided a note last round, I think it was, on how central banks are communicating their forecasts and their baseline. Policy institutions and central banks, especially around the April–May period, did choose to speak of it in terms of scenarios, rather than providing one outlook or one baseline. And the IMF and other policy institutions have also done that.

What we've seen over time is that as we get a little bit more confidence about the near-term outlook, central banks have kind of converged toward providing a greater sense of certainty around their baseline and stopped doing as much of these sort of wide-range scenarios. But that's certainly been how that's happened.

In terms of how we've built our scenarios internally, since March we've coordinated them to a degree that we have not done in the past, so that they are coherent narratives. That doesn't mean that everything that happens in the United States necessarily happens one-for-one abroad.

I would say, abroad, we probably see a different mix of risks. I had a robust discussion with my staff about this earlier over the past several days—how do we think about the risks to our baseline? With respect to foreign economies for the near term, we think that those have somewhat diminished, in particular because we have seen such a robust recovery in China, which is a big global economy, and because we've seen some improvement in Europe.

Over the medium term, however, I'd say we're still pretty uncertain. We certainly see big risks coming out of the emerging markets in Latin America, and we're seeing these resurgences in places in Europe and Singapore, these small upticks. So I'd say we're still pretty uncertain. We're probably putting a little bit more weight than 50–50 on our baseline than I think the U.S. forecast is so that we see the second wave, the draconian shutdowns globally, as being somewhat less likely. But if we see a resurgence in the flu season, all bets could be off.

MR. EVANS. Thanks very much. I was just struggling with that, and I found that helpful.

MS. WILSON. Eric, I don't know if you want to add to that.

MR. ENGEN. I'm sorry, yes, I've been on mute. I would say, we feel, even more so than before, sort of confident in that there's equal plausibility across the second waves and our baseline. The rising cases since mid-June in the United States certainly have made us feel less sure, in a sense, that, okay, the baseline's definitely going to come about.

One way in which we reflected that in our alternative scenario is that we moved up, from later in the year, the quarter in which we could see a resurgence in sort of much more widespread lockdowns and restrictions.

I guess a couple other pieces of information relative to outside forecasters is, back in June, in the Blue Chip survey—unfortunately they didn't re-ask this question in July—they

asked how many people thought it was plausible of going into a second-wave kind of scenario. And 35 percent, less than half, said "yes"—that seemed plausible to them.

It's also the case that, when comparing our current baseline forecast with the baseline of other outside forecasters, it seems compatible with a baseline that doesn't encompass a second wave. In fact, some various outside forecasters have explicitly, like us, sort of described what a second wave might be. But the difficulty in trying to tread this line—between a baseline and a much worse outcome that we think are both roughly equally plausible—is a difficult one.

MR. POWELL. I don't know whether this is helpful or not, President Evans, but one way to think about it, and talk about it, is: You know, we're not innocent bystanders in this—we have some "agency" here.

So what you get if you observe social-distancing measures— spell that out—is one outcome, and what you get if you don't is another one. It's not like we're just a victim of whatever the probabilities are. So I like to explain it that way. Just going back to stressing the centrality of getting control over the disease is one way to attack it.

MR. EVANS. Thanks very much. That's very helpful.

And I think the staff has been very clear and very articulate at putting the different scenarios together, and I've benefited from that. Thank you.

CHAIR POWELL. President Daly, I think I accidentally skipped over you in line. I'm sorry for that, and I'm coming back. Here I am.

MS. DALY. Thank you. No problem. Nice to see you. My question is for Eric, and this is just a factual question that I don't know the answer to. In your factors influencing real GDP growth over the medium term in figure 10, you talk about the contribution coming from state and local purchases. And what I couldn't figure out—because we don't have a time series for

government purchases overall—is whether this is just a composition change, so that state and localities are doing less of the government purchases because we've transferred them to the federal government, or if this is a net reduction in government spending in reaction to a crisis.

MR. ENGEN. Yes. What you can think of on the left-hand side is fiscal impetus, which is all coming from the federal government. So on the right is the contribution of state and local purchases, and so it is sort of how they—it combines a couple of different factors. One is how much aid they are getting, in terms of increased grants from the federal government, but it also reflects their budget conditions, as they have something much more close to balanced-budget requirements, and so they can't borrow their way out of it.

And so what this is, is—and, in fact, we saw this very much so in both, particularly after the Great Recession in 2008 and '09, that, as you can see in the middle bars of panel 10, state and local governments were a drag, primarily because they got a lot less aid from the federal government than they have gotten previously. And their budget conditions were very tight, and so they were cutting back on employment. They were cutting back on other purchases, including on construction costs. And so what we're looking at here is kind of how we're thinking about state and local governments' contributions, which are supported by federal aid. But that's not the only thing. It's reflecting the budget conditions as well.

And at least so far in the early parts here, we don't think they're going to be quite as much of a drag, but eventually, if there's not even further additional aid, then what we have assumed right now, they are going to start to certainly not be a contributor, but somewhat of a drag on GDP.

MS. DALY. May I—I wasn't quite precise in my question, I think, and I just want to—that was a really helpful answer, but if I took figure 9 and you extended it back, and you

calculated the average federal fiscal contribution from 1957 to 2001, would it look like the state and local?

What I'm trying to really understand is whether it's all balanced-budget provisions, which are really binding for states, or if it's also just the composition of the federal government that used to go through state and localities, and now it does things through the UI system, which would be a federal budget item, not a state and local budget item. And that's the matter I don't know—whether that constitutes—

MR. ENGEN. Okay. I'm sorry, I didn't quite pick up on your question.

MS. DALY. My fault.

MR. ENGEN. The fiscal-impetus measure, if you extended it further back, what you would tend to see is that it's—not surprisingly, because this is measuring discretionary federal policy actions to aid the economy—very cyclical. The increase that you see in 2020 here is unprecedented. For example, back in 2008 and 2009, the peak effects were closer to—it was ¾ percentage point in 2008 and about 1 percentage point in 2009, far less than the 5 percentage points that we're assuming here for this year.

Over the long sweep of things, if you took an average, it would be relatively small. It would be about one-tenth. It was the case in the earlier time period for state and local governments, for a number of different reasons, that they could continue to spend and hire in ways that weren't as constrained as they are now. That reflects at least a couple of factors. On the spending side, they are more constrained in spending on goods and services and hiring people than they were way back, because medical costs are a whole lot larger portion of their spending than they used to be.

It's also the case now, as states have more of a reliance on personal income taxes and less, relatively so, than sales taxes, that their revenue flows are much more cyclical also. So for the much earlier time periods, the overall budget constraints for state and local governments were much different.

MS. DALY. Thank you so much. That's very helpful.

CHAIR POWELL. Thank you. Now Eric Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. One of the challenges in our earlier discussion was, I think, that the links between financial stability and the real economy haven't been laid out particularly well. So when we have that discussion, I think there are challenges in making it clear exactly what the transmission mechanism is.

A number of researchers have done work on both GDP at risk and employment at risk. I was wondering if the staff had done anything looking at employment at risk, in terms of how much current employment loss results from how much more leveraged we were in the corporate sector in this cycle than previous cycles. Has the staff tried to calculate the effect on how many people have been thrown out of work as a result of our choice to have a much more leveraged business sector?

MR. GUERRIERI. Maybe I can start. This might be a question better addressed by Eric. We haven't been able to do anything as precise as what I think you are asking about.

On the models of unemployment at risk, one of the problems is also that it's hard to disentangle the contributing factors and identify the root sources of different projections for those calculations. And, although we've continued to push the envelope on that analysis, those are not problems that we have managed to overcome.

In the Financial Stability Division here at the Board, we have used DSGE models whose mechanisms are definitely are in line with the kind of intuition that you are offering, in which higher leverage poses greater chances of amplification of any one shock. And we've got some rough estimates, but they don't go as precisely in linking them back to unemployment. We stop at the level of real GDP.

But the analysis is that for the a roughly 200, 300 basis point increase, for instance, in the triple-B spread, we could see GDP declines of as much as 6 percent of GDP. So this kind of estimate is sizable. It is obtained from DSGE models, but it lines up with the time-series estimates reported in the broader research literature.

MS. WILSON. I can step in just a little bit. I presented our growth-at-risk models last time in the international briefing. And one thing that you saw on that occasion is that, in the Global Financial Crisis (GFC), a lot of what was triggering movement into the lower tail was stresses in the financial sector. This time, because of the rapid government actions, we sort of tamped down that channel. So it may be that these growth-at-risk models and employment-at-risk models, if we had them, wouldn't signal that clear connection right now. It may be something that comes later as financial stresses might mount further, but that channel was not the one that was driving a lot of the risk—the GDP growth at risk, at least, which is not quite the same thing as employment at risk. But the two channels might be the same.

MR. ENGEN. Yes. I could just add on to this that in the Risks and Uncertainty section, we show our estimates of the conditional distributions of staff forecast errors one year ahead. These are based on models that are similar to the quantile regressions, which are used for GDP at risk, and we show it not just for GDP growth, but also for the unemployment rate. And, clearly,

right now, the distributions for the unemployment rate are way skewed to the upside, and they are incredibly wide.

We also show—and this sort of makes Beth Anne's point, as well—the underlying macro indexes for those conditional distributions. And what you can see in that is that the financial market conditions index—which plummeted in the Great Recession—isn't anywhere near as low as it was at that time, so it's not making that same kind of contribution.

It's our measures—particularly of macroeconomic uncertainty, which is based on models—that are accounting for the volatility of economic outcomes. And what Beth Anne described with regard to what they showed last time, in terms of GDP, is a similar result that is also being shown this time, in terms of the unemployment rate.

CHAIR POWELL. Okay, thank you, no further questions. I suggest we start our opportunity to comment on financial stability. We'll take a break in the middle of that, and then come back. So beginning with President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. The memo referred to in the financial stability briefing provided a series of scenarios in which the other shoe drops. What was most notable to me was the discussions concerning how credit losses could affect credit availability, and even solvency risk, in the banking system. All three scenarios highlighted the risk that bank capital shortfalls could constrain credit to firms and households. It is important to note that the point at which banks decide to restrict credit may be well above the point of solvency for the minimum regulatory capital buffers.

Most large banks have already announced loan loss reserves. Surveys of lending standards have tightened. Many have announced reductions in staffing. And if the community spread of the virus continues, as I expect it will, it is difficult to see how bankruptcy does not

engulf many industries whose revenue model is sensitive to the extent of the community's need for social distancing.

The Federal Reserve has taken major steps to mitigate the effects of the pandemic. In fact, the Main Street facility was designed to address capital shortfalls affecting credit availability. However, a much more direct mitigant is to require more rapid buildup of capital buffers by stopping dividends and share repurchases through March of next year.

I see no reason to delay a formal stress-test exercise. Our unwillingness to build up capital in banks through dividend restrictions makes it more likely that the Main Street facility will need to do more lending, likely resulting in a much higher cost to taxpayers and requiring banks to temporarily stop the outflow of increasingly scarce capital. It is important to note that if dividend payments are temporarily stopped, they do not disappear. Instead, they become retained earnings that, if not needed to cover losses emanating from the economic downturn associated with the pandemic, will still be available for distribution to shareholders at a later date. A, perhaps slight, delay in dividend payments seems a minor price to pay to insure against a much more dramatic event for the economy and taxpayers of again having to bail out the banking system. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester, please.

MS. MESTER. Thank you, Mr. Chair. I continue to be very impressed with the work that the staff is undertaking to monitor risk and vulnerabilities to financial stability. We're in unprecedented times, so the work is particularly difficult to do. But it's also particularly valuable.

As seen in the set of memos provided to the Committee, this is a vast endeavor. It's called on staff expertise across the system, and I want to thank all the staff involved for their

dedication and for bringing new ideas to the table for assessing current conditions and thinking about various scenarios that we may face in the future.

Now, the increase in the staff's assessment of financial stability and vulnerability, from "Moderate" to "Notable," seems appropriate to me. The risks of financial instability arising from the pandemic and its effects on the economy and financial system are high, rising, and broad. The breadth can be seen in the 17 scenarios the staff considered in their "Waiting for the Other Shoes to Drop" memo. But the overall good health of the financial system going into the pandemic and the policy actions taken to date have helped make the financial system less vulnerable to those negative shocks.

The benefits of a resilient banking system and the higher capital and liquidity requirements that were implemented in the aftermath of the financial crisis are very clear. If bank capital levels were at 2007 values, there would be growing concerns about banking-sector stability and the banking sector's ability to continue to lend as the pandemic rages on.

But we can expect the level of nonperforming loans and insolvencies to rise. And if the increases are in line with those in the modal economic scenarios, the recent bank stress tests and the analysis by the Conference of Presidents' Committee on Financial Stability found that capital levels will likely be sufficient to allow banks to continue to lend. But, in plausible adverse scenarios, risks to banks rise and losses could impair their ability to continue to lend.

Now, the Board of Governors has taken actions to restrict the distributions that systemically important banks are permitted to make. These actions have included halting share buybacks and limiting dividend payouts to second-quarter levels. This has helped preserve bank capital.

But how the economy fares is going to depend on the path of the virus. Recent developments indicate that economic recovery may be further delayed. The Board is requiring large banks to reassess their capital needs and resubmit their capital plans later this year. At that time, the Board is very much going to have consider whether further actions are needed to ensure that capital is preserved.

I found the analysis in the staff "Other Shoes" memo particularly useful, if sobering. Taking us through the consequences of a variety of potential shocks in various parts of the financial system can help prepare us and also suggests steps that we can take now to help mitigate some of the risks, as well as how to respond should the risks materialize. So one thing that I took away from the memos is that, in a variety of places, we don't have sufficient data to make a clear assessment of the risks. This includes data on central counterparties, principal trading firms, and nonbank funders.

Available data that's needed to monitor the very important Treasury securities market in real time are also found to be wanting. This is unacceptable. And we should do all we can to ensure that the data we've identified as being particularly helpful are acquired.

The other thing I took away is that there may be scope for additional 13(3) facilities if problems arise in particular segments of the market. It's good to know that there are further actions that might be taken. But, with any policy action, there are costs and benefits.

At this point, it would be useful to develop a set of principles to help guide decisions about the establishment of future emergency facilities, with these principles taking into account the potential costs and benefits. In some cases, assets taken on at some of the facilities will likely result in losses being borne by the Treasury. So the Federal Reserve and Treasury are

going to have to come to some fundamental understanding about the degree of credit risk that they're willing to take on.

The Board has extended the facilities to the end of the year. So it may seem early to start thinking about how best to transition from facilities that are intended to operate in emergency conditions. But well-thought-out transitions can help avoid unnecessary volatility and stresses in the financial markets that could undermine confidence. So planning for the future transition would useful. Part of that long-run transition might include ways in which the composition of the asset portfolio in the Federal Reserve's balance sheet can eventually return to more traditional assets, perhaps by having the Treasury agree to swap Treasury securities for the corporate debt held on our balance sheet. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chair. I'd like to thank the staff from around the System who contributed to the financial stability materials. I thought the "Other Shoes" memo was especially interesting and thought-provoking. And the word that has been thrown around—"sobering"—I actually think that's a good word to use.

In addition to the expansive set of adverse scenarios that were reviewed, I particularly appreciate the rigor with which the staff assessed the data gaps, immediacy, and materiality across the scenarios. This analysis strikes me as the beginning of a "battle plan" that could be used to improve our understanding of these risks, help us better mitigate their effects *ex ante*, and strengthen our ability to respond, when and if appropriate.

The adverse scenarios in the area of market functioning are particularly concerning. Risks related to principal trading firms, cyber, and stress within central counterparties are highly material, but they involve major data gaps and a limited ability to respond. These reference

memos lay out a variety of good suggestions regarding how the System can act in the absence of such an event to address these issues and strengthen the resiliency of the financial system.

I thank and congratulate the Federal Reserve staff, around the System, who have done tremendous work to set up and operationalize our facilities. But this memo also convinces me that there is much more important work to come.

I hope that, as resources become available, we will aggressively follow up on the suggestions to, one, improve our data on Treasury securities markets, as suggested by President Mester; two, examine regulatory and market structure proposals related to the principal trading firms; and, three, increase our readiness to provide liquidity to a CCP.

I would also like to compliment the team for developing the solvency strain scenarios. In particular, the business debt scenario seems quite relevant, in view of current economic developments. I am hearing from my business contacts that the horizon over which the economy will return to normal is increasingly being pushed out, which leads me to agree with the authors and President Rosengren that in the area of business debt, the primary issue is likely to be solvency, not liquidity. In fact, for some businesses, that threshold had already been crossed.

The potentially long delays in bankruptcy resolution could certainly become a downside risk to reallocation of assets and the broader recovery. I hear there are proposals circulating for the Federal Reserve to create a "debtor in possession" financing facility for firms in Chapter 11. Now, I don't know of work inside the System on this or related contingencies. But a more thorough understanding of such potential contingencies seems prudent.

And, though the memo understandably relies heavily on data for public firms, I believe it is important to incorporate information on private firms into our analysis as much as possible.

We have learned much about the challenges of providing liquidity support directly to middle-market firms through work on the Main Street lending facility, and the scenarios detailed here will be particularly helpful in guiding our survey and outreach efforts to fill some of our remaining knowledge gaps.

As recession dynamics mount, I am hopeful that we will be better positioned to both forecast the implications for the nonfinancial sector and deploy our policy tools most effectively. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chair. I also want to thank the staff for the work they've done. In particular, I also found the other-shoes-dropping work very useful. And I agree with the comments indicating that the duration of this situation is going to be probably much longer than people may be expecting.

With that said, I want to make a couple of comments on the nonbank financial system and market functioning. I am struck currently by conversations I am having with asset allocators—and I think Governor Clarida alluded to this—who commented to me that Treasury securities, in particular, are decreasing in, or playing a decreasing role in diversification of, their asset allocation. Because rates are so low, basically, they don't have the stabilizing effect that they once did.

And I'm hearing lots of discussion by asset allocators that they are now exploring ways of gradually reducing their Treasury-security allocation and revisiting allocations to asset classes like gold, some corporate bonds, and even defensive equities, as a substitute for Treasury securities.

I think it's hard to tell what the implications of this will be, but I think these discussions are going on in a pretty widespread way. And it's clear that there's new work being done how to look for yield in other places. That may be either by changing asset allocation or new ways to use leverage to enhance return. As I said, we'll see where this goes, and I know we will be monitoring this carefully, and I think we should be.

Part of why I raised this now is because of looking back. I looked back to the intervention that was necessary for the Federal Reserve to make in March. Part of that intervention in the financial system was clearly due to COVID-related lockdowns, but part, in my view, was motivated by a need to deal with forced selling, either as a result of redemptions or a need to deleverage by a wide range of financial market participants across various markets. The good news is that, because the Federal Reserve acted in such a broad and bold and substantial way, we were able to facilitate this deleveraging and restore financial market stability.

But I think it's wise, at this stage, before moving on too quickly, to recognize that a big part, or at least a meaningful part, of the seizing up that markets experienced in March was due to leverage—to some extent, embedded leverage in portfolios, as well as the structure of the financial system, in which you've got lots of substantial pools of funds who offer daily liquidity or regular liquidity. And they had to sell. I think this recognition is key. And I'm hopeful we'll be conscious of it as we go forward. Not so much as it relates to low rates. But I'm sensitive to actions that the Federal Reserve may take in the future, in the years ahead, that mute or muffle market signals. In a crisis, this will need to go on for some period of time. But if it goes on for an excessive period of time, I think it creates fragilities in the system, and I think many of those fragilities are hard to see. But I think we saw evidence of them in March.

Now, why am I raising this? On the one extreme, no, I'm not suggesting that we raise rates in anticipation of these types of events—as was, I guess, asked earlier. No, it doesn't mean I would have raised rates in 2019; I actually would not have done that. Or that we want to add financial stability as a third leg to the mandate. So that's on one side.

On the other extreme, though, I also don't want us to be willfully oblivious to the fact that monetary policy, along with the structure of the financial system—especially the nonbank financial system—does create excesses and imbalances and vulnerabilities.

What I'm suggesting is that, when we have time in the months and years ahead, we do more work to try to understand, and do more research on, what happened in March, that we try to learn more from it. We're cognizant that financial stability is a key issue, and it's got to be beyond macroprudential policy.

For me, as we, hopefully, emerge from this crisis, on the margin in certain circumstances, it means probably showing restraint in some of our actions that again could, in effect, muffle market signals or suppress them. That can create other potential problems of system fragility, either in encouraging excessive leverage, search for yield, or other actions. I think there's still a lot to be learned from what happened this spring, and I hope, as the dust clears, that we'll take more time to "postmortem" this and do more research on it. Thank you, Mr. Chair.

MR. POWELL. Thank you. And it's now three o'clock, on the button. I'm going to suggest that we take a 20 minute break and come back in 20 minutes. Then we'll finish the rest of the opportunity to comment on financial stability. Thanks. See you in 20 minutes.

[Coffee break]

CHAIR POWELL. Let us then resume our opportunity to comment on financial stability. Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. Our financial-stability briefings have highlighted vulnerabilities arising from historically high levels of corporate debt. This concern garners some support from the firm-level evidence that high levels of business debt are associated with slower subsequent growth in employment and investment, particularly when lenders are impaired.

With that in mind, my staff examined this question from a macroeconomic perspective and asked how previous corporate credit growth affects the depth and duration of downturns across business cycles in 17 advanced economies in the modern era. Their analysis finds that a period of high corporate debt growth is not typically followed by a deeper or more prolonged downturn. They estimate that the run-up in corporate debt prior to this recession will subtract a mere ¼ percentage point from the level of real GDP over the next five years, and even this small effect is statistically insignificant. This result contrasts with their finding, using the same methodology, of a very large negative effect of booms in household debt—in particular, housing debt—on subsequent growth.

Of course, in the current environment, the risks of an ongoing resurgence of the pandemic, combined with the high levels of debt, may leave companies exposed to a risk of failure well beyond historical norms. Current pricing in both equity and corporate debt markets suggests that market participants perceive this possibility as being remote.

But a potential "canary in the coal mine" is the market for credit default swap (CDS) resolutions. When companies go bankrupt, an auction is held to determine the final price of the CDS contract—that is, the price that investors will pay up front for the future value that they would otherwise get by the end of the bankruptcy process from the debt that they hold. These auctions provide a bellwether for expected recovery rates after bankruptcy.

Implied recovery rates, as obtained from these auctions this year, are approaching levels last seen in the Global Financial Crisis. These suppressed rates are not just arising from names like J. C. Penney—which traded at an implied recovery rate of less than a penny on the dollar—but from companies like Hertz—which settled at 26 cents on the dollar.

As the pandemic continues and we see increased numbers of large business failures, we should actively monitor not only the realized recovery rates, but also the CDS auctions, as indicators of the extent of longer-run damage to businesses in distress. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. Judging vulnerabilities is a tall order under the best of economic conditions. The staff's scenario analysis, "Waiting for the Other Shoes to Drop," deserves special recognition, and I very much appreciated the insights it offered. My comments are going to focus on two aspects of the report: one, banking conditions, and the other, functioning of the market for Treasury securities.

Many large banks were able to bolster their second-quarter bottom line with trading revenues. However, increased loan loss provisions and reduced interest income point to headwinds facing the banking industry, and near-term banking stress is likely to be significant.

It is sure to be a test of the capital framework as well. Will that framework support its stated objectives regarding countercyclicality as we work through this economic crisis? Will tightening credit standards be temporary as banks assess the economic outlook and damage to the economy or prove to be a more persistent defensive mechanism to preserve capital, constraining access to credit for households and businesses at the very time it is most needed? Although no one anticipated the nature or depth of the current shock, we may learn too late whether capital levels have been sufficiently calibrated.

Although it was outside the scope of this report's systemic risk focus, today's challenging conditions also are sure to have a negative effect on community banks. Many community banks are exposed to the commercial real estate (CRE) and agricultural sectors, both of which are experiencing deteriorating fundamentals.

Unlike large banks, these banks are not able to rely on fee income from trading in investment banking activities to offset market compression—making their continued profitability a major concern. In the past, widespread failures among small banks have presented their own systemic problems.

Finally, I found the staff's analysis of stresses in the market for Treasury securities both valuable and sobering, in terms of the plausibility that disruptions to the market for Treasury securities could reemerge, with the potential for contagion to the clearing system. The critical nature of this market and its prospective size relative to current intermediation capacity demand an effective policy response.

The list of short-term and intermediate-term policy responses outlined in the report seems important to consider, including whether further centralization and more concentrated risk is ultimately safer than decentralizing risk by expanding the set of market participants to trade directly with each other. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles, please.

MR. QUARLES. Thank you, Chair Powell. I appreciate the excellent work that's been done by the staff on this round to incorporate the continued elevated uncertainty about the economy and financial markets into our assessment of financial stability. I want to focus my remarks, as both President Rosengren and President George have, on the condition of the banking industry and the actions we have taken to conserve capital until the uncertainty

regarding the path of the COVID event resolves. And then I'd like to say just a few words about vulnerabilities at nonbank financial institutions, which are going to be a focus of the Financial Stability Board.

The latest data that we have on the banking system, provided in second-quarter earnings announcements, suggest that both capital and liquidity positions remain strong and resilient, especially at the largest institutions that have been subject to stress testing and to our other enhanced regulatory initiatives.

Obviously, banks have three key sources of loss-absorbing capacity. The first is their underlying earnings capacity, second are their loan loss reserves, and, finally, they have capital. Let's take each of those in turn.

First, earnings. As Luca mentioned in his presentation, most of the largest domestic banks—the ones that are subject to stress testing—remained profitable in the second quarter, despite taking exceptionally large loan loss provisions to boost their allowance for loan losses.

Second, those additional loss reserves represent between 40 and 50 percent of the projected loan losses over the stress-testing period—the nine quarters for which we run the stress test regarding the 2020 severely adverse scenario.

And, third, the common equity tier 1 risk-based capital ratios at those banks increased between the first and second quarters, reflecting retained earnings and a broad decline in risk-weighted assets that was, in turn, partially driven by a reversal of some of the extraordinary balance sheet growth that we saw at the end of the first quarter.

So with those results now in the books, let me say a bit more about the process that we followed with our rules-based dividend policy for the third quarter. I think all of you know that

the policy reflects the results of a comprehensive analysis of banks' vulnerabilities under three quite severe but plausible downside scenarios.

I think it's relevant to note that, so far, each of those scenarios remains quite a bit more severe in both their real and financial assumptions than it appears that the outcomes in the second and third quarters will in fact turn out to be. In addition, the staff incorporated a number of conservative assumptions about the balance sheet changes that we saw at the end of the first quarter. This analysis found both high variability in the individual-bank outcomes across the three scenarios and in the performance of the set of stress-tested banks within each scenario. Some banks consistently held up quite well, even in the most extreme scenarios. Other banks didn't look as resilient.

In light of that, we took a measured action, which preserves capital generally by suspending all stock repurchases and then adds further granularity by restricting dividend payments by any banks that might experience large losses in the second quarter, while still allowing profitable and highly capitalized banks to continue paying their dividends.

I want to emphasize, because it's gotten a little lost in all of the discussion about restricting dividends, that the action to prohibit all stress-tested banks from repurchasing their stock—again, such repurchases, as I think all of you know, accounted for 70 percent of all capital distributions in recent years—was unprecedented. In the past, when banks have failed their stress test, the reaction of the Federal Reserve was to limit their ability to increase distributions from the prior year. We have never required them to suspend distributions. That action was not inconsequential, and it was not merely ratifying what many banks had already planned.

Taken together, these actions will preserve capital in the system in a way that appropriately balances the costs and benefits of government intervention in private capital markets. Equally important, we are also establishing the precedent that our actions in a crisis will continue to be dictated by the most comprehensive analysis we can do in a timely manner and that those actions will be as tailored to individual institutions' conditions as is feasible under the circumstances, rather than enacting a blanket policy before completing any analysis.

To that end, we are putting in place a similarly comprehensive and robust analysis of the banking system as we decide whether restrictions on capital distributions remain prudent for the fourth quarter of 2020.

One of the reasons that I, at least, became comfortable taking a measured approach was that by the time we released the stress tests, all three downside scenarios were quite a bit more severe than a reconstituted baseline would have been. Unemployment in the "*V*-shaped" scenario peaked at more than 19 percent in the second quarter compared with the roughly 14 percent peak in April. The "*U*" scenario included the assumption that the unemployment rate averaged 16 percent in the second quarter of 2020 and remained there in the third quarter, with no substantive pickup in real GDP growth for almost as far as the eye could see. But the unemployment rate has already fallen to 11 percent. We are likely to see some GDP growth in the third quarter, even though there has been some slowing in the second half of June and in July.

We are all closely watching the potential implications of a second wave, which was the predicate for the so-called "*W*" scenario. But the long-term stagnation in that scenario, you'll remember, comes not only from a second wave of closures but, significantly, because of the assumption that there would be no progress regarding a vaccine or treatment in coming years. The "*W*," in fact, was less of a "*W*" than a "surd," with the last leg of the "*W*" sort of being very

high levels of constraint for a long period of time. But, in recent months, we have seen significant progress in treatment regimens and we have seen a very significant reduction in the measured mortality rate.

On the financial side, in all three scenarios, house prices fall 25 percent in our stress analysis. But house prices have actually continued to rise this year.

And, finally, all three scenarios implicitly incorporate the assumption that the Federal Reserve's business-credit facilities will be unable to stabilize private debt markets, pushing the triple-B spread up to its financial crisis peak. That doesn't, so far, seem to be the case.

Continuing on the point of bank resilience, I'd note that we spent a lot of time talking about the effect of the COVID events on bank capital levels, not as much publicly about bank liquidity. Improved liquidity regulation was the suspenders in the belt-and-suspenders approach to large bank resilience. As we saw in the staff's QS assessment, banks continue to have historically low levels of short-term funding and historically high levels of high-quality liquid assets. And, relatedly, in the July SLOOS, very few banks reported a change in their current or expected liquidity positions as a reason for having tightened standards on business loans, which is in stark contrast to the responses that were given at the outset of the Global Financial Crisis in October 2008. Even if markets were to become jittery about a particular bank's capital levels, that institution will have a strong liquidity cushion from which to draw as they take steps to address any capital shortfall that is perceived by markets.

The staff also provided, via the "Other Shoe" project, an analysis of the resilience of the banking system as a whole, including community and regional banking organizations beyond just our stress-tested banks, as President George noted. And at the end of the same "*U*-shaped" scenario, as was used in the sensitivity analysis concerning our Dodd-Frank stress test, the

condition of most of the banks can be characterized as "bent, but not broken." That is, many firms would fall under their capital buffers, but the number of distressed and failing banks would remain manageable and understandable, in view of the scale and scope of the crisis.

Now again, as President George noted, many of these smaller and regional banks do have substantial concentrations of commercial real estate assets, agricultural assets, and other concentrations that may be hard hit even if we experience a recovery that approximates the Tealbook baseline. Some also have high concentrations of loans to small businesses that, as shown in the Tealbook, are under increased strain, despite the nascent recovery. So we'll need to remain vigilant in our ongoing supervision of these firms and work with them to ensure that they are properly recognizing and managing the higher-than-expected level of risk in their portfolios and that they are taking appropriate steps to remain well capitalized.

So, then, just a few words on the nonbank sector. We have been concerned about vulnerabilities to the economy and financial markets that could be exposed by a shock to the overleveraged business sector for some time. The shock arising from the COVID event was far more extreme than anyone had contemplated and so necessitated the type of public-sector response we had all been hoping to avoid. And while banks have, so far and for the most part, been managing their corporate-lending exposures without recourse to extraordinary measures of public support, the same can't be said for the nonbank financial sector, which has grown substantially in the decade-plus since the Global Financial Crisis.

The staff turned up their assessment of financial-sector leverage one notch on concerns that increased leverage at nonbank financial institutions exposed to lower-rated corporates, particularly hedge funds and life insurance companies, would amplify subsequent shocks. And, on top of that, the staff noted that their assessment of vulnerabilities related to maturity and

liquidity transformation would be in its highest category if not for the Federal Reserve's facilities to contain pressures in prime money market funds as well as long-term mutual funds and ETFs that invest in corporate debt instruments.

All of these issues surrounding nonbank financial institutions are at the top of mind of international regulators. The Financial Stability Board's annual report on nonbank financial intermediation indicates that it's now almost 50 percent of total financial intermediation, and that many nonbank financial institutions rely on the banking system for credit and backstop liquidity.

Even before the COVID event struck, the FSB had begun to renew efforts to engage with this important sector. Late last year, I formed a high-level steering group of central bankers, market regulators, and international organizations to oversee the FSB's work on nonbank financial intermediation and to help coordinate work across the range of global standard-setting bodies that oversee the financial sector. The COVID event made the work of this group even more urgent, because it made clear that vulnerabilities in the nonbank sector related to liquidity mismatch, to leverage, and to interconnectedness—which some suggested had been mitigated—still existed.

The next step for that group is to do a holistic review of the COVID event to get a better understanding of the role that vulnerabilities stemming from the nonbank sector played in those events. And then, before the G-20 summit this November, we plan to develop a comprehensive work plan focused on better understanding this critical sector, the vulnerabilities related to it, and how we might take a more macroprudential approach to supervising and regulating at least some parts of it. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari, please.

MR. KASHKARI. Thank you, Mr. Chair. I want to thank the staff's work on financial stability. I think this work that they've been doing for the past many years and continue to do is enormously important. I continue to be amazed that, 11 or 12 years after the 2008 crisis, we had to do a full-fledged bailout of the funding markets in March. I mean, that's just astonishing to me. And it wasn't just the markets that we bailed out. We bailed out all of the market participants who would've been in a world of hurt, if the Federal Reserve had not stepped in. I totally support the actions we took, but this was a massive bailout of the financial system. And I think we have more potential for financial instability in future bailouts, due to the progression of COVID and where it might go.

I agree with the general framework that the staff uses in their analysis of financial stability. In this framework, they do not try to predict what shock is going to hit the system. Few predicted—I certainly didn't—the collapse in home prices in 2007 that led to the previous crisis. Few predicted the pandemic in 2020. I certainly didn't predict it. And few will predict what the future shock will be. Instead, the staff, using this framework, tries to focus on assessing the vulnerabilities of the system to a shock. But here is where I disagree with the staff. I disagree with their assessment of the vulnerabilities.

First, we've had a lot of discussion on this today. The report assesses financial-sector leverage as having moderate risk. But here is what the report, in the back, says about potential losses in the banking system. This is page 10 of 19. I'm not asking you to turn to it. According to the staff's analysis, banks' ability to continue to intermediate credit to the economy appears to be a concern. Even in the least severe scenario considered, approximately 75 percent of U.S. banking system assets could become constrained in the sense that they would be below their

regulatory minimums and/or regulatory buffers, negatively impacting lending to support an economic recovery.

And then further in the back—this is page 62 of 190—when it goes through potential policy responses, the staff says, in their bank recapitalization program, "More severe stress could require extraordinary public assistance. . . . the total capital needed by insolvent, distressed, and intermediation-constrained institutions could be as high as $1.235 trillion."

I was shocked by that number. That was a much larger number than I had been expecting and than we had calculated in the various scenarios that we looked at in Minneapolis. And so I just struggle to see how the staff can conclude that that's a moderate assessment.

Second, the report assesses funding risk as also having moderate risk. Well, this is moderate risk with the full backstop of the Federal Reserve behind the funding markets. Imagine if that backstop weren't there. What would the risk be now? And so I ask the question: You know, what can we learn from this whole exercise of not seeing the COVID crisis coming?

Again, I didn't see it. I'm not saying anybody should have seen it coming. But all of the flashing yellow, green, red—none of it was red before the crisis. Here we are in the middle of the crisis, and it's still not red.

So when is it ever going to be red, if not before the crisis and if not in the middle of the crisis? Is it only if all of the buildup happens so that it's glowing, and it's right in front of us, and we can see it? Then this framework would actually be telling us we have elevated risk? I just don't see how it's not an elevated risk right now. It just seems too optimistic.

I second what others have said about all we can do. Again, this is not a criticism of the staff, in the sense that they have a really hard job. All we can really do, because we cannot predict these crises, is make the system as resilient as possible as early as we can. And that

means more capital for the financial system, more capital for the banks, stopping dividends, forcing them to issue equity now if they still can do it.

I find it very interesting that in the most recent earnings calls, the big-bank CEOs were just so surprised at how the course of the virus is going that they had to take these big provisions against loan losses. Well, buckle up, folks. I hope they're paying attention, because, so far, the news has not been good over the past few months. And they know we're going to have no choice. If this thing gets as bad as it seems, their losses are going to roll up into the banking system. They know that our hands are going to be forced to step in to rescue the banks.

And, again, finally—not for today—I just think, having this new shock hit us that came out of nowhere, it would be great for the staff to take a step back and say, "What have we learned through this process, in terms of our ability to predict financial risk, to understand financial vulnerabilities? What can we learn from this so that the next time—5 years from now or 10 years from now, it's another shock coming from out of the blue—what can we learn so that we've taken measures to actually make the system more resilient?" Again, I just—I'm repeating how I started. I still can't believe that, 11 or 12 years after '08, we had to do a full-fledged bailout of huge sections of the financial system. That such a bailout was required means something is fundamentally wrong. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you, Mr. Chair. I want to thank the staff for the excellent "Other Shoes" analysis that Luca Guerrieri discussed in his presentation. It's a helpful reminder that financial market conditions remain fragile, and that financial stresses often play out in more than one wave. Vulnerabilities in the financial system have grown as a result of the first round of distress and recessionary dynamics, which would serve as an amplifier if another shoe drops.

I'll touch briefly on a few of the key vulnerabilities that I think merit continued vigilance. In March, the markets for Treasury securities experienced unexpectedly severe disruptions. And, in the period ahead, with Treasury security issuance expected to increase notably, outpacing Federal Reserve purchases at a time when market participants are revisiting the hedging value of those instruments, market makers could be unwilling or unable to intermediate the necessary amount, resulting in a renewal of dislocation. This could reignite volatility and illiquidity.

As we saw in March, those disruptions could be amplified by a pullback of liquidity provision by hedge funds and other PTFs, contributing to further spillovers of illiquidity. Our ability to monitor emerging risks in this corner of the nonbank financial sector remains very limited. Heightened volatility could expose already-strained trading firms and clearing members to losses, and it could make it difficult for banks and other financial intermediaries to hedge certain risks. Stresses at clearing members could pose severe challenges to CCPs, which have so far operated very well through the crisis.

Second, in the nonfinancial business sector, the COVID shock has led to a substantial deterioration in the condition of many firms. Business leverage, which was already historically high before the pandemic, has risen sharply, while profits have declined and credit quality has deteriorated. If the economy were to remain weak for a protracted period, there could be widespread downgrades, increased defaults, cash shortages, and large drops in interest coverage ratios.

Already this year, there have been about $800 billion in downgrades of investment-grade debt and $55 billion in corporate defaults, a faster pace than in the initial months of the Global Financial Crisis. And the stress experienced by corporate borrowers could spill over to mutual funds and ETFs as well as insurance companies and other financial institutions.

Third, nonbank lenders, such as commercial mortgage REITs and private equity funds, have expanded their presence in CRE markets, in which they're facing increased demands for forbearance. Both vacancy rates, as you saw, and delinquency rates have been rising for loans backed by hotels and retail. In the period ahead, the acceleration of remote work and the deceleration in travel and consumer services could lead to a substantial further deterioration in CRE credit and market conditions. This, in turn, could result in dislocations in CMBS and CRE CLOs as well as CRE loan write-downs.

Nonbank mortgage servicers also pose risk. Mortgage servicers are required to advance principal and interest payments as well as taxes and insurance payments on a monthly basis even as homeowners may be taking advantage of forbearance and not making those monthly payments. So far, the share of total agency-backed mortgage loans in forbearance is below 10 percent. But there is a significant risk that that rate could rise, along with defaults, as job and income losses build and if fiscal support wanes.

Furthermore, as we saw in March, liquidity concerns among nonbank mortgage companies could limit dealers' desire to facilitate pipeline hedging and warehousing activity, limiting originators' ability to offer those loans. And, finally, in sharp contrast to segments of the nonbank financial sector, in which we saw fire sales and runs in March, supervised banking organizations entered the crisis with high levels of capital and liquidity, and this positioned them well to respond to the shock by lending to households and businesses, working with customers who need assistance, and intermediating financial transactions.

But survey responses in the July SLOOS indicate that banks tightened standards across all loan categories, citing an unfavorable economic and sector-specific outlook, reduced risk tolerance, and less liquidity in the secondary market for those loans as reasons for tightening. As

a result, the index of bank lending standards is at levels previously seen in the acute phase of the great financial crisis. As recessionary forces extend, credit losses associated with those forces are likely to rise, pressuring banks' balance sheets.

The staff analyzed three alternative adverse scenarios predicated on a prolonged COVID outbreak, resulting in a deeper and longer recession than is generally expected. As President Kashkari pointed out, even in the least severe of those scenarios, close to 75 percent of U.S. banking system assets were estimated to fall below the regulatory minimums or regulatory buffers or both. This raises the risk that banks, at the most challenging time in the recovery, would need to curtail credit or to raise capital.

The number of banks that risk breaching their minimums in analyses such as these, as well as in the *U*- and *W*-shaped scenarios in the stress test, are the reason that I prefer to see banks preserve capital.

As I look across the financial system more broadly, I regard continued vigilance—for these or other risks that could materialize—as clearly warranted. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you, Mr. Chair. Like others, I really appreciate the great work done on the QS report, including the sobering but very helpful "Other Shoes" analysis. And I concur with the assessment that overall vulnerabilities in the financial system have risen to "notable." I am particularly concerned about nonfinancial business leverage, like so many others have noted. The nonfinancial corporate sector's debt load reached record levels earlier this year, and the pandemic and associated decline in economic activity has strained firms' ability to service this debt.

As the QS noted, the second quarter likely saw a further buildup in leverage that will persist for some time. Of course, this buildup provides firms a buffer to weather potential future volatility. But in view of the depth of the downturn and its protracted duration, some firms will find it increasingly difficult to meet their debt payments, raising the risk of default.

To assess this insolvency risk and add to it what we've already seen in the QS report, researchers at the Federal Reserve Bank of San Francisco looked at firms' distance to default. This is a measure of default risk faced by businesses, often used by practitioners and academics. And, for nonfinancial corporations, the team documents an increase in insolvency risk since the end of last year, driven by higher market volatility and moderate deterioration in asset values.

This insolvency risk is particularly pronounced in the hardest-hit energy and retail trade sectors, not surprisingly. Most of the outstanding corporate debt in the United States continues to be owed by relatively safe firms, according to this analysis. But companies that have elevated default risks currently hold twice the share of corporate debts that similar firms did in 2008 at the depths of the financial crisis.

In light of these looming risks, we need to make sure that the banking sector remains well capitalized. That's a narrow way in which we can try to support this. So, while I appreciate the efforts to date to conduct more-stringent stress tests of our financial institutions, I also support stricter share repurchase and dividend policies for banks in the future. Capital preservation, as Governor Brainard just said, is preeminent.

I will conclude by saying that one of the lessons that I learned, anyway, from the events of March is that banks were well capitalized going into the crisis, in part because of the strong macro- and microprudential tools that we had in place. And, to me—and this came up earlier in the discussion—this shows that these tools are effective as our first line of defense against

financial vulnerabilities, and we should continue to use them to our fullest abilities. Thank you, Mr. Chair.

CHAIR POWELL. Thank you, and thank you, everyone, for your comments. Let's go right into the economic go-round, for which we will, once again, go right back to President Daly, please.

MS. DALY. I just had to take a big swig of water.

CHAIR POWELL. I was trying to stretch it out there for you. [Laughter]

MS. DALY. Thank you. I appreciate that. A "double Daly" is not what everybody always wants—or a "Daly double" [Laughter]. Okay. So, to the economy. Again, thank you, Mr. Chair.

Since our previous meeting, a variety of economic indicators have come in positive, reflecting, really, the reopening of various parts of the national economy. But the recent gains in spending, orders, and the labor market pale in comparison with the losses experienced during the initial shutdown. So a big hole in economic activity remains. And we saw this in Eric Engen's presentation.

Regarding the future, we are really far from being out of the woods yet. Recent data on infections point to surges in many parts of the country, including much of the 12th District. In California, we are seeing widespread shuttering of high-contact businesses like bars, hairdressers, and nail salons, and greatly curtailed—and I would underline "greatly"—curtailed activities like shopping, dining, and learning. This is from changes in hours to "Can you do it at all?" It's really a reaction to the fact that we don't want to go back into a full shelter in place, but we have to curtail our activities greatly if we're to survive, or get through, this surge.

And even in those areas whose economies remain relatively more open, such as Arizona, Idaho, and Nevada, whose cases are also surging, contacts report a softening in economic activity in response to a pickup in infection rates. So, even when there's no governance regarding these issues, people do stay home with fear of getting ill. Some of this pullback, as Eric again noted, is starting to show through in some higher-frequency data. And I'll just point to data on initial claims for unemployment insurance—which went up—and credit card spending—which has retraced some of its earlier improvement.

And this has left my contacts in the 12th District with a high degree of uncertainty and caution. They are really in a cautious posture, and they say that the uncertainty bands that they see today looked very similar to the ones that they had right at the beginning of the crisis. So, like me, they expect the road to recovery to be choppy. And if we're looking for letters, I don't know if I should use this "*W*" again, because Governor Quarles used it, but I would think of it as a "*W*" with a very extended up-and-down tail, not one that just goes and stays flat but really has this volatility of the fits and starts that COVID seems to be bringing us.

This all means that we are likely in for a protracted struggle, a struggle against the virus that has an economic effect. As we continue to fight COVID, more fiscal relief will surely be necessary. I remain hopeful that the Congress will reach a compromise in the next week and provide additional help.

Several studies, including some by Federal Reserve Bank of San Francisco researchers, have shown that the CARES Act has been an important source of support for families and for the overall economy. Indeed, despite the huge job losses we experienced, disposable income rose in the past several months, as payments from the CARES Act made their way to those in need.

And because many beneficiaries were liquidity constrained, this extra income moved directly into spending in many cases, boosting aggregate demand.

Especially helpful has been the relief coming from unemployment insurance benefits, which were both more generous to those who received them and broader based, in terms of who received them, than usual. Now, the Congress is currently debating rolling some of this generosity back in the next package, in part to relieve concerns that generous benefits are part of why we haven't seen a bigger resurgence of employment. In other words, we're keeping workers from returning to work because the benefits are more generous than they typically are.

Researchers at the San Francisco Reserve Bank, again, took this idea seriously and looked into the possibility using data and models. And they specifically examined whether the extra $600 per week in UI coming from the CARES Act would be sufficient to discourage workers. The study uses historical information on accepting job offers from new or past employers. They find that this extra $600 is not sufficient. And the insight underlying that is really important. But it's also simple: It's really the temporary nature of the benefit extension.

So, if you compare the temporary nature of an extra $600 with the prospect of a stable job and an income stream associated with that job, you almost always surpass the short-lived gain from an extra government check. And this is especially true now, when the uncertainty about the depth and length of the recession is so pronounced that it leaves reasonable job offers almost too attractive to pass up.

Now, their quantitative results are consistent with additional analysis using CPS microdata, which show almost no correlation between individual job-finding rates by state and variation in UI generosity by state. You just don't see that correlation; it's zero. And so these findings tell us that, for now, fiscal relief, at least to my mind, is acting as a bridge against the

adverse effect of COVID. And it's not inducing adverse labor supply effects, which so far are quite limited.

So, in view of the extra income and spending supported by such payments, one of my concerns—a risk to the forecast that I have—is that a rollback in fiscal support—even though it's additional fiscal support, it's still support in the face of a shock that we haven't yet weathered—will be a net negative for the U.S. economy. We're basically reducing the size and scope of the "bridge." And that can have an effect on the economy in the near term.

I similarly view the effect of the pandemic on inflation as being a net negative. Supply disruptions are boosting prices in some sectors—I can tell you this is true in bicycle stores, which I've recently shopped in—but also, as Governor Quarles mentioned, there's some Chinese decoupling we're doing—supply chain shortening. And that is a supply effect, which could boost prices. But there is a large decline in aggregate demand that will keep hitting inflation and keeping it below target for the foreseeable future, at least in my forecast.

Now, finally, let me say a few words about the stock market—something I always think of as a risky business, but I'm going to go do it anyway. The most common question I get asked by my contacts is actually not "When will COVID end?" It's "How is the stock market so out of whack?"—or so out of line with what they see as the pervasive uncertainty and unpredictable future that we have in our economy.

Figuring out the market can be hard, but researchers at the Federal Reserve Bank of San Francisco did take a look at this. And they estimated a model that was based on the historical relationship between Shiller's cyclically adjusted price-to-earnings ratio and a set of macroeconomic fundamentals, including estimates of growth and r^*. And their model demonstrates that estimates of equity over valuation depend largely on whether economic

uncertainty is incorporated into the analysis. When the indicator is excluded, there's no uncertainty in the model variables, and the current evaluations appear fairly reasonable. But if you account for uncertainty using various measures like the VIX, then current valuations look especially high.

So the real difference between my contacts and the stock market appears to be the degree to which uncertainty is being priced into the whole index, not just in certain sectors. And my concern about this is that this makes the stock market even more precarious with regard to bad news. If you get a piece of bad news, then you could face a correction that would be larger than you would have had otherwise. Should valuations make this abrupt connection, that would present a risk to the economy, and this is a risk that I will be watching closely in coming months. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida, please.

MR. CLARIDA. Thank you, Chair Powell. In recent months, we have seen two noteworthy developments in the U.S. data. The first development is that official U.S. economic data have been surprisingly overwhelming on the upside. Both the Citi surprise index, which set an all-time high, and the Bloomberg index are at robust, positive levels, with surprises that have been broad based across sectors.

We've, of course, seen stronger-than-expected labor market data, but also better-than-expected retail sales, production, and housing data.

Unfortunately, we have also seen another noteworthy development in the data. And that, of course, is the sharp rebound in new coronavirus infections reported in a number of states. These infections are prevalent in many states that were early to reopen and did not lock down to the extent we did in the Northeast.

While this summer surge in COVID cases may not trigger a second sharp outright contraction in activity, it does remind us of the complexity of forecasting the economy in real time amid the worst global pandemic in at least a century. Clearly, macroeconomic dynamics depend on the course of the virus. And, indeed, we say that in our draft July FOMC statement. But, of course, the course of the virus depends on macroeconomic dynamics. Moreover, the dynamic linkages between the virus and the economy are almost certainly nonlinear. The well-known SIR model, for example, is a nonlinear model.

The problem is the study of nonlinear dynamic systems is very complex, and what it generally shows is that multiple equilibria in such systems are not only possible, but ubiquitous. And some are better than others, and some are worse than others. Furthermore, the global-stability properties of nonlinear dynamic systems are stochastic—that is, there are random shocks that are even more complex and more fragile. So we have our work cut out for us as forecasters. And I think the staff has done a great job in the face of such difficult challenges.

Financial markets overall are functioning well after the extreme turbulence and dysfunction we observed in March, and public markets in particular are serving their essential roles of intermediating credit between savers and investors. Investment-grade (IG) and high-yield spreads have retraced their sharp selloffs in March, and now the trading range is consistent with economic recovery, not recession.

That said, the recent SLOOS survey indicates that banks are tightening credit standards significantly but not in excess of what we would expect in a deep downturn, and we are in a deep downturn. Historically, such tightenings in lending standards in the SLOOS tend to persist and signal headwinds to recovery for small and medium-sized companies that don’t have ready access to public markets.

Now, in thinking about the demand for credit by these companies, I myself find it useful to distinguish between gross and net demand. For a great many SMEs right now, the net demand for credit is likely modest, but I suspect the amount of debt that will need to be rolled over in the next year or so will be substantial.

In going forward, I think we will need, as a System, to be monitoring very closely what I perceive will be a tug of war between tighter lending standards, CECL requirements, bank capital, and a potential debt rollover cliff for SMEs lacking access to the public markets. I would just like to second a comment that President Rosengren made earlier, and I think Governor Brainard has made this comment as well: I think this rollover is going to be a first-order issue, perhaps by the end of the year.

Now, as was the case going into our June meeting, I found the staff's analysis and their marshaling of evidence to be persuasive. And, indeed, my current forecast for growth, inflation, and unemployment is broadly in line with that of the staff, so I won't go into it in detail. It's interesting to me that the staff has seen the better macroeconomic data, the worse virus data, and penciled in a bigger fiscal package than they did earlier. And the net effect of these is that they've somewhat revised up their view of economic activity. In other words, the hole that the economy will fall into this year is a little less deep than they thought it was in May.

Still, we're looking at a very deep hole roughly in line with consensus: a 5½ percent decline in GDP, fourth quarter over fourth quarter, and an unemployment rate of around 9 percent. Now, later this week, we're going to get the "first read" on GDP data for the second quarter. And there's little doubt that it will show that a staggeringly steep decline in activity occurred in the first half of this year. But this, of course, is what the rear-view mirror is telling us.

The high-frequency data for July, including the Federal Reserve Bank of New York's very helpful tracker that I consult regularly, suggest that the very evident pickup in high-frequency data that we saw in May and June did stall in July. And if the economy did stall in July, this would be consistent with our staff's assessment that the economy contracted somewhat less in Q2 than they once thought, but may also rebound less in Q3 than they projected.

Let me conclude with a discussion about inflation. Around this virtual table, there's broad agreement that the COVID contagion shock is disinflationary, not inflationary. And I agree with President Daly that both supply and demand are in action. But this is one whopper of a demand shock. And I would point out that even though, at least in my lifetime, we've recently seen a more robust fiscal policy response than has ever occurred in these 60-plus years, the savings rate's also 30 percent right now. So this is quite a whopper of a shock.

That being said, we are looking at a situation—and I'm relatively optimistic among those on the Committee—that by year-end 2021, we could be looking at an output gap of around 4 percent—if you just extrapolate past trends—and significant slack in the labor market. We entered this recession with core PCE inflation running below our 2 percent objective, as I pointed out, for virtually all of the time since 2008. And many measures of inflation expectations have been drifting lower into a range that I find uncomfortably low compared with our objective.

I would also note something unusual, at least in recent history. The Survey of Professional Forecasters is now projecting PCE inflation of 1.7 percent over the next five years. And that's down from 2 percent in January. This is noteworthy because, historically, the SPF has given the FOMC the benefit of the doubt by always writing down 2 percent for their medium-run inflation forecast. And so they have been professional forecasters, but like many of us, they've also been wrong. And I believe that an unwelcome and difficult-to-reverse decline in

inflation expectations is a risk that we'll face. And, obviously, that's for our policy discussion tomorrow. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chair. In comments collected from across our District in recent weeks, there's been a marked shift in sentiment and expectations, as hopes for a smooth recovery have evaporated—a change driven in large part by the resurgence in infections and a significant slowing in the pace of recovery in July. As many of us noted at our previous meeting, the key force driving current conditions remains biological, not economic.

With regard to my economic outlook, I have sought clarity on two key questions. First, what does this shift in sentiment and expectations imply for the economy for the second half of the year? And, second, what are the risks that this biological shock triggers a deep structural shock, which would carry the potential to have a negative effect on a much broader portion of the economy?

Before turning to these questions, though, let me first elaborate a bit on the shift in sentiment in recent weeks. Although we continue to hear positive stories about the strength of the consumer and activity, we are increasingly hearing concerns from our District contacts about the sustainability of that strength, in light of the surge of COVID-19 cases and the prospect of key government supports expiring.

With regard to the coronavirus, several business owners expressed a strong sense of weariness in terms of their continued struggles to operate their businesses in an environment in which many critical factors are outside of their control. One key factor is employee behavior outside of the workplace. A major food processor headquartered in our District shared that contact tracing revealed that none of the more than 800 COVID-19 cases among their employees

involved was linked to the workplace. In every case, virus transmission occurred through community spread. But the firm still had to struggle with the effect on operations, as those employees have had to stay at home and quarantine until cleared to return to work. This is becoming a more general problem across our District.

Restaurant-, hotel-, and retail-sector contacts in the District report that many consumers have pulled back from normalizing their activities. A contact who is at a company that owns several national restaurant chains reported that in the past two weeks, restaurants have "given back" much of the gains seen in May and June. Independent businesses, which account for 50 percent of restaurants, now look to be particularly at risk. One recent estimate I heard was that 30 to 40 percent of independent restaurants may close.

As President Daly noted, high-frequency data point to the same negative shift. And I would just point out that, with respect to unemployment claims, Mississippi was the shining star of the Sixth District. And I don't get to say that very often. In terms of what this shift in sentiment and expectations implies for the economy for the second half of the year, findings of several Federal Reserve Bank of Atlanta business surveys offer some insight.

In our Business Inflation Expectations survey of Sixth District firms, we have been asking respondents to state when they expect their operations to return to normal. In April, the median response was September of this year. In July, the median was April 2021. Moreover, pessimism is increasing. The survey found that 25 percent of respondents now see a return to normal taking 12 months or longer compared with only 10 percent in April.

With regard to employment, business responses to our national CFO survey, which is conducted in partnership with the Federal Reserve Bank of Richmond and Duke University, indicated that firms expect employment to remain below pre-COVID levels through the end of

2021, with the slowest recovery among firms with 500 or more employees. Feedback received from our District contacts largely mirrors these survey responses and suggests that expectations regarding the forward path of the recovery have weakened measurably.

The related issue that I would like to comment on concerns the risks that we may start enduring structural shocks that destroy a lot of capital and require a significant and prolonged reallocation of resources. Here, the news is not good. Based on what I'm hearing, it appears that the economy is rapidly approaching a point of no return—beyond which we would suffer worsening conditions for a broader set of industries and households in the second half.

And, frankly, the risk picture is concerning. Since May, most if not all of the upside risks for a faster recovery have vanished as the path of the pandemic has worsened in nearly all parts of the country. It seems that the sole remaining upside risk involves the rapid rollout of a vaccine. And, while I certainly hope this rapid rollout happens, my view of the overall risks has certainly shifted to the downside.

In addition, we face the expiration of many elements of the CARES Act relief package—most notably, as noted by President Daly, an abrupt expiration of the pandemic unemployment insurance benefits. If no new legislation is enacted this week, approximately 31 million people and their families will lose significant cash flow, with about 14 million losing benefits all together.

This is particularly concerning because the economic effect of the pandemic has been concentrated on workers who are most poorly positioned to weather this type of income shock. Analysis by my staff suggests that workers in low-skill occupations, which are primarily service-oriented, such as food preparation and cleaning, have borne an outsized share of job losses this year.

Between February and June, one-third of net job losses occurred among workers in low-skill jobs, a group whose employment share was just 17 percent in February. In comparison with previous recessions, this outsized effect on low-skill jobs is highly atypical. In the Great Recession, for example, nearly all of the net job losses fell on middle-skill workers, who are concentrated in cyclical industries such as construction and manufacturing. Employment for low-skill jobs actually increased rather than declined during that recession.

Compounding this concern is the reality that this disproportionate effect on workers in low-skill jobs translates into a disproportionate effect on Black and Hispanic workers. Reflecting the disparities in educational and economic opportunities, Black and Hispanic workers are much more concentrated in low-skill occupations and thus are more susceptible to negative income shocks associated with this pandemic.

So, as is often the case during economic downturns, racial disparities in income and wealth are at risk of being exacerbated as a result of the pandemic. To date, as shown by a recent JPMorgan Chase Institute study, as well as the research cited by President Daly today, this dynamic has been somewhat attenuated by the relief offered by the CARES Act and by other policies. But in the period ahead this situation will look far different if unemployment remains at high levels, while expanded unemployment benefits are decreased for some and eliminated for others.

In the previous cycle, most of my directors indicated that the “Nike swoosh” best represented the expected path of the recovery. This time around, my directors indicated that the Nike swoosh may still be the best representation of the path forward, but only if you tilt the slope of the recovery portion downward and add in a lot of bumps.

My sense is that many businesses and consumers have not factored this bumpiness into their perspectives. That many might now be surprised leaves me increasingly concerned that there may be a different downward recalibration soon that could be even more extreme. More of my thoughts about what this implies for monetary policy tomorrow, but for now, thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari, please.

MR. KASHKARI. Thank you, Mr. Chair. I'm going to talk briefly about the Ninth District economy, and I'm going to spend most of my time focusing on what we've learned about the virus. For the Ninth District economy, the news is mixed since our previous meeting. Consumer spending is up, but activity has declined in most sectors, including services, construction, manufacturing, real estate, energy, and mining. Our regional outreach survey found that more than half of businesses were reporting lower revenue in June and July than in April and May, with about half yet expecting lower revenue in the next couple of months.

High-frequency data, as others have noted, have indicated that consumer spending has likely stalled in July. The labor market is showing mixed signals. Staffing firms are reporting higher recent job orders, but small business employment appears to be stalling. And there appears to be some downward pressure on wages, with some firms cutting wages, and moderate downward price pressure—more firms are reporting cutting prices than raising them.

Tragically, since mid-March in Minnesota, almost one-half of Black workers have applied for unemployment benefits—that is shocking to me—and one-third of nonprofit workers. Air traffic at our big airport, Minneapolis–Saint Paul International Airport, is about 25 to 30 percent of last year's level. And worker traffic in our big office buildings is running at about

5 or 6 percent. And, incidentally, at the Federal Reserve Bank of Minneapolis, that's also the level we're running at: about 5 percent of our workers are coming into the Bank.

Now let me turn to the virus. All of us have said, and I know we all believe, that the path of the virus is going to determine the path of the economy. So what do we know about the path of the virus, and what did we learn since our previous meeting? At the June FOMC meeting, in my SEP submission, I had a second wave as my base-case scenario. Unfortunately, the news since then has been worse than I had expected. My forecast second wave was due to arrive in the fall. Since then, the virus has just continued to rage, with no summer slowdown. The most likely scenario is that from here it just continues to rage. The downside scenario is one in which we still see a second wave in the fall or winter—one that would, almost certainly, create a lot of health and economic damage.

Cases are climbing around the country, reaching new highs in many places. More than 60,000 Americans every day are being diagnosed with COVID. That's up from around 20,000 at our previous meeting. Now, it is true we are testing more—so we are identifying more of the cases. But the percentage of those testing positive has climbed dramatically since early June on average. This means that it's not simply testing that is driving the case count—it is the actual spread.

At our previous meeting, the percent testing positive on average was around 4.4 percent. Today, it's 8.3 percent. That's moving in the wrong direction. Even some states that had a lockdown in the spring, such as Minnesota, are now seeing cases climb quite rapidly. Now, the good news is that deaths are climbing much more slowly, probably because younger and healthier people are getting infected and because health-care professionals are getting better at treating the disease.

Although deaths were falling steadily in June and early July, they then began climbing again. And, as the case count is continuing to climb, it's likely that deaths will continue climbing. Health-care experts estimate that less than 10 percent of Americans have been exposed to the virus. So we are still a long way away from herd immunity.

Now let me go through some of the specific developments that I'm focused on, which I think are going to determine the ultimate path of the virus and, therefore, the ultimate path of the recovery.

Let's start with vaccines. The best news is that there continues to be progress in vaccine development. Almost every day, the media covers the latest results of the many clinical trials that are being conducted, and some of those early trials are coming back with promising results.

But health-care experts warn us that many vaccines and drugs show great promise in early trials, only to fail in later stages. The Merck CEO, Ken Frazier, made headlines a couple of weeks ago when he said that the public was being done "a grave disservice" by the discussion of a vaccine arriving by year-end. He noted how long it takes to make sure a vaccine is safe, and not just on average—and this is what takes time—but for specific vulnerable communities that might each respond differently.

I think the staff is being prudent in assuming that there will be no widespread vaccine until late 2021. But even that may be optimistic. Health-care experts have told us that great unknowns remain about vaccine performance, even when one or more are approved. I'll give you some specific examples of these unknowns.

Normally, before they approve it, the FDA will want to know how long a vaccine will provide protection. They're likely going to skip this step because we're in the middle of a

pandemic. So we may all get vaccinated. And maybe the effectiveness will last for six months, maybe it'll last for two years. We just won't know.

Other long-term health effects, especially for different populations, will also be unknown. And this is what the vaccine experts have stressed to me. Infants may respond differently from older people. Diabetics may respond differently from people with asthma. Different races may respond differently. That's why they have to do these massive trials, but then they have to monitor them for a long period of time.

I learned about something called ADE, antibody-dependent enhancement, under which you get a vaccine, and after its effectiveness wears off, you might end up reacting much worse to the virus if you're then exposed to it than if you never got the vaccine. This has happened around the world in response to vaccines. Dengue fever—this happened in the Philippines. They had to pull the vaccine. It has happened for some coronaviruses in the past. So that's why I've asked them, "Why does it take so long to get a safe vaccine?" It's because you have to test all of this stuff and monitor it. And the concern is, there's such pressure to get a vaccine out quickly that they may have to shortcut some of these steps.

I'll give you one more specific example. The FDA has already said they're going to require at least six months' proof in a stage-three clinical trial before approving a vaccine. Yesterday, I heard Dr. Fauci say we could have a vaccine as early as November. Well, the phase-three trials have just started. So if you do the math, it is literally impossible to meet the FDA's guidance and have a vaccine this year, unless there is more pressure put on the FDA to shortcut things.

And if there is more pressure put to shortcut things, then not only may it jeopardize the safety of the vaccine, but, also, the public's going to figure this out, and they may be reluctant to

take the vaccine when it is approved—which therefore means it's not going to be that effective in snuffing out the disease. So initial results with regard to vaccines are promising, but, boy, there's a lot of complexity beneath the surface.

I will now turn to testing. We've made some progress on testing, but we've hit real challenges, just like many health-care experts predicted months ago. We're now testing around 700,000 per day, up from 500,000 per day at our previous meeting. This seems like real progress. But we're running into supply chain problems, resulting from lack of reagents and testing machines. So now, in some areas, test results are taking a week or more to produce. A test that takes a week to get results is essentially worthless, in view of the period in which people are contagious.

It would be great if we could actually measure the number of tests that are being performed in instances when producing the results takes only a couple of days. I would call those "meaningful tests." It seems like we're making much less progress in ramping up our meaningful testing capacity, and we are nowhere near the meaningful testing levels that health-care experts say we would need to contain the virus—certainly not when 60,000-plus people per day are being infected.

A senior executive at Quest, one of the major national testing labs in the United States, recently said they have all the economic incentive they need to ramp up testing. They're doing everything they can. This suggests that extra government funding to expand PCR— polymerase chain reaction—test capacity will not solve the problem. The constraints involve the supply chain for essential materials and sophisticated testing equipment.

Perhaps other testing methods will come into effect that expand capacity. But it hasn't happened yet. They predict the testing situation in the United States is going to get worse in the

fall, because people are going to get colds and the flu, so now you're going to have to go get tested for the coronavirus in order to rule out whether you have a cold or the flu. That's going to put further pressure on supply chains.

Regarding contact tracing, we've been talking about contact tracing for months. Some states have invested heavily. The results have been disappointing, even in states that touted how aggressively they were pursuing it. First, as I just discussed, the test results are taking a long time to come back, rendering contact tracing useless. Then, even if they do get the test results back, it takes a long time to track down one person, let alone all of their contacts. The health-care experts with whom I've consulted have simply said, "You cannot contact-trace when 60,000 people a day are getting infected. It is simply impossible, in the real world." We have to get the case level way down in order for contact tracing to be useful.

So where do we go from here? I see two options. One option is, we shut down the economy again hard for a month or six weeks to get the case count down. After that, we actually do have the testing and tracing capacity to manage that situation. That would also make it safer to reopen schools in the fall—something that we all know is so important to the economy. Of course, there appears to be little political appetite to do this. By the way, when we compare notes on what we consider a hard lockdown, March or April, it pales in comparison with what many other countries have done, especially in Europe. On the basis of talking to those in my staff who are from Europe and what they say about what their families experienced, it's clear to me that our lockdown in the United States was very modest in comparison.

Alternatively, if we're not going to relock the economy down, it seems as though we're going to continue have raging spread throughout much of the country, with localized lockdowns, flattening, and reopening for the foreseeable future. The recovery will be much more muted,

with many more business failures under this scenario. In that scenario, we should therefore be investing to continue to expand our health-care capacity so we don't have a lot of needless deaths due to hospitals getting overwhelmed. And, long term, as others have noted, the enhanced unemployment benefits will be absolutely critical, both for families who've lost their jobs and for the economy as a whole.

In terms of what it means for Federal Reserve policy, I think it has two implications. One is related to our financial stability discussion. It increases the likelihood that the financial system will face major losses. Therefore, we should be building resiliency now. And, two, it puts even more focus and emphasis on our framework discussion. I think the framework review and the modified framework were really sensible ideas before the COVID crisis. But, in light of the fact that we're going to have this ongoing crisis for the foreseeable future, we're going to continue to have a lot of slack in the labor market and low inflation. And I think our new framework will really help us repair the damage once we get through this crisis. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard, please.

MR. BULLARD. Thank you, Mr. Chair. At this juncture, the U.S. economy is just beginning to rebound off of what appears to have been the worst quarter for U.S. GDP growth on record, the second quarter of 2020. I do think that April was probably the low point. May and June were certainly a lot better. The Citi surprise index is at an all-time high—way off the charts during May and June, as pointed out by Governor Clarida. I take that as a summary statistic for data that came in way better than expected.

Uncertainty about both the path of the pandemic and the path of the economy in the weeks and months ahead nevertheless remains extraordinarily high. This Committee, in my opinion, has reacted appropriately and quickly to this situation earlier this year.

The shock that has hit the economy, though, is so large that it probably does not matter from a monetary policy viewpoint whether one thinks that the next six months of macroeconomic performance will surprise to the upside or to the downside of today's Tealbook forecast. The policy response would largely be the same for 2020, 2021, and 2022, according to Tealbook simulations. And my reading is that that accords with market-based expectations regarding policy as well.

My advice, in this situation, is simply to keep the current very accommodative monetary policy in place, as we wait for more information to arrive on the course of the pandemic during the second half of this year. In short, the exact direction that monetary policy will take over the near term is much less connected to the near-term economic outlook than it would normally be.

I do not see this feature of the situation changing over the next several meetings. Whether we see a faster-than-expected recovery or a prolonged downturn, Tealbook simulations suggest that monetary policy differences would not be noticeable as far as economic outcomes are concerned until 2023 or later—which, in my opinion, is too far in the future to provide useful guidance for us at this meeting today and tomorrow.

My general reading of the situation, and here I agree with President Daly, is that the U.S. fiscal policy response has been fast and appropriate, and that the goal of providing relief to disrupted households and businesses has been met at the macroeconomic level in recent months, as disposable personal income has increased, instead of decreasing as it would in a normal recession.

This type of policy can be done only on a temporary basis. But it seems to have been successful so far, and I expect a continuation of this fiscal policy response in the weeks and the months ahead, as I see the Congress under pressure to renew fiscal policy actions. And because

they're facing an election in the period ahead and have a green light to spend, I think that they'll go ahead and come to some agreement.

This idea of keeping disrupted households and businesses whole, at least on average, is allowing the economy to adjust to a new mortality risk that it faces. The U.S. economy faces other mortality risks. For instance, I've stressed accidental injury risk, which is on about the same scale as COVID for 2020—the third leading cause of death in the United States, a major risk.

So we face mortality risks, and we naturally take actions to mitigate our mortality risks, just as we do with accidental injury. Sometimes people tell me that the stuff in the accidental-injury category is not contagious, but I'll come back to you and say that there's fire in that category. Fire is highly contagious, and we have, as a society, developed all kinds of things to mitigate our risk of fire, catching fire, all the way to the point of having people standing by to respond at a moment's notice should there be a fire.

So I think the economy, of course, doesn't have that kind of sophistication with respect to the COVID risk so far. But that is exactly what's happening in the society. We're facing a new mortality risk. Your friends, your family—we all know people might be at risk. You have to take action to lower your risk, and we're learning every day a little bit more about the disease and how to take that action and what to do.

Many businesses and nonprofits have learned to produce their good or service using appropriate risk-mitigation procedures, and they will continue to learn—especially from the essential service sectors—from actions taken during the second quarter of 2020. Despite the pandemic and the rhetoric about a total shutdown of the U.S. economy, U.S. second-quarter GDP will still have been about 90 percent of a normal quarter. That doesn't sound like a shutdown to

me. It's a partial shutdown, and a lot of focus gets put on certain sectors—certain businesses that have a very difficult time and are extremely hard hit by the pandemic.

The good news is that relatively cheap and simple techniques can be used to keep the disease under control. I expect public health policies to become more risk focused and more granular in the period ahead, focusing on the very powerful work-from-home technology that we're all using right here, ubiquitous mask wearing, simple social distancing, and ubiquitous and inexpensive testing.

According to the IHME—that's the Institute for Health Metrics and Evaluation at the University of Washington, Seattle—ubiquitous mask wearing in the weeks ahead could drive fatalities and infections to low levels and manage the disease, in effect, indefinitely into the future. By the way, that model doesn't just take the confirmed cases as an input; it then produces an estimate of total infections in the United States, or by state, or in other countries as well. Its estimated infections as of today are approximately one-third of the peak in March and April and infections, at least according to that model, are set to decline.

Insofar as mask wearing becomes ubiquitous, the IHME would predict infections to go down dramatically. These are estimated total infections, because there are always other infections that are out there that aren't counted in the data on confirmed infections. So you can't just go by the confirmed infections—you have to have a model. Using their model, they're saying that estimated infections would drop dramatically.

Major retailers—including Walmart as the leading example, but Target is another one—have signed on to mask requirements. And this seems likely to become the standard and to sweep across the entire economy. You won't be able to go into the store without wearing a mask. The business will simply say, "We want to protect our customers and our workers," and I

think that'll become quite standard, if it hasn't become standard already. Everywhere I go, anyway, it's already become standard. But there are many other parts of the economy, I understand that.

In turn, I think, this may allow more workers that are currently on temporary layoff to be recalled in the months ahead. As I stressed last time, today's unemployment rate is dramatically different in its nature from other periods in which we've had high unemployment, such as October 2009. In October 2009, only 10 to 15 percent of all the unemployed described themselves as being on temporary layoff. This was in the aftermath of the financial crisis shock. These people were totally out of work, and they said they were out of work.

But today's high unemployment rate is very different, partly because of the fiscal response and partly because we've used the unemployment insurance program to channel pandemic relief to disrupted households. Today, "temporary layoff" is describing 60 percent of the unemployed. It was previously as high as 80 percent. Now it's only 60 percent. But still, they're self-describing their work status as one that indicates they're going to go back to work.

So even if only part of that return to work occurs in the months ahead, you could see more dramatic declines in unemployment. If all of that occurred, you'd send the unemployment rate to dramatically low levels, with the unemployment rate pushed down far. If only half of that occurs, okay, well, it won't go down as far. But you've got a very different situation here, I think, than what we've seen historically with high unemployment. So there's some potential in this dimension that we could get a pleasant surprise. I'm not saying this is going to happen. But I think we should take that possibility into account. And it does illustrate that this shock is quite different from all others that we have seen in the past.

Now, on vaccines and therapeutics, I agree with some of what President Kashkari just said. I have argued against leaning on vaccines and therapeutics as a solution to this crisis. I like the Tealbook's late-2021 assumption regarding vaccines. I might even push the date further out, to later than then.

What I don't like about this is that it sets up expectations that somebody's going to come along and solve or crack a very difficult scientific problem, and this is going to make the whole pandemic go away. But that affects how people see future investment, how they see how long they have to hold out, hold their business together—all kinds of things. And it might not get them to adjust to the reality of the new mortality risk that's out there as fast as I'd like them to adjust.

So, I think, to some extent, this is setting up the wrong kind of expectation for the economy. I think the message should be that we expect the disease to be very persistent, but we also think it's manageable—that, with simple techniques, you can keep infections and fatalities down to a very low level. But you're going to have to live with it, and you should make the simple adjustments to your business that can be made.

Grocery stores have been a great example. Other stores that have had to be open during this period have blazed the trail on exactly how to do this and do it effectively. So my case emphasizes learning on the part of the private sector on how to produce while managing disease. I recognize that some businesses are so affected that they would have to dramatically change their product, but they're going to have to do that unless they get some other kind of break in the way the disease progresses here.

Testing, I still think, is critical. I think the information flow on this issue has been appalling. The United States will attain 1 million tests a day in the third quarter. I think we

should and can invest more and give incentives for more testing. I think there are already tremendously high incentives.

I think what economists think about as a test and what big pharma thinks about as a test are two different things. They're used to selling tests to hospitals and doctors and trying to get in. That's a very cumbersome, slow process. And I think what you want is fast, ubiquitous, simple testing.

It is available. We've used it ourselves at the Walgreens that isn't too far from me right here and got the results the same day. So it can be done. There are different types of tests being developed. I think there's overwhelming demand. We want to know where the virus is at every minute, and who's sick and who isn't. And if you get to that, you'll solve the crisis, and you won't have to wait for a vaccine.

So I think there are tremendous incentives, still, to go the testing route. And I think the mentality in the health sector is the wrong one about this. Their mentality is to say, "You're first going to have to exhibit symptoms." First of all, many people don't have symptoms. "Then you're going to go to the doctor. Then you're going to order the test. Then you're going to go down to somewhere else and get the test. Then you're going to wait for days to get this result." That's way too slow for this situation, and there are ways to do this faster. And I think we'll see a lot more of that in the period ahead.

There are also substitutes for testing. These are just varieties of low-brow testing that the health-care sector wouldn't even call "testing." But there's temperature taking. There's just people attesting to whether they feel good that day or not. So there are other ways to try to keep track of what's going on, without having a formal test. And a ton of that is going on in the private sector in the economy.

So, again, I think we're continuing to learn as we proceed, and I think that bodes in our favor for the second half of 2020. In sum, while there's certainly considerable downside risk—and I would say even depression risk—in the current environment, there's also a plausible case that the effects of the pandemic on the economy will be less severe than currently forecast, in that the economy continues to surprise to the upside relative to baseline forecasts in the months ahead, as it did during May and June.

Still, despite that, from a monetary policy perspective, it's just not as material today as it would normally be whether the economy delivers results on the upside or the downside of forecasts, as the likely policy response for the next three years would essentially be the same either way. Thank you, Mr. Chair.

CHAIR POWELL. Thanks. President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. New England has reopened carefully. Trains and buses remain empty. And when driving through downtown Boston, one is struck by the subdued foot and automobile traffic. Most businesses located in tall buildings have heeded the mayor and governor and continue to encourage work-from-home policies where possible. Though working from home is not a problem for many white-collar jobs, in which computers and internet meetings are the tools of the trade, it has been devastating for service-related businesses, particularly in places like downtown Boston.

Restaurants, hotels, and other tourism-dependent businesses throughout New England continue to face significant headwinds, particularly with quarantines imposed in some states for travelers from outside of either the state or the region. The state unemployment rate for Massachusetts, at 17.4 percent, highlights the challenges associated with more stringent social distancing. Following Massachusetts with the next-highest unemployment rates are New Jersey

and New York. The unemployment rates in many of the Mid-Atlantic and New England states are among the highest in the country and are also the states in which infection rate averages are now quite low. It raises the question of whether Mississippi is a "shining star" for the right reason.

Contact data obtained from cellular devices are consistent with the notion that social distancing in these states has generally remained above the trends seen in other areas of the country that eased lockdown restrictions earlier. A health-driven approach to reopening activities that entail high contact has resumed only recently and at a modest pace. Although the cost of this approach was higher unemployment through June, these are the states in which the virus currently is more under control, and this strategy may now start to pay off also from an economic standpoint.

For example, the University of Michigan's Consumer Sentiment Index rebounded strongly in the Northeast in June, and it would not come as a surprise to see sentiment holding up better in the region this month than in other parts of the country. Although it is too early to tell, I am expecting New England states to have fewer per capita deaths and stronger economies by the end of the year than states that chose to open quickly and possibly in a less-controlled manner.

In looking at the infection rates, one finds that New England states tend to mirror Europe, where the infection rates have now become much better controlled and the national economies are recovering. Due to the rapid and severe resurgence in infection rates across much of the country, I expect that the Tealbook forecast is too optimistic about real economic activity and the path of the unemployment rate. Indeed, the Tealbook's unemployment rate forecast is closest to the most optimistic forecasters polled in the Blue Chip economic survey.

My more pessimistic outlook for the economy and the labor market is the result of my reading of recent data and my lack of confidence that state governors in many areas of the country will take appropriate actions to ensure public health. Though employment data for May and June were quite strong—reflecting the faster-than-anticipated reopening of the economy—we are seeing signs of a pause in labor market progress in higher-frequency data.

The staff at the Federal Reserve Bank of Boston has been working with researchers at Yale University and Stanford University to conduct a weekly labor market survey, the Yale Labor Survey, which provides a more timely reading on the labor market. The survey is conducted online by YouGov and is designed to mimic the household survey questions in the CPS, but also to avoid some of the measurement pitfalls that have marred the CPS survey during the pandemic.

Yale Labor Survey results track the CPS household survey data relatively well through the CPS reference week in June, especially when factoring in the CPS measurement issues discussed in the Tealbook. However, since that time, as the virus problems in many states have become more acute, employment progress, as measured by the Yale survey, has slowed down. The more recent week—which coincides with the July CPS survey week—fared better, especially in terms of employment, as captured by the amount of work being conducted for pay. As this is the first uptick in several weeks, there is some uncertainty as to whether this is real or noise.

Still, other high-frequency information coming from the ADP data discussed in the Board staff forecast update is consistent with a similar pattern of weakness followed by somewhat better numbers recently. In all, taking this news into account and factoring in the not-too-

positive information provided by initial claims and the Census poll survey, there are indications that progress in the labor market, while still occurring, is slowing down.

Other high-frequency data are also reflecting a pause in economic activity once infection rates started to rise in many parts of the country. For example, areas that have higher infection rates are showing a partial reversal in foot traffic as states have restored some restrictions on activity and more voluntary social distancing takes place.

Looking forward, I am expecting some state governors to react too slowly for the virus to be significantly contained. This will be compounded by the opening of schools and of other activities that start in the fall—including the effect of less-hospitable weather forcing more activity indoors. Thus, I place a much higher probability on the economy evolving in a manner more consistent with the Tealbook's "Second Waves" alternative—a scenario, by the way, in which it is assumed that policymakers will do the rational thing if a second wave of the virus occurs.

Of course, the outcomes could be much worse if policy is sufficiently mishandled. As a result, I am expecting double-digit unemployment at the end of the year, with a sustained recovery dependent on either the widespread delivery of a vaccine or the discovery of significantly better treatments for the virus.

My more pessimistic outlook has implications for businesses, particularly the ones most affected by social distancing. Consequently, I expect that tourism, hotel, retail, and restaurant sectors to not be able to recover fully for some time—likely resulting in more widespread bankruptcies. Under this scenario, continued policy support remains essential. Despite the large amount of relief that fiscal policy has provided so far—which might have been enough to ensure

a quick recovery if the pandemic had been brought under control—more will be needed as the virus lingers.

As concerns credit policy, I expect that the Main Street lending facility will begin to become more active. We currently have more than one-fourth of $1 billion in loans, either approved or starting to go through the process, and I, unfortunately, expect that demand will be picking up. I do worry that we are significantly underestimating the negative financial amplification we may see this fall. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker, please.

MR. HARKER. Thank you, Mr. Chair. I share the staff's view that the near-term growth situation is liable to be weaker than I anticipated in our previous meeting. As others have noted, COVID cases are spiking, and a number of states have pulled back on their reopenings. The surges are affecting states whose populations represent at least 40 percent of the U.S. workforce.

For cities that saw an early spike in the virus, like Boston, Philadelphia, Chicago, and Detroit, the number of worker days is now back to 80 percent of the baseline. That's good news. Cities like Houston, Phoenix, and Orlando that are currently affected by later surges are now experiencing the opposite—a decline, of course, in these worker days. Other worrying indicators include the continued high level of initial claims and the fact that the number of permanent job losers increased in June.

Additionally, CoreLogic data indicate a rise in missed payments, but in looking at our own survey at the Federal Reserve Bank of Philadelphia, these appear to be largely payments receiving forbearance. Whether most of these loans get restructured or end up in default is an open question. Also, structural change and dislocations accelerated by the virus will prevent, in

my view, the recovery from being vigorous. As well, the risks presented by the virus are distinctly to the downside, as others have noted.

And I share the staff's view that a second wave is definitely a possibility. It is a distinct possibility. In fact, one could argue it's no second wave; it's just a continuation of the wave we have already been in. On a somewhat rosier note, the credit and debit card expenditure data that we analyze in our Consumer Finance Institute present a more positive picture. Those data suggest that spending is very near the 2019 levels. And our July 2 through 13 survey indicates broad-based improvement in employment, income, and consumption.

However, we recently are noticing a moderation in growth. We are, fortunately, not seeing evidence that banks are pulling back on credit lines, and delinquencies on auto loans appear to be falling, in fact. Most of the payment accommodations were made in April and May, but the question remains as to how long lenders will continue to defer payments. Other evidence of increased spending is that the number of ATM withdrawals is up to the 2019 levels, and the amount withdrawn is, on average, 30 percent larger.

According to our July survey, more people appear to be working on site, and layoffs declined from 17.9 percent in the sample in April to 13.2 percent in July. Of those employed, 76 percent were consistently employed, 4 percent started a new job, and 20 percent returned to their old job. Many of those working from home expect to return to work before Labor Day, although that is clearly in question, in light of what's going on right now.

And this is how quickly this situation is evolving. Remember when this survey was taken. It wasn't taken very long ago. But now we're seeing a completely different situation. But given that, 67 percent of respondents report earning at least as much or the same as they did

before the COVID crisis. The other thing about this is, those improvements actually affected all demographic groups. So all groups saw those improvements.

For our region, we are seeing evidence of a gradual recovery as the seriousness of the outbreak in our region is waning—although very recent data, again, suggest some resurgence of cases that has resulted in pauses in our reopening processes in our three states. Much of the health improvement we experienced can be traced. If you look at the mobility data, it was really just the reduction in mobility that helped us control the virus.

Housing, manufacturing, and consumption are improving, but they remain significantly below pre-COVID levels in the Third District. However, some areas of the District are still being hammered, with economic conditions remaining dire, for example, at the Jersey Shore. The Jersey Shore lives on tourism, and it's just been decimated in many ways. As well, the value of commercial building in the region is at a 10-year low.

To summarize: The virus remains front and center in determining how the economy will evolve, as others have said. Or as President Bostic said, "Biology will dictate the economic." Although there are signs of improvement, I believe we are more likely to see a slow slog back to the 2019 levels of output. And, actually, I have used that same analogy as President Bostic used, a bumpy swoosh, as we slowly climb out of this with many, many bumps along the way. And risks remain distinctly to the downside. More on that tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester, please.

MS. MESTER. Thank you, Mr. Chair. Overall economic activity in the Fourth District has picked up over the intermeeting period, but—along similar lines to what President Bostic and others have mentioned—the resurgence in COVID-19 cases has led to concerns that activity will slow back down. Contacts are also concerned that delays in extending fiscal policy aid to

households, small businesses, and state and local governments will have a material effect on the nascent recovery.

The Federal Reserve Bank of Cleveland staff's diffusion index of business conditions, which measures the difference in the percentage of contacts reporting better versus worse conditions, registered plus 17 in July, its first positive reading since February.

Auto sales contributed to the improvement in District conditions, with one contact attributing the rise in sales to low interest rates, the CARES Act, Economic Impact Payments to households, and people's growing health concerns about public transportation and ride-sharing services. Low interest rates are also supporting home sales, and low inventories have led to quick sales, with homes reportedly selling within a week of being listed in many parts of Ohio.

And 9 percent of District contacts now report that their outlook levels have returned to pre-pandemic levels, but more than half of the contacts expect that it will take a year or more to achieve this outcome, a similar expectation to what President Bostic found in his District. Data reported by Homebase indicate that, as of early July, the number of small businesses open in District states remain more than 10 percent below January levels. Manufacturers report that their pipeline of new orders over the rest of 2020 and beyond is thin.

Labor market conditions in the District have improved, but District payroll employment in June remained about 10 percent below its level in February. This is larger than the peak-to-trough decline of about 6¾ percent observed over the previous downturn. Similarly, the District unemployment rate fell nearly 3 percentage points in June, but its level—about 10½ percent—matches the highest rate seen in the aftermath of the Great Recession.

Ohio was progressing through a planned, gradual reopening of businesses, based on public health metrics, which required protocols that differed by type of businesses. There has

been a noticeable change in tone as the number of virus cases in Ohio has begun to rise again. In a survey of District contacts, undertaken by Federal Reserve Bank of Cleveland staff and conducted in mid-July, 55 percent of contacts reported meaningfully altering plans in response to recent increases in virus cases by, among other things, reducing employment or employee compensation or canceling or postponing planned capital expenditures.

Data on debit and credit card transactions show that the pace of spending slowed in recent weeks, after beginning to trend up in April. A national retailer reported that sales in several states that have rising cases, including Ohio, had diverged from those in which the outbreak was more contained.

A large national insurance company, which has about 14,000 employees in central Ohio and had begun returning to their offices a few weeks ago, has now reversed course and has sent workers back home, because of the surge in cases. And other companies are following suit or else delaying plans to bring workers back onto their premises.

In response to increasing cases, last week Ohio's governor issued a statewide mask-wearing requirement—upgrading what had been a recommendation to a mandate. Evidence provided by the Federal Reserve Bank of Cleveland's ongoing consumers and COVID-19 online survey of more than 1,000 respondents nationwide suggests that these mandates can be effective in gaining compliance. When asked about their likelihood of wearing a mask in public if it were required, on a sliding scale, from zero being extremely unlikely, to 100 being extremely likely, the median response was 100—extremely likely—whether local, state, or federal authorities imposed a requirement. And the mean response across respondents was about 80 for each authority. Older people were more likely to comply than younger people. The mean response for those over 60 years old was about 90. But even those under age 40 had a mean response of

about 67. It remains to be seen whether the mask mandate and other measures will bring the caseload back down in Ohio and restore consumer and business confidence.

Regarding the national economy, after falling sharply early in the second quarter, activity picked up in May and June as restrictions on economic activity began to be removed and more of the economy reopened. Retail sales have rebounded, and June's level is almost back to February's level. Housing market activity has also picked up, buoyed by very low mortgage rates. Some of the growth rates look very good. But in terms of levels, by many metrics, the economy is still far off where it was before the pandemic. Spending on services such as air travel, hotel accommodations, and restaurants is still far below normal. And manufacturing production is still 11 percent off its January peak.

While there has been a material positive change in labor market conditions, the level of payroll employment is still down almost 10 percent from its peak in February. So that's down almost 15 million jobs. The unemployment rate has fallen about 3½ percentage points since April, but, at just over 11 percent, it remains higher than its peak in the aftermath of the Great Recession.

Now, as others have said, the path of the economy is very dependent on the path of the virus. But it's also dependent on how households and businesses respond to it—a point that the Chair made earlier—as well as the efficacy of policy actions to mitigate the effects and support the economy. Developments over the intermeeting period suggest that there has been an increase in downside risks to the outlook, which was already very uncertain. I continue to find it useful, in formulating my assessment of the outlook, to think about conditioning the outlook on pandemic scenarios. Developments over the intermeeting period have led me to shift some weight onto a more severe virus scenario.

Since mid-June, the number of COVID-19 cases has begun to increase again in many parts of the country, and the high-frequency data indicate that activity has begun to accelerate. Whether the rise in cases and the deceleration in activity prove to be temporary or more persistent remains to be seen. But the resurgence in cases in some countries—like Japan—that previously had the virus well under control and that are more advanced in terms of COVID testing and contact tracing shows how difficult a situation we're in.

I've been thinking about the recovery after the shutdown as occurring in two stages. First, as the virus gets under control, there would be the reopening phase, in which we'd see a rebound in activity, as more and more of the restrictions on economic activity were removed and people and firms began to reengage. Then the economy would move into the more traditional recovery phase, supported by fiscal and monetary policy.

The second stage of the recovery would take some time, as significant sectoral reallocations would need to occur, driven by changes in consumer behavior, including shopping, dining, and housing preferences; firms' demand for office space and changes in work arrangements; and the reestablishment of more robust supply chains. Many firms will not be able to recover, and many workers will need to find jobs with different firms and, in some cases, different industries. This will take time, but eventually the economy will return to full employment and price stability.

Now, with the recent surge in new cases of the virus, the reopening stage of the recovery has stalled. Some states have halted their plans to reopen. Some have reversed what had already been in place. Even without these actions, the increase in cases is going to damp demand, because people need to feel safe and confident before reengaging in economic activity.

In a Federal Reserve Bank of Cleveland survey that I mentioned earlier, about 80 percent of respondents believe wearing a mask helps to reduce the spread of the virus at least somewhat, and around 70 percent said they feel more comfortable when others are wearing masks. But even though three-fourths of the respondents live in jurisdictions that require mask wearing, about one-half of the respondents said they have no plans to go back to a gym, and almost one-fourth said they have no plans to go to a restaurant. So activity will be affected.

The longer it takes to gain control of the virus so that people can feel safe engaging in normal activities and businesses regain confidence about future demand, the longer the reopening stage of the recovery will be delayed, and the higher the risk that what began as temporary layoffs turns into permanent job losses. If this happens, then the second stage of the recovery will also take a lot longer and will need more support from both monetary policy and fiscal policy.

In addition to the resurgence of the virus, the other looming risk is the expiration of important fiscal support to households in the form of extended unemployment benefits as well as the winding down of temporary limits on eviction.

As one measure of the need for further income support: The Census Bureau's household pulse survey indicates that most households used the first round of $1,200 Economic Impact Payments for basic expenses, including nondurable goods and rent, mortgage, or other debt payments.

As another indicator: A Brookings Institution analysis of data obtained from this survey—which was taken in the third week in June—shows that child food insecurity is a large problem; 16½ percent of households with children reported that sometimes or often, their children were not eating enough because of a lack of resources. This is more than five times as

high as in 2018. It translates into 14 million children, which is over 2½ times the number at the peak of the Great Recession.

With employers not necessarily rehiring workers, it's likely that continued support will be needed to enable households to meet these types of expenses. Delays in coming to an agreement on a fiscal policy package that extends these benefits and offers aid to state and local municipalities creates uncertainty—a further headwind on the economy. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin, please.

MR. BARKIN. Thank you, Mr. Chair. In my mind, the state of the real economy was outlined well in the latest jobs report. The leisure and hospitality sector was down massively from February, almost 30 percent. Jobs in most other sectors were down in the range of 5 to 10 percent. The strongest parts of the economy were those that serve people who shelter at home.

For the period ahead, District contacts point to a complex set of labor market dynamics. Businesses are still reopening and hiring, but the virus is escalating, particularly in the southern parts of our District, damping the pace of that momentum, as was most recently shown in last week's initial claims.

Our Fifth District service-sector survey, while improving, still reports contracting activity. As President Bostic said, our joint recent national CFO survey makes clear that businesses don't expect demand to return to normal quickly, and my contacts at these companies tell me they are planning to resize their businesses accordingly. Enhanced unemployment insurance is set to expire. Many smaller businesses, post-PPP, now face a mishmash between their headcount and their demand.

So that is a snapshot of the real economy. In truth, I think we are living in a bit of a surreal economy. What do I mean by that? Well, unemployment is 11 percent, but personal income is actually up. Unemployment is 11 percent, but the savings rate last month was 23 percent. Unemployment is 11 percent, but credit card outstandings are down. A broad set of small businesses have been closed but have received short-term relief. Personal loan defaults have been moderated by the breadth of loan forbearance. Late rent payments are up, but evictions have been limited. Offices are empty, but rents are still largely being paid.

I have even noticed that labor supply remains a concern for a lot of employers, despite record unemployment. They still struggle to hire in an era of enhanced unemployment benefits, health concerns, lack of childcare and in-person schooling, and skills mismatches, because the displaced disproportionately come from the same kind of personal contact positions and so are hard to redeploy when all of those positions seem to be gone.

As many have said, the financial markets are a bit surreal, too. In an era of unprecedented government debt issuance, the yield curve remains flat and yields low. Industries that remain shuttered, like movie theaters, can still obtain financing. Stock market valuations seem rich, at least compared with my sense of the fundamentals.

All of that, of course, no doubt reflects the levels of fiscal and monetary actions that have been taken. We saw a significant pothole in the road ahead and put a plate over it, so the economy could navigate to the other side. The questions now, of course, are whether an intensifying second wave could turn the pothole into a sinkhole, and whether the Congress is about to extend or remove the plate. We'll know a lot more about the answers to both questions in the next couple of weeks.

The virus, of course, continues to drive the outcome. For me, I have to say, I'm finding the baseline scenario ever less likely, and the tail outcomes more probable. The experts I talked to seem increasingly optimistic about a vaccine or treatment. If so, elevated savings and, if rolled out successfully, continued stimulus could lead to strong demand shortly after businesses cut back.

But I can also see a deeper downturn—one similar to the Tealbook's "Second-Waves" scenarios or even worse. Our public health response has been inadequate. Uncertainty is high, limiting spending, investment, and sectoral restructuring. Schools and even college sports in the South are important markers for normalcy, and both are already at risk.

At a time when the economy is weak, I remain alert to nonvirus risks as well. To echo the *Financial Stability Report*, an escalation in China tensions or a cyber incident or a market downturn could be an additional threat, and the most concrete additional risk is, of course, right in front of us. Imagine, if you will, a congressional impasse, the immediate withdrawal of fiscal stimulus, and the associated implications for the unemployed, for small businesses, for municipalities, for investors, for banks, and the resulting consequences for spending and investment. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you, Mr. Chair. Following the deepest plunge since the Great Depression in March and April, employment and activity rebounded faster and more sharply than I had anticipated. But the resurgence in COVID cases is a sobering reminder that the pandemic still remains the single most important driver of the economy's course.

The recovery is likely to face headwinds even if downside risks do not materialize, and a second wave would magnify that challenge. A variety of data, including on payroll employment

and retail sales, suggest that the economy bottomed out in April and rebounded in May and June. Both manufacturing and nonmanufacturing ISM indexes jumped into expansionary territory, and indicators of housing activity in June—including starts, permits, and sales—were above expectations. Meanwhile, capital market conditions remain generally accommodative, although bank lending conditions have tightened notably according to the most recent SLOOS.

Sadly, the earlier-than-anticipated resumption in activity was accompanied by a sharp increase in the virus spread in many areas. Even if the virus spread flattens, the recovery is likely to face headwinds from diminished activity and costly adjustments in some sectors, along with impaired incomes among many consumers and businesses. On top of that, rolling flareups or a broad second wave may lead to widespread social distancing, which would weigh on the pace of the recovery and could presage a second dip in activity.

A closer look at the labor market data hints at the complexity. The improvement in the labor market started earlier and was stronger than had been anticipated. The job gains, however, were concentrated among workers who were on temporary layoff, and they were likely driven by the earlier-than-expected rollback of COVID-related restrictions as well as by a boost to employment from the Paycheck Protection Program. But the pace of labor market recovery appears to have slowed in recent weeks. This may suggest that a large portion of the easiest gains—those arising from the lifting of mandated closures and easing of capacity constraints--has already occurred. It could also reflect the ramping-up of restrictions in response to the increase in weekly COVID counts.

Weekly estimates of private payroll constructed by Board staff using ADP microdata as well as other high-frequency indicators, including employment and small businesses, suggest that employment gains have slowed since mid-June. And after declining at a fast clip through

early June, initial claims have moved roughly sideways in recent weeks and came in at a still-elevated 1.4 million in the week ending July 18.

The pandemic's harm to lives and livelihoods has fallen disproportionately on Black and Latinx families. After the country was finally seeing welcome progress during the late stage of the previous expansion in narrowing the gaps in labor market outcomes by race and ethnicity, the COVID shock is inflicting a disproportionate share of job losses on African American and Hispanic workers, with the number of employed persons falling by over 14 percent from February to June among Blacks and over 13 percent among Hispanics. These numbers are significantly worse than the 10.4 percent decline for the population overall.

Concern about the sustainability of the bounceback is also evident in today's Conference Board consumer confidence index, which declined by more than expected in July, driven by a sharp decline in the expectations component. And this follows an unexpected decline in the University of Michigan index of consumer sentiment, given in the July preliminary report.

Separately, on the other side of our dual mandate, as others have noted, inflation has receded further below our 2 percent objective, reflecting weaker demand as well as lower oil prices in previous months. Although both core and total PCE prices are estimated to have increased in May and June after declining in March and April, staff projections suggest that core PCE inflation this year will barely be above 1 percent. In contrast, the Federal Reserve Bank of Dallas trimmed-mean measure has remained stable. Measures of inflation expectations are mixed. While market-based measures have moved below their typical ranges, survey measures are mixed.

With inflation coming in below its 2 percent objective for most of the past decade, there is a risk that inflation expectations could drift lower. At the sectoral level, we're seeing

considerable heterogeneity. Recent data suggest that the recoveries in sectors such as manufacturing, residential construction, and consumer goods are likely to be relatively more resilient, while consumer services are more likely to remain hostage to social distancing. And related segments of the CRE sector are under stress.

Single-family permits and home-sales indicators rose more than expected in the past few months. But the rebound in consumer spending has been concentrated in goods categories, especially those sold online, whereas most services categories have remained quite depressed. And the lodging and retail segments of the CRE market are experiencing significant distress, with sharp increases in delinquency rates.

In addition to the headwinds facing demand, there could, as others have noted, be persistent effects on the supply side of the economy. The cross-border distancing associated with the virus raises the possibility of persistent changes to global supply chains. Within the United States, the virus may cause durable changes to business models—resulting in greater reliance on remote work, reductions in nonessential travel, and changes to CRE usage and valuation.

In downside scenarios, there could be persistent damage to U.S. productive capacity due to the loss of valuable employment relationships, depressed investment, and the destruction of intangible business capital. For those reasons, it remains vitally important to make our emergency credit facilities as broadly accessible as we can, in order to avoid the costly insolvencies of otherwise-viable employers and the associated hardship arising from permanent layoffs.

Additionally, in keeping with the global nature of the pandemic, foreign developments could impinge on the U.S. recovery. The outlook for many emerging markets remains quite

fragile, and tensions between the United States and China are on the rise. It is worth highlighting the EU agreement to mount a pan-euro-area fiscal response funded by joint capital market issuance and backed by dedicated revenue streams. This represents a true "Hamilton moment," as some have described it, which could have lasting implications for the future evolution of the euro area and for its presence in capital markets.

Finally, a variety of data and research suggest that rapid and sizable fiscal support contributed in no small part to the strong early rebound in activity and is likely to remain vital. Several daily and weekly retail spending indicators suggest that household spending increased quickly in response to stimulus payments and expanded unemployment insurance benefits. Household spending stepped up in mid-April, coinciding with the first disbursement of those payments, and showed the most pronounced increases in the states that received the most benefits.

With expanded unemployment benefits slated to come to an end in a few days, tax deadlines moved to this month, and the household COVID payments provided on a one-off basis, the strength of the recovery in the period ahead will depend importantly on the timing, magnitude, and distribution of additional fiscal support—issues that are being debated as we speak. There are also, of course, implications for monetary policy, which I look forward to discussing tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. I mistakenly came into this meeting thinking that I was among the more pessimistic among our group. Now I'm wondering if my relative optimism is still justified.

My contacts' assessment of the economic outlook continues to be one of elevated uncertainty. After some positive news in May and June, the resurgence of COVID-19 in many parts of the country has added to their worries. Many also are wondering what will happen if further fiscal relief is not enacted soon.

The rebound in sales this spring left our contacts in the auto industry feeling cautiously optimistic. A major auto manufacturer said that they expected sales to be back to 90 to 95 percent of pre-COVID levels by the end of 2020. The resurgence in cases has not had a significant effect on sales so far, but they acknowledge that risks for the period ahead have risen.

Some other manufacturers are struggling to see the path to stronger growth. Although their production levels have stabilized, they have difficulty identifying sources of further pickup in demand. They don't see it coming from the business sector, as demand for capital goods is moribund. No one is talking about expanding capacity.

Furthermore, production disruptions have occurred. A number of manufacturers noted increased absenteeism stemming from COVID exposure and childcare issues. One automaker has reshuffled staffing and hired more workers to compensate. I talked to another manufacturer who described how, at a few of their plants, they were scheduling 100 extra workers to come in, because that's how many absentee workers they were expecting for each shift during the day.

And a few contacts said that COVID-19 outbreaks had forced them to shut down production at some plants for a couple of days while they disinfected the facility and tested all their workers. On the question of how long it takes to get your test back: I asked them, and they said about two to three days. I think a big difference depends on if you're willing to pay for the test. If you're going the free route, it takes quite a long time.

Like President Bostic, I heard reports from businesses about these exposures. And they all indicted outside forces, not their own spreading of the virus in their facility—it always came from someone else.

And for President Kashkari, in connection with his shortcut on vaccine testing: One of the auto suppliers I talked to said that they did surveys of their workers, and they asked them, "If we offered you a vaccine onsite for free, would you take it?" And only 50 percent of their staff indicated that they were willing to do that.

With regard to labor market developments, a large temporary-help firm reported that demand for temp positions had risen from the trough in April but was still down 25 percent from a year ago—a reading similar to their experience in the depths of the financial crisis. That said, several manufacturers said that they were working hard to avoid layoffs and keep their labor forces intact.

I heard several reports of labor market developments associated with COVID-19 that have longer-term implications. For example, with more customers using online search, and car auctions now operating virtually, car dealers have been able to limit staff—helping some to post record profits. Our contacts say that these streamlining developments are unlikely to be fully reversed post-COVID. On the other hand, some contacts brought up limitations of technical solutions to disruptions in the workplace. In particular, they noted productivity losses associated with work-at-home environments, as well as more subtle issues arising—such as younger workers losing out on professional-development opportunities, because they were working in isolation.

Now let's talk about childcare and education. Much individual and institutional effort is going into figuring out how to make these work in the midst of a pandemic. The decisions could have major implications for many facets of the economy.

Many urban school districts have decided against in-person instruction in the fall, and those that will open in person remain vulnerable to shutdowns in the future. Even a partial disruption in the massive education sector is bound to create multiple ripple effects. Not being able to rely on normal school functioning affects labor force participation decisions, as well as the productivity of those with school-aged children. And then, of course, there are the long-term effects on children, arising from extended interruptions to in-person learning.

More broadly, we heard many concerns on the part of our contacts about how households will make the tough decisions about school and childcare. They recognize that these individual decisions have spillovers. For example, one contact specifically highlighted the high share of single parents in nursing in some cities and the detrimental effect to everyone if such essential workers left their jobs.

Regarding credit markets, financial market participants reported well-functioning capital markets, with Federal Reserve programs playing an important backstop role in some cases. Large industrial firms are fully able to access capital markets. A major automaker reported that conditions in both the corporate bond and asset-backed markets are as good as they could be, though they are still watching closely for signs of disruptions.

The situations for smaller firms that rely on bank credit are less clear. On the plus side, many small businesses have been able to tap PPP or SBA lending programs. Federal Reserve facilities have provided backstops for both, through PPLF and TALF. On the other hand, we surveyed almost 80 of our nonfinancial Beige Book contacts about the Main Street Lending

Program, and only 6 said they plan to participate, suggesting about the same lack of enthusiasm that we have heard in other reports. More generally, there is a lot of concern about small businesses' capacity to take on much more debt. For example, a state Chamber of Commerce relayed to us the fact that its members are deterred by the Main Street Lending Program's high minimum loan size of $250,000.

A number of contacts noted the support from federal fiscal policy and other relief actions. These actions have helped to sustain consumer spending, particularly among lower-income households. As an example: An auto industry analyst noted that UI benefits are fueling robust demand for used and lower-end new cars. In subprime auto credit markets, the typical payment day has moved from payday to UI benefit day. A contact at the Nationwide Rental Property Company reported a surge of tenants prepaying rent several months ahead using funds from their stimulus checks.

On the flip side, the Census household poll survey reports a downturn since mid-June in income expectations and in confidence in the ability to make mortgage and rental payments. Indeed, we heard general concern about what will happen if another fiscal package is not enacted and expanded UI benefits, eviction moratoriums, and other programs are allowed to expire. There also were questions about whether the PPP in its current form will be sufficient to keep enough small businesses in operation.

With regard to the national outlook, the Tealbook baseline provides many useful insights that are largely in accordance with my own staff's views. Our forecast is not as rosy as the baseline, nor as devastating as the "Second-Waves" scenario. Perhaps this is the consequence of us just writing down a single path and, thus, implicitly averaging across the almost equally probable baseline and prolonged-slump scenarios.

Like the Tealbook, our outlook includes the assumption that significant additional fiscal support is coming soon. If this fails to materialize, I fear the downside will be more than just the forgone fiscal stimulus. Instead, we may well see a wave of evictions and other forms of household financial distress, corporate bankruptcies, and permanent labor dislocations that would have a lasting imprint on the economy's ability to recover from this crisis. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chair. Let me say—to start off with a couple of words on energy—our Federal Reserve Bank of Dallas team estimates that U.S. oil consumption is hovering around 90 percent of the level prevailing at the same time last year, despite the recent COVID surge, and taking into account the leveling-off of demand in Arizona, California, Texas, and Arizona. And I was myself surprised that it's that high.

Our estimate is that global oil consumption today is also about 90 percent of its year-ago level. So our contacts explain this by noting that people appear to be driving more, they are taking mass transit less, they are obviously flying less, and they are driving more for recreation. Consistent with this "higher-than-I-expected" level of demand is the level of new and used car sales, and that they have been relatively strong, as I think President Evans just mentioned. And so it is our expectation that global oil consumption will reach about 94 percent of the same level it was last year by the fourth quarter of 2020. This, again, takes into account a plateauing of consumption in several of the countries, because they are experiencing a resurgence in COVID cases.

At this pace, we still think it will take until the second half of 2021 for excess inventory to be worked off, but we think that will happen. And, for those of you who look at traffic, as we

do here: Despite some of the problems we are facing in Texas, people are driving their cars. It's one of the activities they are engaging in. We continue, though, to expect that U.S. crude production will fall by 2 million barrels a day during this year, from 12.8 million barrels a day in December of 2019, to about 10.8 million barrels a day by the end of this year.

These estimates are based on the assumption that almost all of the production that has been shut in in the United States will be restored by the end of the year. But because rig count is down 67 percent, and completed wells are down literally 87 percent, what you're seeing just consists of companies continuing to run operating wells. But because the decline curve in this industry is so rapid, you're going to have a substantial decline, and I think people in the industry are becoming more and more skeptical that we'll get back to 12.8 million barrels a day anytime soon. They think, with changes in behavior, alternatives, and the emphasis on climate change, it may be many years before we get back to 12.8, 13 million barrels a day.

Despite that, because of demand, the price is hanging around the low $40s. Obviously, there is a substantial number of bankruptcies, restructurings, and layoffs in this industry. But I will tell you that that bomb basically has already gone off, and that it's reflected in loan loss reserves and bond prices, and I think a lot of that is already reflected in expectations. So that's the energy sector.

As far as the region is concerned, Texas economic activity rebounded sharply, like the rest of the country, until mid-June. And since then, everything we see suggests it's stalling out. It has particularly stalled out in industries that require face-to-face contact: gyms, hotels, restaurants, leisure, entertainment, and airlines. Based on our work on the matter, it appears that many of those industries in the state of Texas account for a substantial proportion of the PPP loans that got extended. Our estimate is, Texas firms that took PPP loans were heavily in these

industries and accounted for almost 4.5 million jobs—a big number, which is a very meaningful percentage of state employment.

Having said that, it is unfortunately the case that, with the resurgence in the virus, many of those firms that we talked to that had previously thought they would make it are now increasingly skeptical that they will make it. They have already paid back or gotten forgiveness on their PPP loan. There is not a second round of PPP occurring. And they are in the process right now of doing substantially more layoffs, even though they brought people back, and we are seeing that.

Unfortunately, as others have said, the work we are doing suggests that those who have been laid off are particularly centered on those who have low levels of education—that is, high school or less, low-skilled, and lower-income workers. And layoffs also appear to be disproportionately affecting Blacks and Hispanics. So this is a terrible outcome, obviously, and it is affecting those who are the most vulnerable or less able to manage.

In addition, if that wasn't enough, we're seeing that as much as 50 percent of positive COVID tests are among Blacks and Hispanics in Texas. And we've talked to a number of health-care contacts, and they explained to us that, in some of these communities, there has not been good messaging regarding wearing masks. There is low Wi-Fi penetration.

When you look at essential jobs in food and construction, they tend to be heavily filled by Blacks and Hispanics. A number of families—specifically, they tell us, Hispanic families—have increasingly moved in with each other as a result of the virus, and so they are living in very crowded spaces. So if one person in the family gets COVID, they're going to spread it to other family members. So this is a real health-care disaster, and we're seeing hospitalizations disproportionally among these ethnic groups. We're also told by health-care professionals that

there is a higher proportion of diabetes and pulmonary issues among Blacks and Hispanics. So if they get COVID, the health-care outcomes are that much worse. We have real, real challenges here.

Among our nonprofit contacts, they report to us increasing incidences of food insecurity—and in addition, increased rise of payday lending. There has been a moratorium on evictions, but our contacts are starting to believe there is going to be a rise in eviction notices among these at-risk populations.

In addition, while skills training has received big emphasis in Texas, it has lapsed during this crisis, because for those who need to be reskilled, you are unable to go to reskilling programs. All of this is leading to an increase in mental health problems among at-risk populations and an increase in distress and domestic abuse in these very crowded living situations.

They are also lamenting a drop in individual and corporate charitable giving that would help address these very severe issues. So the issues that we FOMC participants have expressed concern about, of income and wealth disparity, obviously are, as we all know, being exacerbated.

Despite these severe difficulties, we've been surprised in our recent surveys to find that consumer spending has been relatively solid. But the mix is changing. We are hearing from contacts again about, as I mentioned earlier, the strength of auto sales, record boat sales, and pool sales. You know, consumers are spending money. Obviously, for some, a big part of the reason why spending has held up as well as it has is continued unemployment benefits. But it appears to us that consumers are spending. If they are not spending in restaurants and they are not spending on travel and entertainment, they are spending in other places. We're seeing that in GDP here, and I'll come back to that in a moment.

It's our own view that, for the economy in the period ahead, as many of you have said, a national recovery is not possible until the virus is under control. Having said that—and I'm seeing this play out in Texas—there is an increasing cognizance of the fact that if we just wore masks universally and had more robust testing and contact tracing, we could mute the transmission of the disease and avoid sharp and costly declines in mobility engagement that we had previously. I think people here are learning that lesson but, unfortunately, too late. And we've got a very high and elevated level of cases.

Monetary policy and fiscal policy have clearly helped limit recessionary dynamics, as we can see. Government transfer payments have helped offset a steep decline in private income and ensured that personal income in May remained above its February level. It also helped account for why consumption is as strong as it is.

It's our current forecast that real GDP will be very similar to the estimates in the Tealbook. But based on some of these dynamics we're seeing, particularly among low-income and low-skilled workers and those who have lower levels of education, we're more optimistic about a rebound in '20 and '21 in GDP than we are about employment.

We're concerned that it's going to take longer for these workers with a high school diploma or less and for low-skilled workers to get redeployed and back to work. And it's going to require a much more targeted response, in addition to monetary policy, in order to get these people back to work. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Bowman, please.

MS. BOWMAN. Thank you, Mr. Chair. The COVID-19 pandemic has caused unprecedented disruption and hardship in nearly every aspect of our lives, and it continues to weigh heavily on the economy. Overall economic activity has begun to turn around, and it's

now showing signs of a sustained recovery. Nevertheless, the extent of the reopening has varied widely across the country, which makes it especially challenging to get a complete picture of current conditions on the basis of macroeconomic data alone.

From the beginning, like many of my colleagues, I had anticipated that the path to recovery would be bumpy and that our progress would likely be uneven. Although activity has indeed been uneven, the latest data suggest that growth is under way and will continue. Most importantly, the two employment reports we've received since our June meeting showed a significant reversal of the job losses that occurred during the widespread lockdowns in March and April. Although we are far from being back to normal in the job market, the rapid turnaround was comforting to see.

I would note, however, that we are still seeing disparate employment effects across certain groups. For instance, women were equally or slightly more likely to lose jobs than men—something that is different from previous recessions, when women were less likely to lose jobs than men. Women's employment has recovered somewhat since April, although it remained elevated in June, when unemployment rates were 11.7 percent for women and 10.6 percent for men. Rates in April were 16.2 percent for women and 13.5 percent for men.

But even with the continued high levels of unemployment, consumer spending rose sharply in May and June, and by more than the staff and many market observers have expected. We're also seeing a strong rebound in home sales. Furthermore, in conversations with community bankers, I'm hearing reports that loans for lot acquisition and new-home construction have jumped in recent months and, in some areas, have exceeded pre-pandemic levels.

The strength in the rebound on the consumer side is partly due to the stimulus payments and enhanced unemployment benefits provided in the CARES Act, which have been a

substantial source of financial support for households. The expectation of some continuation of fiscal policy support to households has also likely helped to sustain activity.

Meanwhile, efforts to contain the spread of the virus have been less successful than we had hoped, and we've seen a sharp rise in the daily number of new positive test results in a number of states. Even so, there has been encouraging recent news on the public health front. Scientists around the globe appear to be making progress on the development of vaccines, and there have been numerous reports of improved treatment methods. In addition, new data are becoming available that will enable us to learn more about who is most susceptible to contracting the virus and who is most likely to have severe health consequences if they fall ill with COVID-19. This information will, hopefully, allow us to target future public health measures more effectively toward the most vulnerable populations.

Regarding the business sector, I see many firms that are continuing to struggle, particularly those facing reclosure even after the much-needed capital support provided by the PPP, which was targeted at employee retention. With the recent resurgence in new cases in many areas, some businesses that have resumed their operations are now facing the likelihood that they would be required to scale back reopening or close again.

My contacts in the agricultural sector report that, as much as the sector is a relative bright spot in terms of direct effects of the pandemic, agricultural businesses continue to face ongoing challenges.

Despite all of these challenges, many businesses are finding ways to innovate in order to survive this crisis period. I've seen and heard stories, as many of you have, about stores adjusting hours and establishing curbside pickup or delivery services, restaurants offering takeout menus and outdoor seating, distilleries shifting from making bourbon to hand sanitizers,

and independent businesses that hadn't relied much on technology but are now using it to stay connected to customers and regulate work flow. I am optimistic and hopeful that these efforts to adapt and innovate will help the economy continue to improve. In my mind, that's the key to regaining a well-functioning economy—relying on the resilience of the American people to work out how their business operations can evolve and their offerings can continue.

Banks, especially community banks, are also taking proactive steps to weather this crisis. In recent weeks, I've been engaging in conversations with a number of community bank leaders, and many of them have reported that they're using PPP loan origination fees to increase their loan loss reserves and loan loss provisioning. This will both bolster their position in the face of an uncertain recovery and the likelihood of a barrage of loan delinquencies and defaults increasing their problem loans in the coming months.

The level of customer outreach has been unprecedented. Community bankers have shared with me the fact that they have made contact with every single business and consumer loan customer in their portfolios—checking in to see how they're doing and what they need. They encourage customers to keep in touch with the bank, and they note the available opportunities for payment deferrals and other assistance that customers might not be aware of.

The strength of this approach to customer relationships is evident in the data on PPP loans. The SBA reports that, as of July 20, two-thirds of the nearly 5 million PPP loans thus far were originated by banks with assets of less than $50 billion. More than 1 million of these loans were originated by the smallest banks with assets of less than $1 billion dollars. I believe these results are evidence of the importance and value of relationship banking, which is so central to the mission of community and regional banks. But—along lines similar to President Evans's notes on the Main Street Lending Program—in smaller-banker feedback it was noted that the

program did not suit their customers, with minimum loan size being the most frequent concern. One notable exception expressed excitement about the opportunity to punch above the bank's weight and reach much larger business customers. From the perspective of a supervisor, it remains to be seen what the effect of that will be. The bankers I have spoken to have most consistently noted that they're in a wait-and-see mode—seeing relatively stable conditions at the moment, but worrying that they will see a rapid and serious deterioration in loan quality if the economy does not recover quickly.

Before I close, I want to note that even though my outlook is broadly similar to what it was in June, I've become more concerned that the financial situation of many families may be much more precarious than we can infer from the macroeconomic data. I believe it is entirely possible—and quite likely—that we are not yet seeing the true severity of the effects of the pandemic on American households, because they are being masked by all of the temporary fiscal policy support and by the deferrals of loans and other required payments.

Joblessness will still likely be high when mortgage forbearance eventually expires. In addition, a patchwork of state, local, and nationwide eviction bans are scheduled to expire in July and August, as many have noted before me. This could lead to a spike in evictions—and, in worst-case scenarios, potentially even homelessness. We all know that job displacements tend to be more scarring in recessions. One study found that job displacements led to 2.8 years of lost lifetime earnings when national unemployment is above 8 percent, compared with 1.4 years of lost earnings if the unemployment rate is below 6 percent.

And despite recent studies indicating otherwise, as noted by President Daly, I have heard from several employers, in rural areas in particular, that the $600 addition in weekly unemployment insurance benefits currently in place is causing some individuals to delay seeking

employment or returning to their previous jobs when asked to come back to work. This is especially relevant, as I mentioned, in rural areas in which there simply aren't that many high-paying job opportunities, and the enhanced benefits far exceed many workers' previous wages.

Furthermore, we're just now beginning to see how the postponed return to in-classroom learning in schools may affect employment and labor force participation this fall and whether workers can actually continue working full time with children at home in a virtual learning environment.

I believe that we need to monitor the labor market and households' financial situations especially closely in the coming months. Individuals, communities, and society as a whole suffer greatly when people have no way to support themselves and a lack of constructive activity to occupy their time. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. Economic conditions in the 10th District had improved since our June meeting, but, in a manner similar to the national economy, several indicators suggest that conditions have plateaued in recent weeks. Job losses within our region have slowed but remain elevated.

Nearly 40 percent of District households reported loss of employment income, with an even higher percentage of minority and low-income households reporting losses. These households remain heavily reliant on jobless benefits until economic activity resumes in earnest. Paralleling what others have noted on what they have heard, some contacts in my region have reported difficulty in getting workers back, due to the current level of unemployment benefits.

Our second-quarter energy survey shows that activity declined sharply again in the District. One contact in Oklahoma noted that the energy services sector has largely been

dismantled—with little or no rig activity remaining in the region, and with bankruptcies nearing $20 billion this year and likely to accelerate. Concern is growing about the ability to restart activity and about the cost of doing so even if oil prices return to more profitable levels.

Finally, the agricultural sector remains weak. District bankers reported significant declines in liquidity among farm borrowers during the second quarter, although most of the surveyed lenders expected government programs to provide at least moderate support to both livestock and crop producers.

Regarding the national outlook, incoming data since our June meeting pointed toward a notable pickup in activity for May and June, as restrictions began to ease. Retail sales, single-family starts and permits, and payrolls all edged up, albeit from very depressed levels. More recent data, however, suggest that the rebound in activity is now confronted by rising virus cases in certain areas of the United States. Real-time credit and debit card data suggest that spending has softened, in aggregate, since mid-June, led by a step-down in spending in new hotspot states.

A similar dynamic is emerging in new claims for unemployment insurance. Although new UI claims in former hotspot states continue to drift down, the new hotspot states see steadily rising claims. Thus, while aggregate UI claims data may not look very responsive to the trajectory of the virus, a more disaggregated analysis suggests otherwise.

The labor market's recovery also depends on the ability to have a safe resumption of work that is associated with physical proximity. Analysis by my staff suggests that a large fraction of the currently unemployed previously worked in occupations that require close physical contact with others, including in the food service or personal care industries. Thus, to the extent that we continue to operate in an environment that discourages activities requiring close contact, bringing a large swath of the unemployed back to work may not be feasible.

Similarly, the ability of these workers to find other occupations may be an equally protracted process. Either way, healing of the labor market faces big challenges as the economy begins to recover.

My outlook for inflation has become more uncertain, as demand shifts across sectors and supply chain disruptions are evident. For example, although headline PCE inflation has declined by roughly 1 percentage point since December, analysis by my staff reveals that reductions in inflation were not widespread across categories of the PCE index. In looking across nearly 200 components that comprise the PCE basket, one finds that there are, on net, more components showing increases since December. Aggregate inflation reflects large declines in a few directly affected sectors, including transportation and hotels, while many other sectors are exhibiting higher rates of inflation.

In view of the large shifts taking place "under the hood" of the aggregate inflation measures, the risk of a permanent downshift in long-term inflation expectations seems unlikely for now. But, until the contours of additional fiscal policy support are clear, the threat of more typical recessionary inflation dynamics is a real one and bears close monitoring. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles, please.

MR. QUARLES. Thank you, Mr. Chair, and I hope I can comfort President Evans by restoring him to his position of relative pessimism.

I continue to believe that an outcome somewhat like the Tealbook baseline is much more likely than the more adverse outcomes envisioned in the Tealbook alternative or in our stress-test sensitivity analysis.

And that conclusion reflects a number of factors: the advances that have been made in managing and treating the virus; the better-than-expected readings coming from a number of sectors of the economy and the economic indicators; the likelihood that there will be continued support coming from fiscal policy and monetary policy; and the general principle that if something can't go on, it won't.

There's been a threefold jump in daily cases since mid-June, yes. We've also seen that many states *are* managing to stage their reopenings *without* a spike in cases. According to the Harvard Global Health Initiative, at the beginning of this month, there were 24 states and the District of Columbia that had sufficient testing capacity to trust the numbers. And in a majority of those states, cases did not rise appreciably over the three weeks after their reopening through Monday of this week.

So a resumption of economic activity doesn't inevitably lead to a spike in cases. In addition, most state and local governments in areas that have seen a surge in cases appear to be responding with more targeted containment measures rather than imposing undifferentiated stay-at-home orders, as they did in the spring. And that should mean better economic outcomes.

They are calibrating restrictions to hard-hit areas. They're better differentiating business closures, such as reclosing bars but not fully shutting down restaurants or retailers. Now, of course, we would close down the bars in Utah—or rather, sorry, close down the bar in Utah. But it's not just in Utah that that level of differentiation, of granularity, is obtaining. And, importantly, with just those mitigation measures taken, seven-day-average case counts in a number of the most affected states have clearly declined from their peaks over the past week.

Now, the implementation of more targeted measures to protect the vulnerable and to avoid the highest-risk activities without a full lockdown is consistent with a growing body of

work by economists who've begun studying the effectiveness of nonpharmaceutical interventions in limiting deaths, relative to their costs in lost jobs and output. So, as a baseline: One such study that was presented here at the Board, virtually, last month—the "virtually" here means it was *presented* virtually, it wasn't "virtually last month," it was *actually* last month—estimated that the policies followed in the United States over the spring saved 29,000 lives, and that each life saved resulted in $6 million of lost output. But Daron Acemoglu and three of his MIT colleagues show that, in view of the vastly different mortality rates across age groups and certain comorbidities, a more risk-targeted response than the United States and other Western nations followed last spring would produce reductions in mortality that are similar to, maybe even greater than, those generated by the broad-based stay-at-home orders that were in force during the spring, while imposing substantially lower economic costs. And a recent Brookings paper by James Stock and others reaches a similar conclusion. But, in that study, rather than looking at targeting across different demographic groups, the focus was on targeting restrictions on activities that pose the highest health risk, relative to their contribution to economic output.

Nonetheless, despite affected states following those, in my opinion, better-calibrated mitigation strategies, the high-frequency data do show that the recovery has been sputtering in July, especially in places that are experiencing outbreaks. Such a slowdown would be consistent with recent work that argues that voluntary distancing by individuals, in response to fear, is responsible for much of the decline in output experienced in hard-hit areas over the early months of the crisis. But, at least to date, the measures of mobility and store traffic in the areas that are currently hardest hit haven't fallen anywhere near as swiftly or deeply as they did in March and April, even though we're now well into the surge of cases.

And I think one explanation for the lesser degree of voluntary distancing associated with these outbreaks is that we've seen substantial improvements in the treatment of this disease since we last met. And these positive developments in treatment and the better-designed mitigation strategies suggest to me that the medical community can further lower the death rate and allow us to manage this disease in ways that will support continued economic recovery over the medium term.

Let me now turn more explicitly to the economic indicators. We obviously are still just beginning to climb out of a deep hole. Spending in certain sectors remains moribund. It's unlikely to recover anytime soon. But consumer spending in some important sectors has either resumed growth more quickly or at least held up better than expected. And orders and shipments of capital goods in June exceeded expectations.

And although this is backward-looking, the surprisingly strong retail sales in May provided evidence of underlying purchasing power and appetite on the part of households. And although some of the more recent weekly indicators have stalled, combined credit and debit card spending, which a number of you have mentioned, remains at or slightly above year-ago levels into July—which is far more encouraging than where that indicator was in the spring.

For the period ahead, the stock of personal savings built up over the spring—again, a number of you have mentioned the high savings rate during this event—represents significant pent-up demand that should continue to fuel increases in consumer spending over coming months, even if the pace ebbs and flows a little with the evolution of the COVID event.

For example, the staff has noted that the recent pullback seen in high-frequency data largely reflects a decrease in services spending, while goods spending—much of which can be conducted without as much personal contact—has held up. For example, the pace of vehicle

sales jumped in May and June, recovering about half of its decline from earlier this year and seems to have risen significantly further in July. And this pattern of spending on durable goods also indicates that many households continue to have the capacity to spend in the period ahead, and they have access to credit for "big ticket" purchases. This may help buffer any decrease in the amount of support for households in the next round of fiscal stimulus.

The staff also reports encouraging news in the housing market, which contracted less than expected so far this year, while indicators of pending home sales have turned positive, even in the so-called states of concern. I expect that housing demand will continue to recover, with 30-year mortgage rates having fallen to record lows and a likely shift in preferences toward single-family homes and away from multifamily housing, as social distancing drags on and full-time telecommuting remains more common.

So, for all those reasons, I expect that the economy will grow solidly in coming quarters, and that the risk of a second deep recession or prolonged slump—while not absent—has diminished considerably. Nonetheless, the overall picture obviously continues to present historic challenges. Despite most numbers for the second quarter being less dire than feared, downside risks in the second half of this year are abundant.

Households are still facing an unemployment rate of 11 percent and the prospect of reduced fiscal policy support. In addition, they may face other strains that prevent them from working full time, such as care for school-age children who can't go to school. Many businesses are in sectors that have been left out of the nascent recovery. And neither the fiscal package nor the tools that we have at our disposal are really designed to target specific needy businesses.

Capital markets are open for large firms, particularly those that are investment grade. But the SLOOS revealed that very large fractions of banks have tightened standards on business

loans, citing the overall weakness in the economy combined with industry-specific problems as the most important reasons.

Business bankruptcies are increasing. One private-sector estimate indicates that Chapter 11 bankruptcies were up 30 percent in April and 48 percent in May. Meanwhile, the already-indebted businesses that took on even more debt to bridge the collapse in the spring can ill afford the significant delays in restoring their cash flows, delays that would occur due to a slower-than-expected recovery.

I heard from some market participants over the intermeeting period that some hospitality-sector businesses are starting to question whether taking on additional debt to prepare for a longer shutdown is even economically feasible, let alone sensible. In the hard-hit retail sector, even bedrock businesses that are weathering the storm well are closing large numbers of locations—including Microsoft, which eliminated its brick-and-mortar stores.

So the risk of longer-term impairment of the supply side of the economy remains high. Avoiding such an outcome and continuing to move employment and inflation back to mandate-consistent levels will require not only ongoing substantial monetary policy accommodation, but also fiscal support and better-designed policies to mitigate further damage coming from any COVID event-related disruptions. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. After the last eight hours, I wish we were having a virtual happy hour at a virtual West Court Café right now. But, instead, you're going to get to listen to my statement for the economic go-round.

Although data for May and June showed surprisingly strong improvement following the partial reopenings, since then dark clouds have gathered, amid sharply rising COVID-19 cases in

many parts of the country. High-frequency indicators suggest that spending and labor market conditions may be stalling, or even deteriorating slightly, in July, especially in those states that were currently hardest hit by the recent resurgence in the virus.

Various states have reimposed distancing measures and slowed down reopenings. And, most importantly, consumers and businesses appear to have become more cautious, in patterns reminiscent of spring. Even areas like the Second District, in which new COVID cases have remained relatively low, are not immune to the economic effects of this intensification of the pandemic.

Our regional indexes of manufacturing and services activity improved in June and early July, but our most recent midcycle flash surveys, which were in the field just last week and are not public, indicate that revenues and employment have begun to fall for firms in the region. In addition, high-frequency data on small businesses in our District also show incipient signs of slowing in the pace of recovery.

At the global level, the picture is similarly nuanced, although a bit more optimistic on balance. Economic activity has rebounded strongly in several foreign economies as they have reopened, particularly in the euro area. Even though activity remains well below pre-pandemic levels, high-frequency mobility data suggest that successful containment of the pandemic has paved the way for further activity gains. In particular, as of a few days ago, mobility indexes for the euro area were, on net, close to their pre-pandemic levels—although still depressed in certain areas, such as public transit. A similar pattern is evident in other countries that thus far have successfully contained the pandemic, including Japan and South Korea. That said, successful containment is no protection against weak external demand, and exports for both countries remain weak.

In thinking about these developments, I want to return to some points I made back in our April meeting. Back then, I identified a significant risk of a large resurgence of the virus as early as this summer. I highlighted a key insight provided by the epidemiological models that, in determining the dynamics of contagion, it is both the growth rate in infections and the level of active cases that matter. If one relaxes restrictions prematurely when there is a still-high number of active cases, then infections can rise rapidly and uncontrollably. And, unfortunately, this is exactly what happened recently, in many parts of the country. So the implications for the outlook are clear. The rise in infections and the associated tightening of social-distancing measures risk derailing the recovery.

There is a silver lining associated with this otherwise dismal situation. The experiences of the northeast states and of many European countries teach us that it is possible, simultaneously, to protect the public health, to reopen the economy, and to foster recovery. To accomplish that successfully requires that new cases be brought down to a sufficiently low level, and only then would restrictions be eased carefully and gradually, accompanied by adequate testing and contact tracing.

As I stressed at our April meeting, we should remember the lessons of the 1918 influenza pandemic. Regions that had less aggressive public health interventions usually experienced not just worse health outcomes, but also weaker subsequent economic recoveries, and vice versa. But the path toward these better outcomes is narrow, and it will require vigilance, as the pandemic dynamics are highly nonlinear and are subject to a variety of factors.

I will now turn to a couple of observations about inflation expectations that were prompted by the very interesting box in the Tealbook. Since March, my staff has been analyzing the data obtained from our survey of consumer expectations on a weekly basis. And the

principal measure of medium-term expectations of households is the median of three-year-ahead inflation expectations. It has displayed greater variability, but it does not show a clear upward or downward trend over the pandemic period. Over this same period, respondents' uncertainty about future inflation, as implied by the probability distributions they provide, generally has been elevated, as has the dispersion of expectations across respondents. So, based on the evidence coming from the survey of consumer expectations, I arrive at much of the same conclusion as that given in the Tealbook box. Despite signs of greater variability and uncertainty, inflation expectations do not appear to be coming unanchored so far this year.

To sum up: Although recent events and data provide some reasons to be both a bit more optimistic and a bit more pessimistic, on balance I have not fundamentally changed the broad contours of my outlook since our June meeting. And this is in part because I was already assuming that the reopening process would be a bumpy one.

Overall, my baseline projection is similar to that of the Tealbook, with the recovery expected to continue through the second half of the year and inflation running at about 1 percent this year. My projection involves the assumption of the passage of an additional large fiscal package. And I want to just add my voice to those of many others who have pointed out that the evidence is, I think, pretty clear that the fiscal policy support that the U.S. economy got over the past several months has been really key to a lot of the good news we have seen, in terms of households being able to meet their rental bills and other bills, and, obviously, having some savings that can get them through this difficult period. And if that no longer continues, that obviously would be a very negative development for the outlook. It's worth emphasizing something that we all know—that the outlook is highly uncertain and depends critically on the ability to contain the virus and carefully reopen the economy safely. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. And thanks, everyone, for your comments.

As many of you have noted, we are, in essence, seeing a tug of war between two powerful opposing forces. On one side, we have an economy and a country that want to get back to normal. Business owners generally want to get their businesses going again. People generally want to go to work and get back to their old lives. On the other side, we have a virus that has not gone away and that can quickly spread to unacceptable levels, if the shift back to normal does not incorporate social-distancing measures that are adequate to keep it in check.

As for the reopening, the recent pickup in economic activity and employment has been a welcome surprise in its strength and speed, propelled by an easing in state and local restrictions on economic activity, a reduction in voluntary social distancing, and powerful support coming from fiscal policy and from our aggressive policy actions as well.

Impressive as the rebound has been, a substantial hole remains. The staff estimate has the level of real GDP in Q2 being 11 percent below its pre-COVID level. We'll get the official numbers Thursday. Employment in June was still 14 million jobs off its peak, and the unemployment rate remains in double digits. Indeed, adjusting for the decline in participation since February and the misclassification problem, the unemployment rate in June was nearly 15 percent. And with demand weak, core inflation is running at about 1 percent.

As for the virus, the rebound in activity has brought very large increases in COVID cases, hospitalizations, and now deaths. Many states and localities are responding by reinstating restrictions or slowing reopenings. People are also voluntarily pulling back on their tentative steps toward normalcy. And you can see the pullback, as many have noted this afternoon, in the high-frequency data. Geolocation data show that the fraction of people venturing out has stalled, hotel occupancy rates have flattened out, while trips to places like restaurants, gas stations,

pharmacies, and beauty salons are down. Still, motor vehicle sales continue to move up, as do indicators of housing activity and applications for new businesses.

We'll begin to get a better sense of the overall economic effects of the wave of infections with the July jobs report due next Friday—Friday next week. And, as has been the case since the pandemic arrived, uncertainty about the way forward is extraordinarily elevated. So if, as expected, the pace of recovery is slowing—that's my base case, that we will see slowing due to the wave of new cases—we don't really know how big or how prolonged that slowing will be.

It's possible that we will learn a lesson. As Governor Quarles suggests, we are learning our lessons as a country about how to live with COVID—how to reopen the economy in a safe and sustainable way with broad adherence to social-distancing guidelines and better medical answers. Or, instead, we may see continued half-hearted compliance and a series of rolling outbreaks, perhaps intensifying in the fall when some schools reopen.

There is also significant uncertainty about the prospect of more support coming from fiscal policy. With the $600 supplemental monthly benefit coming from federal pandemic unemployment compensation set to expire in days, the need here is acute and immediate. And I thought that Governor Bowman really put her finger on it in her comments about what those families who are among the 14 million who remain unemployed will be facing in a world in which their unemployment benefits are substantially reduced, and there just aren't going to be jobs for many people in these people-intense service industries for quite a while. They will not be creating incentives for people to go to jobs that are there. The jobs won't be there. So there is the potential for really substantial hardship, and hence the need for fiscal policy support.

More generally, with the pandemic still spreading and unemployment likely to remain elevated for an extended period, to have a reasonably vigorous recovery is going to need more

fiscal support—and strong fiscal support. It's clear we are going to get some of that in the ongoing discussions, but the amount, composition, and effectiveness remain to be seen.

Finally, a full recovery may have to await the development and production of effective therapeutics and vaccines, the timing and efficacy of which are perhaps the biggest uncertainties of all—although I would tend to agree with President Bullard that we should just be thinking that we live in a world without those things. We should try to manage until they happen to arrive rather than constantly thinking, and being told, that they're around the corner.

With regard to monetary policy, our actions have so far been effective in providing some relief and stability for households and businesses and in supporting the recovery. And I believe that our policy stance remains appropriate for the time being. Markets are broadly comfortable with, and consistent with, our forward guidance on rates and on asset purchases. The public remains much more focused on the pandemic than on the Federal Reserve's actions. We have waited for greater clarity about the path of the pandemic and of the economy before making further policy adjustments. But the time is coming when it will be appropriate for us to clarify our forward guidance on rates and perhaps on asset purchases, too.

In passing, I want to thank the staff for the two follow-up memos on yield curve control. Like most of you, I believe that our forward guidance remains credible on its own. And I don't see a strong need for yield curve control as long as that remains the case. The revised consensus statement, combined with clearly articulated forward guidance, should serve to support that necessary credibility.

So tomorrow, at the press conference, I will say that the Committee had a constructive discussion of the proposed changes to the Statement on Longer-Run Goals and Monetary Policy Strategy, and that I expect we will bring that discussion to a conclusion in the near future. I will

resist the temptation to spill the beans on the contents of the new statement—and I plead with each of you to do the very same.

I look forward to tomorrow's discussion. Rochelle, I'm sorry, as I know you were probably looking forward to getting your presentation over with tonight. But it's well past six o'clock now, and so we'll start again tomorrow morning with Rochelle's presentation.

We'll begin tomorrow morning at 9:00 sharp, with Rochelle and her excellent bookshelves. So, everyone, have a great evening, and thanks for a terrific day and great comments. See you in the morning. Thank you.

[Meeting recessed]

July 29 Session

CHAIR POWELL. Okay. It's 9:00 sharp, so, good morning, everyone. Good early morning to some of you. And why don't we get started. Rochelle, are you there? Over to you.

MS. EDGE.[6] Yes, I'm here. Okay. Thank you, Chair Powell. I will be referring to the exhibits that start on page 62 of your briefing material packet.

A single draft policy statement has been prepared for this meeting that retains most of the language used in the June statement. Policymakers might see a number of reasons for leaving their statement largely unchanged. You might judge that, in light of the numerous actions that you have already undertaken, your current policy stance remains appropriate for the time being. You might also expect that additional information that you will receive in coming months will help inform your future monetary policy actions and communications. Finally, you might see benefits in concluding your discussion of the Statement on Longer-Run Goals and Monetary Policy Strategy before modifying your policy communications.

Rather than go through the draft statement, I thought I would instead highlight a few findings arising from the Desk surveys that might be informative for your ongoing deliberations, before touching briefly on financial conditions and, in particular, reviewing results given in the July Senior Loan Officer Opinion Survey on Bank Lending Practices, or SLOOS, and mentioned yesterday.

The top-left panel considers a question that the Desk surveys ask every six months regarding respondents' estimates of current and future levels of the neutral real federal funds rate. This rate is defined in the survey as "the level of the real federal funds rate that would be neither expansionary nor contractionary if the economy were operating at or near its potential." The green bars report the interquartile ranges of survey respondents' neutral rate estimates in the January survey, and the blue bars report the ranges for July. The orange lines report the median neutral rate estimates in each survey.

In the January survey, the median estimate of the neutral rate over the next three years was 50 basis points. In the July survey, these median estimates dropped noticeably—specifically, by 25 basis points for year-end 2020 and 2021 and by 15 basis points for year-end 2022. For comparison, the orange diamonds show the path of the median of primary dealers' real federal funds rate forecasts, as reported in the January and July surveys. The gap between the forecasts of the neutral and the actual real federal funds rate provides one—albeit imperfect—gauge of the degree of accommodation assessed by survey respondents. Although estimates of the neutral rate have declined since January, the decline in the projected real federal funds rate has been much larger.

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

The top-right panel considers market policy rate expectations, which appear to be well aligned with your policy intentions. The expected path of the federal funds rate according to a straight read of OIS quotes, the pink line, lies below 25 basis points at least until late 2024, not shown. The path that uses a staff model to adjust for term premiums, the blue line, lies below 25 basis points until the second half of 2023. The orange triangles show the median responses to the Desk surveys' questions about the most likely outcome for the target federal funds rate. The question covers only the period up to the end of 2022. Over this period, the median response remains within the current target range.

The two lower panels indicate the unemployment rate and inflation rate that Desk survey respondents expect to see at the time of the next increase in the target range of the federal funds rate. The horizontal axis gives the date at which respondents expect the first rate increase to occur, while the vertical axis gives the unemployment rate, the left chart, and the inflation rate, the right chart, that respondents expect to prevail at that date. The black dotted lines show the median responses, while the thin gray lines show the interquartile ranges for either the unemployment or inflation responses.

A few points are evident in the two charts. First, as can be seen from the horizontal spread of the dots, there's considerable dispersion regarding how long respondents expect the policy rate to remain at the ELB. In addition, the vertical spread suggests a wide range of opinions regarding macroeconomic conditions at the time of the first rate increase. Also, respondents who see a relatively early departure from the ELB, the group of dots toward the left in each chart, generally see it occurring alongside higher unemployment rates and lower inflation rates. Finally, a bit over one-half of respondents see the Committee waiting until the unemployment is 4½ percent or lower before departing the ELB, while one-fourth see the Committee waiting until unemployment is below 4 percent. For inflation, many expect some degree of overshooting. One-half of respondents expect the Committee to depart the ELB when inflation is 2.1 percent or higher, and about one-third expect this when inflation is 2¼ percent or higher.

Your next exhibit looks at financial conditions, which, overall, have improved in recent months. We routinely report financial conditions indexes, and the top-left panel shows the mean, the black line, and the range, the blue shaded area, of four such indexes—one produced by the private sector and three by Reserve Banks. Regarding the far right of the chart, these indexes generally indicate that financial conditions have largely, but not fully, retraced their March tightenings. These indexes are largely based on financial market variables and so mainly reflect conditions for market-based financing. They generally do not reflect conditions regarding bank-based financing, which are considered in your top-right panel. This panel shows the net percent of banks tightening standards for commercial and industrial loans made to large and middle-market firms as reported by the July SLOOS. There has been a tightening over the first part of this year in standards for approving C&I loans to firms of all sizes, with similar tightenings occurring across other categories of bank credit. Additionally, responses to a set of questions that are

asked once a year in July indicate that standards for all but a few categories of bank credit are at or near their tightest levels since 2005.

Responses to SLOOS questions that ask banks why they tightened standards show notable—but perhaps not surprising—differences between the current episode and the 2008 financial crisis. As can be seen from the bright-green bars in the bottom-left panel, in 2008, some banks cited their deteriorating capital and liquidity positions as "very important" reasons for their tightening standards. In the July 2020 SLOOS, virtually no banks mentioned these reasons. In contrast, the dark-orange bars in the bottom-right panel indicate that this year, a large share of banks cited a less favorable and more uncertain economic outlook, along with a worsening of industry-specific problems, as "very important" reasons for the tightening in standards. In 2008, the light-orange bars, a smaller but still relevant share of banks reported these reasons as "very important." But the current state of bank lending conditions means that borrowers who rely on banks for financing—such as residential mortgage borrowers with lower credit scores and small businesses—are facing tighter credit conditions, even though credit intermediated through capital markets remains generally accommodative.

Thank you, Chair Powell. That concludes my prepared remarks. Pages 65 to 68 of the briefing materials present the June 10 statement, the draft statement, and the draft implementation note. We would be happy to take any questions.

CHAIR POWELL. Thank you, Rochelle. Any questions for Rochelle? I see none on the—Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Chair Powell. This is more of a comment than a question, so, Rochelle, you don't really need to respond. But in terms of this question that the Desk surveys ask, it is kind of a funny question at a time like today—when we're in the middle of a pandemic, unemployment is over 11 percent, and there's all of the uncertainty. It's trying to get at some notion of r^*, but in a short run. And I just think that I personally don't know how I would answer that question, and I think people probably are struggling with that.

Luckily, the surveys do ask the right question—that is, "What's your estimate of the long-run funds rate?"—which is almost identical to the question we ask in the SEP. And that answer to that question is "2 percent for the funds rate," which, under the long-run forecast of PCE inflation, also in the SEP, of 2 percent, means the estimate of r^* is zero.

So, again, I'm just going to reiterate my view that these longer-run estimates of r^* are probably a better conceptual way of thinking about this. And some of these—and this question, in particular, that you're reporting here—I think, conflate some notion of a long run, as you described it, and of a short run. So I'm not sure exactly how to read that. But I would tell you—I emphasize that the responses do have a real equilibrium rate r^* of zero, which is a little bit lower than the median in our most recent SEP. Thanks.

CHAIR POWELL. Thanks. President Rosengren.

MR. ROSENGREN. Thank you. Your chart on reasons for tightening is quite striking. Remembering what October 2008 seemed like—it seemed like markets were in meltdown, like the world was coming to an end, and the Congress was having trouble coming up with a proposal.

And the fact that banks think that the current environment is more uncertain and industry-specific problems are more serious than at that time really highlights a problem, because how do you expect monetary policy to offset expectations of the banks and the people that are lending that are so different from what stockholders or others seem to have? So, if they act on this, do you have any suggestions on how we should think about policy more generally? Because it's not an area in which the actions that the New York Federal Reserve has been taking are going to have much of an influence. Separate from changing the terms of Main Street and also taking on much more of an equity position than 95 percent, so that the banks don't have to worry about equity loss, what other recommendation would come out of considering such a striking chart?

MS. EDGE. In terms of trying to think about differences between what is happening with the facilities, as you were mentioning, and what's going on at banks, there has been a difference between the programs that are directed at banks and the programs that are directed at

supporting the flow of credit. So, obviously, the ones concerning financial markets are much more associated with the facilities, and the ones to do with banks have been much more associated with regulations.

So there have been, as you said, a couple of facilities that are—well, I guess, there is one facility that is directed at banks, which is the Main Street facility. There's also been loan-guarantee-type programs like the PPP. That's more directed at banks. Most of the supporting credit policies that are directed at banks have been bringing forward changes in regulations that were going to be made anyway that might be presenting impediments, postponing things like CECL, temporary changes in regulations like the SLR, and concerning reserves, all working with guidance telling banks to work constructively with their affected customers.

So the stance reflects some difference between the sorts of policies that have been affecting the market intermediation finance basis and those affecting financing provided through bank intermediation.

The other thing, I suppose, is that it reflects differences in borrower composition. Clearly, small borrowers are more dependent on banks, and some of them have been more affected by COVID.

So I think some of these differences are just differences that exist between the two types of intermediation financing. I guess I'd say some things are just inherent differences between these two different forms of financing.

MR. LEHNERT. President Rosengren, I wonder whether this is pointing toward a difference in the appropriate fiscal policy response between 2008 and 2020. You know, in 2008, there was a capital hole in the banking system, and that was the big kind of accelerator that required the Congress to address it.

In the midst of a pandemic, in contrast, there are industries that are experiencing shorter or longer periods of distress and there are real questions about their long-run viability. And this isn't an area in which lending is necessarily going to always be the right solution. And, certainly, the matter is not as clear cut as what we experienced 12 years ago, when it was obvious that the fragility of the financial system and its lack of capitalization were the major problems that required addressing.

MS. EDGE. Could I make one other point that I didn't mention earlier? One thing also that's important in thinking about the movements in standards that we're seeing is, what part is a reflection of the macroeconomic data that have already come in, and so what additional effects would there be of the increase, relative to what's already in the macroeconomic data? And that is also a difference between 2008 and—well, obviously, we're still trying to figure this out, having now just one quarter of data. But what part of this is an additional drag, beyond what's already reflected in economic-activity data and is just showing through to standards?

CHAIR POWELL. Thank you. President Kashkari, please.

MR. KASHKARI. Thank you, Mr. Chair. This question is for Rochelle, Andreas, or any of the staff. I'm looking at the top-left chart, the financial conditions indexes. I guess I've got a two-part question. One is, I look at the difference—it's a striking contrast between financial conditions indexes today versus '08 and then between the bank tightening of standards today versus '08, right? The financial conditions index has barely budged, if you compare it with the '08 peak. Now, my interpretation of that is, that's because of the actions that the Committee took very aggressively in March of this year. So question one is, I'm curious if you agree with that.

And, second, relatedly, if you look at bank credit default swaps (CDS), are you seeing any signs of pressure emerging in bank CDS? Because that would be one way—if I'm right that the Committee's actions are why the financial conditions indexes didn't move as much, but if the banks are really under a lot of pressure, it might be showing up in bank CDS—so, I guess, a two-part question for either Rochelle or Andreas.

MS. EDGE. I have to look up the bank CDS, actually, but it's really hard to know what would have happened to the financial stress indexes had the actions not been taken. It's certainly true that spreads, even though they really widened tremendously, did not increase to the extent that they did in 2008. So it's probably the case that the facilities did have an effect. I don't know if Andreas—

MR. KASHKARI. He's ducking—

MR. LEHNERT. Yes, I'm just looking up—I've got the CDS indexes. "Complying vol."—okay, CDS spreads for domestic LISCC firms: They're currently between 50 and 100 basis points. They are below the—think back to the late 2015 and early 2016 global-growth concerns and the oil price crash episode. They're below those levels. So these are not super-low levels that they're at, at the moment, but they are not out of bounds by any means. They essentially reflect, I would say, general higher volatility of share prices, as opposed to bank-specific concerns.

MR. KASHKARI. Okay. Thank you.

CHAIR POWELL. President Kaplan, please.

MR. KAPLAN. This is partly a question for Rochelle and, I think, partly a question for the group here. These charts on the banks—I have a little bit of a different take, and the CDS discussion is consistent with that. I have a little different take with regard to the banks.

I think phase 1 of this was that the banks had a series of challenged loans. They exercised forbearance. They tried to do what we wanted them to do. They took their lumps in terms of loan loss reserves. But I can tell you, they're not going to do it again, meaning, you take your lumps, and—as, I think, in running a public company or a bank, you learn—you take your lumps once. You don't do it two or three or four times.

So it's going to be harder for marginal businesses to get a loan, and I think these charts are consistent with that. The banks are going to be very, very careful from here, and we may see—whereas financial conditions overall are relatively loose, except if you're a small and midsize company. And for such a company, they're not, especially if you're in one of these person-to-person contact industries.

So this is back—the reason I'm raising this for the group is, it's going to be a tough decision for us to make, in that the most necessary intervention that may be needed may be a new round of PPP, and President Rosengren alluded to that, and looser terms, which are going to mean more credit losses for Main Street. And, obviously, this is a Treasury decision made together with us. But, of all the targeted interventions that'll get at financial conditions, this is the one that probably is going to be the most relevant. And I'm just curious—and this is not so much for Rochelle, but for the group—how are we going to think about this, as LSAPs don't address this, but these targeted interventions with these two bank lending programs will make a big difference?

One approach is to go ahead and do them again, be more liberal, and take more losses. Another approach would be to say, "Many of these businesses in person-to-person industries are going to fail. We should just let the process take hold and let it happen, and people will get redeployed to new industries." It's going to be painful, but I think that's a big judgment for us,

and I'm struggling myself about how to think about it. I'm curious how people are thinking about it.

MR. LEHNERT. There's some international experience that could be relevant here. Beth Anne, I think this is fairly different from what the European SME sector is experiencing, right?

MS. WILSON. Yes. There are a couple of things to add to the broader conversation. First, as you saw in the lending standards data that I showed yesterday, Europe is having a very different experience than we are, and part of that difference is due to the fact that their programs, the TLTROs, are extremely expansive—14 percent of GDP is targeted to banks as long as they don't reduce lending, and the terms become more favorable, the more they lend.

And in the United Kingdom, the programs that they've done, both at the central bank level and in coordination with the Treasury, are targeted toward maintaining lending to firms even more than households. And, reflecting that, you see in surveys of behavior a direct difference between U.K. firms and households in the tightening of lending.

What the economic effect of that is on the whole economy is less clear, because a lot of lending in the United States, at least to large companies, is through the bond markets, not through banks. So the overall effect is not clear. But, possibly, for the purpose of reaching firms, particularly smaller firms, that method may be more effective, and you see that in the lending standards.

With regard to CDS for foreign banks, which we've been tracking: Certainly for senior debt, it seems fairly manageable, with fairly subdued levels. It hasn't spread. But for subordinated debt, especially for the weaker banking systems, like those of Italy and Spain, it has

blown out and is more strained. So whether, as these programs roll off, they continue to see the more favorable environment, both for lending and in terms of banks, I think remains to be seen.

As a number of FOMC participants who participated in international calls can confirm, what to do, how to deal with the banking system and the role of the banking system in either blocking or facilitating structural change is a key topic of discussion within international forums at the BIS and in other places. A number of your counterparts are wrestling with exactly that same question, and I think that's going to be really important.

And how countries experience the shock will matter a lot. In the case, for example, of China—which has been able to bounce back very, very quickly—the scarring effects may be more limited, and the need to reallocate across sectors may be able to be met more organically. For other countries, in which tourism and services play a huge role, there'll probably be some really hard decisions to make from the banking sector's perspective on how much to continue to facilitate lending to firms and industries that don't look viable in the long run.

CHAIR POWELL. Okay. Thank you. Any other questions for Rochelle? If not, Beth Anne, would you like to provide us with an update on this morning's data?

MS. WILSON. And now for something totally different. All right. We had expected both nominal exports and imports of goods to trough in May. And today we got the Census Bureau's advance release for U.S. international goods trade for June, and we did, in fact, see trade start to rebound in June. So that's good news. Relative to our forecast, goods imports came in about $1.7 billion stronger than expected, and goods exports were $2.4 billion stronger than expected. A rough preliminary estimate derived from today's releases—this is the not-so-good news—is that we now expect real exports to decline about 67 percent at an annual rate in

the second quarter and real imports to decline about 54 percent, which is pretty much what we had expected before the release.

For the quarter as a whole, automotive products, exports and imports, look very weak, but, obviously, the weakness is broad based. This doesn't really change our expectations of the contribution of net exports, which we expect in Q2 to be about negative 1.2 percentage points.

Tomorrow, we'll learn how the BEA interprets these data, when we receive the NIPA advance release for Q2. All right. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Any questions for Beth Anne? [No response] If not, thank you, Beth Anne, and thank you, Rochelle.

Let's go to our policy go-round, beginning with Governor Clarida, please.

MR. CLARIDA. Thank you, Chair Powell. I support the draft statement and directive as written. At our previous meeting, we refined our guidance on the pace and rationale for our Treasury security and MBS purchases, now that we've largely restored market functioning. I believe the balance sheet language in our July statement, which is unchanged from June, continues to serve its purpose, is well understood, and does preserve our optionality, if desired, to make changes to our balance sheet policy or communication later, if we feel that would be warranted.

I found, as always, the Desk surveys to be illuminating, and it's really an important input into my thinking. On the basis of the Desk surveys and market commentary, it does appear that our current pace of purchases—roughly $80 billion per month for Treasury securities—is in line with market expectations and should serve to achieve the goal of sustaining the improvements in functioning and supporting financial conditions.

That said, on the basis of the Desk surveys, it does appear that markets expect these purchases to continue at a robust pace for at least the next year and a half—and, I think, on the basis of Lorie's charts, perhaps for the next two-and-a-half years. So we should acknowledge that, while the market for Treasury securities may today be in a good place, it's in a good place at least in part because, when the market reads us saying "over coming months," it takes this to mean at least 18 or maybe 30 months.

I also support the decision at this meeting to leave the language on rate guidance and the balance of risks unchanged. Market pricing indicates essentially a zero chance that we will hike rates anytime over the next 18 months, which certainly comports with our SEP numbers. Furthermore, this is "big tent" language that also preserves our optionality to make more significant changes to our guidance later, if we feel this is warranted. Now, I would remind you that in September we will be adding a third year to our projection horizon, out to December 2023, and there will be, I'm sure, great interest in what those new dots reveal about the expected timing of liftoff from the ELB.

At such time when we do consider refining our guidance, I believe it could make sense to consider combining near-term calendar-based guidance with threshold-based guidance for the transition for the medium term and for the longer term. For example, we could state that the Committee currently anticipates that conditions are likely to warrant exceptionally low levels for the federal funds rate at least until December '23, and, thereafter, the level of the funds rate is likely to remain accommodative until employment and inflation have returned to mandate-consistent levels. I think one potential benefit, if we're considering a change to guidance, associated with combining the calendar guidance with threshold guidance is that, realistically—because of the hole we're in—it's going to be a while before we can project mandate-consistent

levels for employment and inflation, and it would be helpful to be clear on that fact. Thank you, Chair Powell.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you, Chair Powell. With the fog of the pandemic shrouding the outlook, we face an uncertain, and possibly fraught, path in returning the economy to full health.

The unprecedented challenges associated with COVID, in combination with the longer-run changes that prompted a rethink of our strategy, argue for preserving optionality to expand our toolkit, in case this proves necessary. Of the available options, front-end yield targeting to reinforce forward guidance is the most evolutionary and complementary option. So I hope we will not take it off the table.

A few considerations inform my thinking on this. First, the unprecedented challenge we confront may necessitate additional firepower. The large reduction that has occurred in the neutral rate means our conventional policy buffer is likely to remain much more limited than in the past. The additional complications—a low trend inflation rate and a flat Phillips curve—mean we face a daunting challenge to avoid a downward drift in inflation expectations. We should be mindful of the fact that some of our foreign peer central banks have been unable to arrest this downward drift even before confronting the disinflationary shock of the pandemic, despite their aggressive use of outcome- and date-based forward guidance combined with large expansions of their balance sheets.

Second, some members of this Committee have previously expressed considerable unease about the kind of large expansion in our holdings of long-duration securities that may become necessary if we rely on forward guidance and large-scale asset purchases alone. That

discomfort was a prominent consideration during the Committee's debates over when to taper—and, later, over when to end—balance sheet expansion, then again on when and how to end reinvestment, and again on when to end runoff.

Third, we shouldn't count on the credibility of forward guidance remaining as high as it is today over the course of a long and winding recovery, in which there are unpredictable changes in financial conditions and possibly the composition of the Committee. It is true that the Committee's credibility currently appears high, as evidenced by the present alignment between participants' projections and forward interest rates based on OIS quotes. And we saw some of that in Rochelle's presentation. But it would be a mistake to assume that alignment will remain high as the recovery gathers steam or if there are changes in the Committee. There were several junctures in the previous recovery in the spring and summer of 2009 and again in 2013, when market expectations and Committee projections diverged, sapping the recovery's momentum.

In the June Desk survey, the probabilities associated with higher rates increased notably over the next few years. I wouldn't lightly dismiss the insurance value of boosting the credibility of our forward guidance with a commitment mechanism.

Most importantly, we should be careful not to rule out every viable option to expand our policy space. The Committee appears strongly united in not wishing to introduce negative interest rates into the arsenal, as many of our foreign peers have done, and I agree. Similarly, there's been very little appetite to consider raising the inflation target to compensate for lost policy space associated with the decline in the neutral rate. This argues for retaining front-end yield curve targeting as an option, if it proves necessary.

The memo on the design and implementation of yield curve targets lays out for the Committee the key design choices that would be necessary. The decision about the specification

of the yield curve target should become relatively straightforward, once the Committee has determined the framing for the forward guidance. For instance, it would be natural for the forward guidance to be oriented toward the achievement of certain outcomes. This would in turn naturally be connected to Committee participants' projections of the time horizon over which liftoff was not likely to be appropriate. That horizon, or one ending a few quarters earlier, would be a natural focal point for the targeting.

As the memo explains, such an approach also allows for a smooth and transparent exit strategy—an important consideration highlighted by many Committee participants in our previous discussions. The maturities of the targeted securities would shrink predictably over time, and then roll-off would similarly proceed smoothly, reflecting the short tenors of any securities that are purchased. It's reasonable to expect the exit strategy under such an approach to be more transparent and clear-cut than the discontinuities associated with announcements regarding the termination and runoff of large-scale asset purchases.

Of course, the outlook rarely evolves as expected, and the maturity for the yield curve target would presumably be adjusted in response. This would introduce asymmetric risks that would need to be managed. Under circumstances in which the recovery takes longer than anticipated, the "at least until" date for which liftoff is unlikely to be appropriate would be extended, and the horizon for the yield target could likewise be extended, although it need not be, until conditions improve sufficiently.

Concerns about an open-ended balance sheet commitment are confined to the reverse case, in which progress toward the Committee's goals is notably faster than anticipated. In this case, there may be a short time in the intermeeting period in which market expectations bring forward the expected date of liftoff. In that circumstance, the risks of rapid balance sheet

expansion would likely be managed through a combination of mitigants. First, as the memo explains, both the Reserve Bank of Australia and the Bank of Japan have successfully managed their targets using soft caps, implemented by fixed daily purchase amounts, rather than hard commitments to purchase securities in unlimited amounts at the targeted yield.

Second, a potential misalignment is likely to be confined to an intermeeting period and would be addressed through prompt adjustment of the targeted maturities or an increase in the yield caps of those maturities. As we've demonstrated in recent months, this Committee stands ready to change policy as needed, when unexpected changes in the outlook necessitate it.

Third, if a large amount of purchases was nonetheless necessary for a short period of time, the short duration of those assets would lead to a relatively short-lived effect on the size of the balance sheet. So, with the appropriate mitigants, front-end yield curve control that is credible should entail less of a balance sheet commitment than would reliance on large-scale asset purchases alone, as has been the case in both Australia and Japan.

The staff memo explains that a yield target range could introduce a floor at zero as well as a cap. This has the appealing additional benefit of reinforcing the Committee's intention not to introduce negative rates. We've seen a few episodes over recent months when yields around the two-year horizon have traded in negative territory, despite the Committee's communications to the contrary.

Finally, it's worth keeping in mind that none of the policy choices that have the best chance of supporting the recovery in today's challenging circumstances are without risks or costs. The same risks that are highlighted in the YCT memo associated with possible perceptions of monetary financing and loss of Federal Reserve independence at a time of very

large deficits apply with equal or greater force to large-scale asset purchases of longer-duration Treasury securities.

Similarly, calibrating the appropriate level, duration, and horizon for large-scale asset purchases to deliver on the Committee's chosen objective is no easier, or less consequential, than the design choices necessary for an effective YCT program. And, unlike front-end YCT, large-scale asset purchases ultimately bring additional difficult market-sensitive decisions about when to taper and terminate purchases and when to terminate and restart reinvestment.

Even forward guidance carries with it the risk that we may need to carry through on a commitment to hold the federal funds rate at the lower bound for an uncomfortably extended period. And risks to financial stability are inherent in any policy or combination of policies that involves maintaining accommodative financial conditions late in an extended recovery.

There's a high degree of familiarity and experience with forward guidance and asset purchases, which were road-tested in the previous crisis, and it is natural for these tools to form the core of the Committee's response. But there may come a time when it's desirable to reinforce the credibility of forward guidance, and lessen the burden on the balance sheet, via the addition of targets on the short-to-medium end of the yield curve. While market-implied expectations and the projections of FOMC participants look well aligned today, using our tools to prevent any future misalignment from developing could help strengthen the recovery in employment and the performance of inflation. In short, in view of the notable downside risks to the outlook, it would be wise to retain some options for expanding our policy space if necessary.

Regarding the monetary policy considerations before us today, with markets functioning normally, our emergency actions have appropriately moved into the background, and market participants have confidence that they remain available as an insurance policy, for use if storm

clouds again move in. With the recovery likely to face headwinds for some time, in coming months, it will be important for monetary policy to "pivot" from stabilization to stimulus.

As we move to the next phase of monetary policy, we should be guided not only by the exigencies of the COVID crisis, but also by our longer-run strategy and goals. Because the longer-run neutral rate is quite low by historical standards compared with past recoveries, we must be willing to make a stronger commitment to stay the course, in order to avoid the downward bias to inflation and employment that could otherwise result. With underlying trend inflation below 2 percent for many years, and COVID proving to be a disinflationary shock, we will need to see some modest, temporary overshooting of the target in order to ensure that expectations are consistent with inflation averaging 2 percent over time. And with inflation exhibiting low sensitivity to labor market tightness, monetary policy should not preemptively withdraw support to the economy but, instead, seek to achieve employment outcomes that have the kind of breadth and depth that were achieved late in the previous expansion.

As we transition into the next phase of monetary policy, we'll need to reorient the conditions for forward guidance and the composition of our asset purchases. The experience of the previous crisis suggests that forward guidance based on a numerical threshold for unemployment on its own could allow inflation to again undershoot its objective. Research suggests that refraining from liftoff until inflation reaches 2 percent could lead to some modest, temporary overshooting, which could help offset the previous underperformance. But these are issues for another meeting. For today, I support the statement as written. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard, please.

MR. BULLARD. Thank you, Mr. Chair. I have just a few remarks on today's policy decision.

I'm supportive of the policy statement as written. I think that the monetary policy response has been very good in recent months, but I do not think that monetary policy is the main story at this juncture. As I argued yesterday, I think developments in the economy and monetary policy are delinked, at least for the time being, owing to the very large shock that has hit the economy. You can see that because there's really no difference in monetary policy expectations, either within the Committee or in the private sector, for 2020, 2021, 2022, and probably 2023 as well, regardless of how the economy evolves and regardless of whether you think we're going to do a little bit better or worse, or even quite a bit worse, in the next six months. It doesn't really matter for the monetary policy outlook for several years. And that's just due to the size of the shock—and the size of the hole that we're trying to get out of here.

The statement emphasizes that much depends on the path of the virus. And this has been a mantra, I think, of many around the table—maybe everyone around the table. But I think it really will be important to put that front and center in this particular statement and to reinforce that. So I think it's very important to emphasize that, and I support that addition.

Much also depends, as we go forward, on the continuation of what I will call the fiscal "pandemic relief" strategy, which is, in the vernacular that we've been using, "to keep everybody whole" as we figure out how to deal with the new mortality risk that has hit this economy. This fiscal policy has to continue, because the pandemic is proving less severe than originally projected. You might recall that the Imperial College study suggested 2.2 million fatalities arising from this pandemic—we're at less than one-tenth of that now. They said that the best you could do was 1.1 million if you followed all of their prescriptions. It's less than that. So I think, on the whole, in the big picture, the pandemic has proven to be less severe than the very adverse projections that were out in the March–April period suggested. But, nevertheless, it's far

more persistent, I think, than many would have expected. During the March-April period, I think many of us thought—I certainly did—that, by the time we got to this meeting, a lot of this would be behind us, and we'd be figuring out how to pick up the pieces. That's not what's happening. So this persistence is really the key issue at this juncture.

Also, I would say this: It has become quite clear that even in countries that manage to keep infections and fatalities lower for a certain time, they still have to take, and continually implement, mitigating actions. So it doesn't really help you just to get down to a very low level of infections; you still have to have public-health protections in place, because of the nature of this virus. We're learning more and more about the virus every day, and it is somewhat different from what we would have thought in the March–April time frame.

As far as the fiscal package goes, I do think there will be plenty of resources. But, unfortunately, I think, because it's a crisis and it's chaotic, it will continue to be unevenly distributed throughout the economy. I hope we can smooth that out somewhat and be a little bit more targeted this time around, but it will be inevitable that there'll be some uneven distribution.

Unemployment is high, as has been cited widely here at this meeting. But I would like to stress that we are asking people who have certain types of jobs to stay home, in order to invest in the national health. That is the nature of the response to this crisis. So we're using unemployment insurance as a channel through which to provide pandemic relief to disrupted households. Because of this, I do not think that the unemployment variable can be interpreted in the same way in our regressions as it was for all of those previous readings on unemployment, pre-pandemic. It doesn't mean exactly the same thing that it used to mean. It's not "ordinary" unemployment, as conventionally defined.

And I would compare it with the European Union, which has used other programs and other ways to get pandemic relief to households other than through the unemployment insurance program. You're still providing relief to households, and you're still providing checks to disrupted households. But you're doing it through some other channel, so it doesn't show up in the unemployment variable. We saw that in graphs yesterday. In the United States, unemployment skyrockets. In Europe, it goes up, but not nearly as much. Now, they're trying to respond in just the same way we are—in order to provide pandemic relief.

So I'm concerned about the interpretation of the unemployment variable. We've got 60 percent saying that they're on temporary layoff. If you look at the history of temporary layoffs among the unemployed, it's only 10 to 15 percent under any circumstances and under any unemployment rate over the past 15 years. This idea that you've got a lot of people kind of in the "waiting room," on pandemic relief, waiting to see how the disease develops, and expecting to go back to their previous job means a very different situation from what we've had before.

I think a good question for this Committee is—sort of the idea of "pivoting" to stimulus—do we want the unemployment insurance claims to decline, as we're really asking people to stay over there on unemployment insurance as a way to get relief to them? I guess the answer to that is, we don't want them to decline too quickly, because that would reflect reopening the economy too quickly or in an unsafe way. So we really want them to continue to get pandemic relief as we continue to develop health-care policy that is more granular, more risk based, more focused on exactly how the disease is transmitted, and less of a blanket public health policy that we used in the March–April time frame.

Unemployment claims were up in the previous report, but I would mention that that was seasonal adjustment. If you look at the nonseasonally adjusted data, claims were actually down.

So I think that it's probably not a good time to be seasonally adjusting. I'm not sure that seasonal adjustment means the same thing this spring as what it meant in all of those other springs of the past. I think we need to think carefully about how we interpret this unemployment situation.

Now, much can go wrong, and depression risk is palpable. If you don't want to call it "depression," you could call it "prolonged downturn" or "long-term decline." But we're in a dangerous situation for the economy, and the Committee discussion yesterday certainly outlined many of the downsides. And I certainly agree with all of that. However, I think, nevertheless, we should emphasize what needs to go right to stabilize the economy by year-end—understanding that a lot of things could go wrong and fall apart, and there could be a second leg down for the economy.

I think what needs to go right is that economic actors of all types have to continue to learn to cope with a new substantial mortality risk that was not present in the United States in 2019. This is very unpleasant for people to face, they wish it wasn't there, and they wish it would go away, but it's not going to go away.

The good news, however—and I think what we've learned in the second quarter—is that this adjustment can be done, and the essential services sector has blazed the trail. And they've done it with simple, available technology that is around right now and that does not need to be developed: Work from home; practice social distancing; take temperatures; have people attest to their health; and, above all, test people with simple, easy, and fast tests, so that you know where the virus is at all times.

I stress again that another thing that needs to go right is, we follow public-health advice. The IHME, at the University of Washington, Seattle, which I cited yesterday, projects that mask

wearing will drive estimated infections, actual infections, and fatalities to low levels. You can look at their graphs on their website. Those do get updated daily, so you can follow along, as I do. I find that a bullish factor for the second half of 2020.

I also think that masks are being widely adopted as we speak. And because it's a crisis, things happen on a daily basis and shift on a daily basis. But we've had, just in recent days, major retailers basically throwing in the towel and saying they're going to require that customers wear masks if they are to come into their store. I think that's just going to become a social convention across the economy. Some of you remember—I remember, growing up—that there was a sign in stores that said "No shirt, no shoes, no service." And that became a social convention. I think something like that will occur here, because from the store's perspective, they just want to say, "We want to protect employees, and we want to protect our customers. This is the social convention, and everybody has to do it. If you don't want to do it, just don't come into the store." And that seems like an easy solution, and I think that's happening and will continue to happen as we go forward.

I think we're also learning a considerable amount about who is most at risk. And those individuals can take, will take, and are taking more aggressive risk-mitigation steps, and their families are taking more aggressive risk-mitigation steps—a development that is going to lower the fatality rate in the period ahead. So, again, the economy and individuals in the economy react to the situation—they don't stand still. And this is happening, and I think this is especially important in Black and Hispanic communities, in which the effect has been especially severe. But they're learning, too. And, with help from our public health officials, I hope we can get the negative effects there to be lowered in the second half of the year.

I see my comments on the pandemic as consistent with the research cited yesterday by Governor Quarles, which—I very much like these papers as well: one by Acemoglu and coauthors at MIT, as well as another paper by Jim Stock and coauthors at Harvard University. Both of those papers, I would say, define what I would call "dominant strategies," which lead to better health outcomes and better economic outcomes. So they're better on both dimensions. You get more output in the economy, and you get lower fatalities and better control of the disease. Those are both possible and likely to occur, and you can read those papers to see what they're about, but they do take advantage of a better public health strategy and the differing incidence of risk of the disease across the age distribution.

I see the economy and policymakers eventually finding these better outcomes. And the reason I'm optimistic on this is, I think that the individual incentives—especially for businesses, but also for households and nonprofits—are extremely strong to find a solution to restore their revenue streams and find a way to cope with the disease. So, because those incentives are so strong, they're going to find a way to get it done. I think that is happening in many places across the economy, and this is going to continue to happen in the period ahead.

Of course, it's a chaotic crisis, and you should expect chaos to continue. I do not expect it to be a smooth ride. But I do think there remains a path along which the U.S. economy can survive and thrive and that will stabilize the economy by the end of 2020.

I think that the framework review has been successful, and I think, more importantly, that our framework announcement, when it comes, will have quite a significant effect. It's very meaty, and a lot of potential influence is coming from this. I think we're in great shape on this. I could see that as the next step for the Committee.

I would remind the Committee of an incident in the 2000s that you've probably all forgotten. The Greenspan FOMC was worried about disinflation and the lower bound, and this Committee added a single word to the statement, and inflation expectations in the TIPS market went up 50 basis points on the news.

So this framework review has the potential to shift inflation expectations upward, and I think we have to manage this carefully. But I do think it can have a significant effect, and that's exactly the kind of thing that you'd like to get out of the framework review. You're more accurately reflecting the attitudes of the Committee, and you've massaged the wording accordingly. But a lot of meaty ideas are in there, and I think that can possibly shift expectations in the market for the better, from our point of view. During the crisis, that could be very helpful just in the next month or so. Thank you very much, Mr. Chair.

CHAIR POWELL. Thanks. President Rosengren, please.

MR. ROSENGREN. Thank you, Chair Powell. I support the option as written. If my forecast for double-digit unemployment at the end of the year is right, both accommodative monetary policy and accommodative fiscal policy will continue to be needed for the foreseeable future.

Making sure that credit is available to troubled households and firms is likely to be the most important tool we can employ at this stage of the economic recovery. However, as we get to the fall, I think there will be a need for additional forward guidance. I am supportive of strong forward guidance and do not expect that higher interest rates will be justified over the next two years. My own preference is that, this time, we tie the guidance to the labor market and not to inflation. I expect that the unemployment rate will reach close to its full-employment value well

before inflation exceeds 2 percent. At that time, we could shift to focusing on inflation or choose other forms of forward guidance.

One concern I have with the severity of the pandemic is that many firms are too leveraged going into the downturn. By allowing excessive leverage during the extended period of low interest rates before the pandemic shock, we were forced to take more dramatic actions in response to this crisis than we would have needed to take if firms had taken on less debt.

The tax code, low interest rates, and the loose commitment to maintaining financial stability in the United States risk a continuing ratcheting up of boom-and-bust cycles. For this reason, I would like to have a "knockout" clause related to financial stability. If we choose forward guidance, that implies another extended episode of the policy rate being held at the effective lower bound, creating the potential for a low interest rate environment to again encourage the buildup of debt on the part of both businesses and consumers.

I would also highlight the fact that Rochelle's charts indicated that the primary concern at this time is not market spreads, but rather risk spreads in the banking system. This would call for substantial easing in Main Street conditions. That may be more effective than some of our more traditional tools focused on rates that are already quite low. We are providing significant support for large firms that have access to credit and are able to refinance their liabilities. We need solutions that get to small firms that employ a large percentage of our workforce. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chair. I support the draft policy statement as written. I see no changes in conditions to warrant a change in our policy stance. And, if anything, they reinforce my view that our current policy stance is the right one—these shifts that we've seen

recently. Moreover, conversations I have had with contacts throughout the District demonstrate to me that there is a clear understanding of our policy position and that expectations for the future align with our most likely course of action.

There are two additional reflections I would offer. First, I very much support the addition of the first sentence in paragraph 3. It is important to place the current economic turmoil in the proper context. We are *not* in the midst of an ordinary business cycle fluctuation. Rather, we are in the midst of a public health crisis—and an unprecedented one at that. Only the competent management of the crisis or solving it outright will allow the economy to recover in a robust and stable way.

In terms of proper management, it's "the three *W*'s." Wear a mask, wash your hands, and watch your distance. We can't say this too often, in my view.

President Bullard noted that national retailers are now shifting their policy stance, and he referred to this as their throwing in the towel. I would actually not put it this way. I'd say it a little differently. In my view, I think they're exasperated at the lack of national-level guidance and leadership on how to manage this, and they are effectively now taking matters into their own hands. This is not an optimal approach to policy in this context. It has created delays and pushed back the date when we can be on a stable recovery path. This is very unfortunate and, sadly, it was preventable.

For my second point, I would say that over the coming months, I am girding myself for the possibility of significant volatility in financial markets. Financial markets have progressed in a way that seems disconnected with Main Street realities in recent weeks, and this disconnect could leave them vulnerable to corrections as the course of the virus and public perception evolve. In the event that this concern is realized—and absent a breakdown in market

functioning—my preferred plan is to stay the course and allow markets to reprice in response to a changing economic outlook in this very turbulent time. President Kaplan spoke about this yesterday, and I fully agree with him on this point. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker, please.

MR. HARKER. Thank you, Mr. Chair. I also support the statement as written. Regarding yield curve caps or targets, I don't see any immediate need to adopt that strategy. But it clearly is always worthwhile to study additional policy tools and have them as a viable option should they be needed, as Governor Brainard said earlier. And I really do appreciate the work by the staff on these memos.

As one of the memos points out, medium- and even longer-term rates are extremely low, and thus there's little benefit to capping those rates at this time. Currently, we have a high degree of credibility regarding our forward guidance, and a flat yield curve is an indication of that credibility. In other words, our forward guidance does not require any reinforcement at this time.

The memo casts yield curve control in terms of insurance in case market expectations regarding the policy rate diverge from our own expectations. But I'd like to make two points about that. First, there are only marginal gains, in my mind, associated with being preemptive. And, second, it has been balance sheet policy that resulted in the biggest communications headaches—most notably, the taper tantrum and the move to normalization two years ago. Yield curve control risks introducing further uncertainty into both the balance sheet policy and rate policy and renders an outcome-based forward guidance substantially harder to articulate.

From a theoretical perspective, yield curve control may be problematic, and more analysis is needed before we embark on a change in implementing policy. And I don't think it is

advisable to add an additional and uncertain dimension to our balance sheet policy. Additionally, gauging the "correct" value for medium-term rates is much more challenging than deciding on current rates or forward guidance. For instance, would it be beneficial to keep medium-term rates low if the economy and the inflation outlook were unexpectedly improving? If the answer is "no," then yield curve caps or targets would not be a very credible policy instrument.

Importantly, the control of longer-term yields rests on the control of the amount of Treasury securities held by the general public and would therefore require coordination with the Treasury. That degree of cooperation could cast the Federal Reserve's independence into doubt. As well, changing our policy strategy could cast doubts in the minds of the public regarding our ability to conduct appropriate policy in very uncertain times.

All of that said, I really appreciate the work. I'd never say "never" to any tool, but I think right now, this requires more work before I'd be willing to support using it. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester, please.

MS. MESTER. Thank you, Mr. Chair. I support maintaining our current policy stance and the statement as written. After an unprecedented decline in economic activity early in the second quarter, there's been some rebound in activity in May and June, as restrictions on economic activity began to be removed and more of the economy reopened. While some of the growth rates look good, the economy, in terms of levels, is still far from where it was in February, before the pandemic arrived.

Now, the path of the economy is very dependent on the path of the virus—as President Bostic pointed out—how households and businesses respond to it, and the efficacy of policy

actions taken to mitigate the effects and support the economy. The increase in new virus cases seen in many parts of the country raises the downside risks to what already was a very uncertain economic outlook. We're already seeing some damping effects on economic activity and delays in the reopening phase of the recovery. Whether this persists will depend on whether new cases can be brought under better control again. Now, data obtained from the Federal Reserve Bank of Cleveland survey suggest that mask-wearing mandates, which are becoming more ubiquitous, could increase compliance and produce benefits.

I listened intently to Governor Quarles's remarks yesterday and his positive take on the developments on vaccines and treatments. I'd hoped to find when I woke up this morning that this exposure to his optimism might have infected me. Unfortunately, it's proved to be less contagious than the virus. But if the number of new cases begins to flatten and turns back down again, the news on vaccines stays positive, the country makes more progress on expanding virus test capacity, and President Bullard's learning model plays out, then I think I, too, will become infected by the "optimism bug." But even if the health statistics allow the reopening of the economy to proceed, in my view it will take quite some time for economic activity and job growth to move toward more normal levels.

Governor Bowman's remarks yesterday noting that we're likely not measuring the full effect on households are very important to keep in mind. The Federal Reserve's actions, and U.S. fiscal policy, have offered crucial support, but in our outreach to small businesses and nonprofits, we've learned that not all are in a position to take advantage of the aid. Before the PPP was expected to expire, we held a forum with our regional SBA office to offer practical information to small businesses about how to apply and the terms of the program. It was clear

that there was still a lot of interest, but it was also clear that there was a lot of confusion about the program.

Similarly, in our outreach to small businesses in Youngstown, in which Chair Powell participated, and in other forums across our District, we learned that many of the nonprofits and the smallest businesses don't have the technical expertise to navigate the programs. And we found that the smallest CDFIs also do not feel they have the expertise, either. So I believe the Federal Reserve should continue to offer outreach programs to fill this knowledge gap, so that the policy actions we're taking can have the largest effect.

As we go forward, the economy will need further fiscal policy support, and Federal Reserve policy will need to transition from emergency actions to support market functioning to a more sustained, accommodative monetary policy stance supporting the recovery and the return to full employment and price stability. It's best to use the policy tools we have when they can be expected to have the greatest effect. The general public and market participants seem to understand the Committee's current guidance indicating that interest rates will remain at the effective lower bound for some time. So there's not a compelling reason to change this guidance today. However, the time for clarifying our forward guidance may be later this year. Outcome-based forward guidance would be a way to underscore the Committee's new monetary policy strategy, and it could provide needed clarity about our reaction function.

As Rochelle Edge and Lorie Logan both discussed, there is quite a bit of dispersion among respondents to the Desk surveys on what they expect the unemployment rate and inflation to be when the FOMC lifts the funds rate up above its effective lower bound. The unemployment rate ranges from about 3 to 6½ percent, and the inflation rates range from about

1½ to 3 percent. The wide differences in liftoff conditions indicate that respondents are unclear about our intentions.

I'll be interested to see if market participants' views change after we release a new consensus statement. I suspect that there's still going to be dispersion, and that there will be benefits associated with revising the forward guidance to give market participants and the broader public more insight into our reaction function. And this might be particularly needed if a pickup in activity leads market participants and others to begin to think liftoff may be coming sooner than we think is appropriate.

Now, the formulation of forward guidance, including what liftoff conditions are appropriate and how to consider risks to financial stability in our guidance, is not without challenges. So the Committee's reaching consensus on the formulation of outcome-based forward guidance should be a priority.

Some adjustment to our balance sheet policy is likely to be needed later this year, as well. We've described our asset purchases as supporting market functioning, but this will need to segue into purchases intended to add monetary accommodation in support of the recovery. We'll need to communicate this shift effectively, and we'll also need to think carefully about the size and composition of any asset purchase program we eventually put in place, if one is needed.

I appreciated the background memo by Arsenios Skaperdas, which discusses the effects of Treasury security issuance on longer-term yields. In light of projected fiscal budget deficits, both the volume of Treasury security issuance and the weighted-average maturity of Treasury debt are expected to increase over the next few years, putting upward pressure on yields. This has implications for monetary policy. Issuance will have a countervailing effect on longer-term yields, for any given size of asset purchase program we put in place. So we're going to need to

calibrate the size and composition of our program to account for these effects, in order to achieve the desired degree of monetary accommodation.

And, finally, as President Kaplan noted today and as I mentioned yesterday, the Federal Reserve and the Treasury are going to have to come to some fundamental decision about the degree of credit risk they're willing to take on. Because the nature of this pandemic shock is very different from that of past shocks, our risk preferences are likely to be different as well. My own view is that we should be willing to take on more risk. But how much more? We need to think through this and have a strategy to help guide our further action. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin, please.

MS. DALY. Tom, you're on mute.

CHAIR POWELL. Tom? Tom Barkin? All right, we'll come back to you. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. Our current policy settings are providing good support against numerous COVID-related challenges, and I support the statement that is on the table today. Like Presidents Bostic and Bullard, I agree that in paragraph 3, the sentence is important—the economy's path depends "on the course of the virus." I think that's a big improvement—it's relevant today.

As I remarked yesterday, it is hard to imagine a more uncertain environment. I'm worried about what might be coming. In June, I placed somewhat more likelihood on the baseline projection that had us positioned for a steady return closer to our pre-pandemic trend over the medium term. Now, the clouds on the horizon are darker. Without further aggressive fiscal support and better, more robust COVID-mitigation policies, the odds are much too high that we'll see a truncated recovery and the entrenchment of powerful recessionary dynamics.

Such conditions could even deteriorate into the Tealbook's "Prolonged"—and painful—"Slump" scenario.

In an attempt to be somewhat even-handed, my staff suggested I also describe a rosier possibility. Here goes—but thinking about the specifics just sort of added to my pessimism: Fiscal policy could surprise on the upside; chastened politicians could provide more effective leadership on the virus front than we have seen up until now; such developments and continuing adaptation of business practices to the pandemic environment could bolster business and consumer confidence, strengthening prospects for growth.

I just don't see this happening. And images of mothers and other protesters being tear-gassed in Portland by unidentified federal authorities can only add to the distress expressed in the wake of George Floyd's murder. This further weighs on confidence and adds to the economy's fragility.

Of course, the question before this Committee today is, how does this outlook and risk profile affect our current approach to monetary policy? Real risks dominate today—not monetary or financial ones. And I thought that the chart in Rochelle's deck using the SLOOS data was very interesting. The tightening in C&I lending and the fact that it's industry specific—it seems like there's an awful lot of risk that banks are facing having to do with leisure, travel, hospitality, brick-and-mortar investments, office space, towers, and elevators. The degree of bank risk is just much higher than it was before. And this is a difference from 2008.

The U.S. economy needs continued strong relief coming from fiscal policy, strong public health responses for all 50 states, and a strong sense of national confidence that the COVID-induced suffering will end sooner rather than years from now. Still, the great likelihood of continued large employment shortfalls and below–2 percent inflation suggests further monetary

policy actions will be appropriate. Our new long-run strategy statement will put us in a strong position to act before long.

It always feels somewhat trite to say that we will know more in six weeks. Next on that list of banalities is "But this time, it's surely true." I'm not saying we'll have a lot more confidence in the trajectory of the virus, but by then—and, certainly, by no later than when the Congress ultimately goes home to campaign for reelection—we will know how much new fiscal relief will be coming to support the economy over the next crucial periods.

With that assessment in mind, I think we will be in a better position to make any necessary changes to our monetary policy plans. And when we do, it will be important to craft and communicate a policy plan that will be fully focused on achieving the maximum-employment and inflation-overshooting outcomes described in our new strategy statement.

I didn't expect today a long conversation regarding forward-guidance options and the caveats that might accompany those conditions. Before long, I look forward to a robust discussion about the consequences of different choices that the Committee might decide on. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin, are you back to being audible?

MR. BARKIN. I think I am. Am I?

CHAIR POWELL. Yes, you are.

MR. BARKIN. Good. Sorry about that. As I said yesterday, my best assessment of the environment is one in which tail outcomes seem more likely today than they did a meeting or two ago. In that context, our forward-guidance language used in March actually feels even more appropriate now.

We need to weather the virus. We clearly haven't weathered it yet. We may or may not have weathered it by September. So I'm quite comfortable staying the course for now and patiently awaiting environmental clarity. I see little benefit in enhancing forward guidance when times are this uncertain and when the yield curve is already flat.

I do worry about our message on market functioning. My sense is that the Treasury security and MBS markets are, in fact, now functioning fine. Maybe that's in part due to our interventions. But maybe our minimum-purchase commitments are already acting as QE. If so, we probably need to acknowledge that at some point. But I don't feel ready to do so today, because I don't yet have a strong sense of how sizable our commitment needs to be or how to position its duration. Part is the environmental uncertainty that I just discussed and the risk that the virus overwhelms the effect of any change in stimulus. Part is my doubt over the modeled size of the yield curve effect of our interventions and of the modeled effect of elevated Treasury security issuance. Part is uncertainty over how any changes would affect markets and expectations. So I would welcome a more detailed discussion of the staff analysis regarding all of these points.

I hope we will weather the virus soon and "pivot" to the right accommodative forward guidance. As we consider various formulations, I think it'll be important for our credibility that we make sure that our emphasis on unemployment gets through to the public, in light of the size of the gap today and the *Fed Listens* feedback indicating that the public struggles to understand our emphasis on lifting inflation. I'm not suggesting ignoring inflation or that inflation overshoots don't support employment. I'm merely suggesting that focusing our message on the shortfalls in employment is the right tone now, when unemployment levels persist at over 80-year highs. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chairman. I support the draft statement as written. I think the current stance of monetary policy is appropriate for the current situation. As I think about monetary policy currently, I take on board the extensive work we've done here at the Federal Reserve Bank of Dallas on short-term and long-term r^*, as well as work done by others elsewhere in the System.

In addition, though, I also consider our response, which, to me, consists of three parts: number one, the federal funds rate; number two, our Treasury security and MBS purchases, which help smooth market functioning but, I do believe, at this point, are providing, in addition, some amount of accommodation; and then, number three, our 13(3) programs, which, again, were initially conceived to improve market functioning. But I think that, particularly, the programs that have backstopped corporate bond markets, muni markets, and other markets and substantially helped narrow credit spreads have been highly accommodative. And I might even assert that they're extraordinarily accommodative. And I can tell you that my own team, we're wrestling a little bit in our own models to try to figure out how to factor that degree of accommodation into those programs. But I believe they are extraordinary interventions and, I think, all very appropriate.

As we go forward, I certainly will take Governor Brainard's advice, and I agree with her that we should be open minded and stay open minded and not rule options on the table or off the table—because there's so much uncertainty. However, I believe that the federal funds rate will obviously need to stay at its lower bound for an extended period, as I said in my SEP submission in June. And I do believe, and I agree with others' comments here, that when there is more clarity on the path of the virus, whenever that is—and we'll have to see—I would be receptive to

forward guidance that ties the federal funds rate to achievement of or progress in achieving our dual-mandate objectives. I agree with a couple of the comments: I would put the heavy emphasis on unemployment, but I would tie it to both elements of our dual mandate. But I know we'll have time to discuss this. In the future, I admit I am more uncertain regarding the benefits of additional large scale asset purchases (LSAPs). I have a lot of confidence in their ability to stimulate stock markets and prices of risk assets. I have less confidence, with financial conditions this loose, in their effect on the broader economy.

I do believe, as has been counseled, that now is the time for patience and restraint. We've handled our response very well thus far, but I think now is the time for patience until there's more clarity on the path of the virus. In the meantime, economic progress is going to depend much more on following health-care protocols—including widespread mask wearing—fiscal aid to state and local governments, and unemployment benefits being extended in some form.

And while monetary policy has a key role to play, I agree with President Bullard's comment that we are not the main story, and I don't mind if we are not center stage. I do think, as has been mentioned by several others, there is a big debate, though, to be had here about targeted interventions. While financial conditions are loose, a new round of PPP and debating whether we want to make some amendments to the Main Street programs are, I think, good debates for us to have here, in that those are the dual parts of what's going on in the financial markets that I think are actually more challenged.

It's not that banks *can't* lend more, it's that I don't think they're going to *want* to lend more. I think they're going to believe the responsible thing to do in managing their banks is to be very disciplined from here, and I think this will call, potentially, for more intervention by us

in conjunction with the Treasury. So I'm hopeful we will be debating those two programs and potentially more targeted interventions in those two programs. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President—sorry. Governor Bowman, please.

MS. BOWMAN. Thank you, Mr. Chair. I support the policy statement as currently written. Employment and economic activity remain well below levels consistent with our statutory goals despite having picked up in recent months. In addition, the outlook for the U.S. economy remains extremely uncertain. Therefore, I see no compelling reason at this point to change our policy stance, which remains highly accommodative.

While I'm encouraged by the continued light use of many of our emergency facilities, consistent with a notable improvement in financial market functioning since the spring, I remain concerned that financial conditions and market functioning could deteriorate abruptly again, adding to the challenging circumstances that many businesses and households currently face.

Other sources of downside risk remain prominent as the course of the pandemic continues to weigh heavily on the outlook. With that in mind, it's imperative that we continue to monitor the incoming data closely and be prepared to use our tools to adjust the stance of our monetary policy if needed. I continue to see forward guidance and large-scale asset purchases as our primary tools for providing additional monetary policy accommodation when the funds rate is at its effective lower bound. My preference would be to rely, first, on explicit forms of forward guidance, preferably outcome based and tied to the unemployment rate. These have proved to be quite effective following the previous financial crisis.

Depending on how conditions evolve, we could, also, consider engaging in further asset purchases, but we should be mindful of the costs associated with the expansion of our balance sheet. Under the current circumstances, I do not see a case for implementing yield curve control

should additional monetary policy accommodation be needed later this year. The recent staff memos and analysis reinforce my view that, to the extent that yield curve control is used primarily as a way to reinforce our forward guidance, it's not clear to me at this point that yield curve control would be necessary. And, considering potential costs, I'm still concerned that yield curve control could result in a loss of control of our balance sheet and might pose significant risk to the independence of our monetary policy. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. I support today's decision to maintain the current stance of policy. The statement, with its minimal changes, appropriately signals that the Committee is in a holding pattern, reflecting the uncertainty surrounding the economic outlook and our aggressive policy response to date.

Although activity bounced back more quickly in May and June than I expected, the resurgence of the virus over the past month has once again darkened the outlook. As many of us have noted in our public remarks and now in this statement, the course of the recovery will largely be determined by the course of the virus. Ebbs and flows in the number and geographical concentration of infections will keep the outlook unsettled.

Central to the outlook will be the prospects for further fiscal stimulus. The massive fiscal stimulus enacted in the spring appears to have been effective in buffering household budgets and supporting consumption. However, without renewed fiscal support, households will likely begin cutting back as previous transfers are exhausted, and we'll be faced with assessing the need for further accommodation and what form it might take.

As it relates to the role of balance sheet policies, we'll need to clarify the objective of ongoing purchases of Treasury securities and agency MBS. Without giving more explicit

guidance, we could find ourselves, if we haven't already, stumbling into a quantitative easing (QE) program with parameters that will be set by market expectations.

I would also be interested in further analysis of the question President Kaplan raised yesterday about the remaining capacity of our credit facilities and how we should think about that capacity and its policy implications. How much easing are we already providing on a contingent basis? And how should we think about this easing in terms of our overall strategy for the balance sheet and the amount of accommodation we aim to provide?

I appreciated the additional staff memos on yield curve caps and targets, though the key "takeaways" and concerns arising from our June meeting's discussion remain. And I'm still reluctant to use yield curve control as a framework for guiding asset purchases. I do want to say, I agree with Governor Brainard's counsel, though, that future conditions may require us to consider any number of these tools, and I'm open to that reality.

One thing that was apparent in the memos consisted of the similarities between yield curve control and date-based forward guidance—a subject also recently explored by my own staff. While yield curve control and date-based guidance offer similar policy outcomes, yield curve control appears to involve considerably more complications, in terms of both exit and political economy. I find that date-based guidance, in and of itself, has some attractive elements. In view of the likely choppiness of the economic outlook in the near-to-medium term, date-based guidance could underscore a bias to look through any temporary improvement in the data and likely lower the volatility of rates over the period.

In light of recent inflation developments, the use of outcome-based guidance, conditional on an inflation threshold, would likely keep rates at zero for some time—perhaps beyond our current forecast horizon. I worry that we might be setting a path for monetary policy over which

we will have little control. Although inflation is a monetary policy concern over the longer run, at shorter horizons, domestic and, particularly, global developments can push prices around in a manner unconnected to the stance of our policy. This lack of control could come at a cost to other things, like financial stability.

As I noted yesterday, the *Fed Listens* engagement with the public revealed little concern among our broad constituency that inflation was too low. And I see some difficulty in making higher inflation absolutely central to our policy communications. I think this language is one that financial markets understand but that leaves the general public perplexed.

Between now and our September meeting, we'll have an opportunity to assess the size and shape of further fiscal response, the release of and reaction to our consensus-statement changes, and the continued saga of the coronavirus itself. We'll have much to consider as we pencil in our September economic projections. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Quarles, please.

MR. QUARLES. Thank you, Chair. I support the statement as written. While the time to be more specific about what, and how much, additional support we think appropriate to provide the economy will come soon, I think the evidence that our current stance of policy is contributing to a positive trajectory in the economy and to improved market functioning gives us the opportunity to remain somewhat patient.

As I said yesterday, I'm encouraged by the stronger-than-expected numbers on consumer spending, on residential real estate, on corners of manufacturing in May and June, and on governmental response, and I expect that economic activity will continue to increase over the second half of the year. But I also share the sentiment expressed by many this morning that, even if we experience some upside surprises relative to the baseline outlook in coming quarters,

they likely wouldn't be large enough to change my view that maintaining—even potentially increasing—the amount of monetary policy accommodation will remain appropriate for some time.

Unemployment remains in double digits, inflation remains below our 2 percent goal, and some measures of inflation expectations have decreased. There are some caveats with regard to that. Survey measures of inflation expectations this year are mixed, and I thought one particularly interesting result was that in the Michigan survey, respondents in the lower one-third of the income distribution had substantially higher one-year-ahead inflation expectations than respondents with higher incomes. I think that finding, which presumably reflects the very different consumption baskets of upper- and lower-income households, is an example of what I mean when I caution against trying to "over-tune" our policy in response to small changes in inflation. But even with those caveats taken into account, we obviously are currently very far from our mandated goals in both employment and inflation. So it's perfectly sensible to maintain and, again, even consider increasing the amount of accommodation to provide support for the economy during this crisis.

And finalizing the framework document is a key part of that process. First, it will help us in coming meetings to coalesce around stronger forward guidance and asset purchase policies, should that be necessary. And, as many have commented yesterday, the framework itself communicates a policy mix that is likely, on average, more accommodative. By moving to an asymmetric treatment of maximum employment, the framework makes clear that the Committee won't remove accommodation solely because unemployment has moved below estimates of its natural rate. That should lead to expectations of more accommodative policy in the medium run. And the plans to adopt a flexible version of an average inflation targeting framework, while I

have some reservations about it, should similarly translate into market expectations of a more accommodative policy stance in the next few years.

Let me close with a few thoughts on the two staff memos elaborating on the potential to use yield curve targeting as an additional tool. These two memos bring the total number of memos to four on this topic that we've received this summer. So I think the pros and cons of adding this mechanism to our toolkit have been thoroughly covered. And, while I remain open to the idea if circumstances dictated, I still think that the introduction of a new tool at this time is, at least, premature. I continue to see the balance of costs and benefits of yield curve targeting as suggesting that we should have a high bar for considering the use of this particular tool.

Yield curve targeting could serve to reinforce our policy communications when markets don't understand our forward guidance or don't find it fully credible. More generally, in the current environment, the most salient risk that could be addressed by a yield curve cap is the small possibility that a positive term premium could develop. This might occur if inflation risk were to rise significantly or if Treasury market functioning were to deteriorate.

But these potential uses of the yield curve targeting regime seem to me to confer relatively small benefits at this time compared with a continuation of existing policies. I think the potential for yield curve targeting to increase the transparency or credibility of the Committee's communications is mostly hypothetical, certainly now. The current path of short- and medium-term Treasury yields suggests that the Committee's guidance is both clear and credible. The Federal Reserve's open market operations and large-scale asset purchases can be used to address issues related to market functioning or term premiums.

The second memo by the staff describes some more concrete options to implement yield curve targeting. And I have to say that it also still, although well written and well argued, did little to convince me that the benefits were likely to exceed the costs.

The most straightforward implementation, a date-based program, is unattractive to me for the same reasons that I prefer to avoid date-based forward guidance. The economy evolves in unexpected ways, and tying policy to the calendar rather than to economic conditions carries significant risk to the Committee's credibility. For similar reasons, a forecast-based program, in which the Committee ties its yield curve horizon to its consensus forecast, is also unattractive to me, even putting aside the requirement that the Committee would then have to come up with a consensus forecast.

And, lastly, under a full outcome-based yield curve targeting program, the Committee would need to set and then manage separate thresholds for the yield curve target and forward guidance. In order to avoid the need to defend the target through unlimited asset purchases, the Committee would need to be confident that it could set the threshold for removal of the yield curve targeting regime sufficiently in advance of triggering the threshold for the forward guidance. It's hard enough to coordinate one threshold, but coordinating two in this manner strikes me as extraordinarily difficult. So when that is combined with the caveats about yield curve targeting that we heard at the June meeting, as memorialized in the minutes for that meeting, I remain skeptical about the marginal value of yield curve targeting compared with our existing tools.

But Governor Brainard has made a persuasive case that we shouldn't completely close the door. I recognize the concern that at this time, longer-term interest rates have little more room to fall, so the proven tools of forward guidance and LSAPs may not be able to be as

effective as they were the last time. And if the economy were to deteriorate significantly again in the near term, we might be looking for all of the marginal improvements in outcomes that we can manufacture. So my mind remains open to this tool in some form. But the bar is, in my view, quite high. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you, Mr. Chair. I support the statement as written. To my mind, it serves as a "bridge" that gets us to our next meeting or another meeting in the fall, by which time, I hope, we'll be in a position to gain and perhaps even provide more clarity regarding forward guidance and balance sheet policies.

And I'll second something I think I heard Governor Clarida say—that I think this becomes even more important when we think about our projections adding another year in September. So providing guidance is going to be helpful.

And, like others, I just want to mention that I really did like the addition of the first sentence in paragraph 3. This has been our mantra: "The virus will determine the path of the economy." I think I've heard everyone say it, so it's useful to have it put so clearly in the statement.

In thinking about this meeting and the next meeting, I thought of it this way: After our initial bold and forceful actions in March, we committed—as a group, really—to watch the data, see how the disease progressed, and then make additional decisions about what would be required to achieve our goals. And these months of data collection have been actually really instructive—it's a time when we're waiting, being patient, and collecting, and it was actually really important. We've seen the economy rebound positively as the economy reopened. I think that's good news. It was actually surprising, I think, to most of us, if I heard correctly yesterday.

But on the other side, we've seen cases of COVID surge across the country, consumers pull back by either voluntarily social distancing or being put back into their homes through shelter-in-place orders, and businesses respond by slowing hiring or pushing out rehires in response to soft demand. So we've seen some plateaus on that front.

For me, this nets out as a baseline outlook for the future that is slow and bumpy, a series of stop-and-go episodes—volatility, as we described yesterday—that all sums up to a protracted period of weak economic growth and below-par performance on both our employment and inflation goals.

And here I want to underscore something that I heard several mention yesterday and that Governor Bowman put plainly toward the end of our meeting. Many households are at risk of suffering severe pain in the next several months as eviction forbearance rolls off, jobs are not plentiful, and unemployment benefits are constrained. And that's going to be something that we, as a Committee, are really going to have to think about. I don't have a good solution for that. It's going to be mostly the fiscal "side of the house," but it's going to be something we all have to take into account.

So in any realistic scenario, the economy is going to need continued vigorous monetary support to achieve our dual-mandate goals. And I was struck by the fact that even the Tealbook's "Faster Recovery" scenario calls for the federal funds rate to lift off only in the fourth quarter of 2023, without our having achieved our inflation objective in a consistent or sustained manner. Less favorable—but likely more realistic, if the data today on caseloads are any indication—scenarios require even more accommodation through both forward guidance and expanded balance sheet policies.

So, to my mind, the time is right to start thinking actively about those future policy actions. As a number of us mentioned at our June meeting, our policies work best when they're part of a unified, overarching strategy to achieve our dual-mandate goals. I see the first step in this as the release of the new consensus statement. So I'm very pleased we're moving ahead to release it in late August. This statement will help clarify our strategy and provide a framework for market participants and households for better inferring our future policy actions.

And, as President Mester noted, I think releasing the statement could help reduce things like the dispersion among market participants in expected conditions at liftoff, something that Lorie highlighted yesterday and Rochelle reviewed today. How much it will reduce the dispersion is, I think, unclear, but this is the kind of thing we would expect to happen—we release something that's clear about our goals, and the dispersion consequently decreases.

With that context, I see September as the appropriate time to provide additional forward guidance. That's my own view. In this regard, I prefer outcome-based forward guidance that ties funds rate adjustments to specific mile markers toward our dual-mandate goals. We had good results using this guidance in the past. And it will help fill in the operational details that are specifically and purposely left out of the long-run strategic document.

It would also be helpful to provide clarification regarding our asset purchase program at the September meeting. And I say that because, although our purchases were initially intended to support market functioning, they're now being used to support the recovery. With market functioning now being so improved, our providing that clarity—I think President George said this—as opposed to letting markets provide that clarity for us, would, I think, be useful. I myself expect that we will need to continue purchases beyond this year to achieve our dual-mandate goals, and I think our giving that guidance or, at least, having that discussion would be helpful.

I'd also appreciate—I know it's always hard to ask the staff to do more work, since you're working so hard—some additional work on what the balance sheet policies are doing right now in terms of stimulus and what we can expect going forward.

In thinking about summarizing this, I see that COVID-19 and the actions we've all taken as a society to mitigate its spread have put us into a deep ditch. And I don't disagree with others who have said the ditch is probably deeper than it might have been if we had been ahead of this, COVID, but we weren't, so this is the ditch we have. So we need to continue using all of our tools to shore up the economy and to aid the recovery. Our long-run framework, forward guidance, asset purchases, and our range of facilities together provide a unified, coordinated message, with effects that are mutually reinforcing, rather than merely additive. In light of the continued downside risks and the effective lower bound, I would like to err on the side of doing more and sooner rather than less and later.

So let me conclude with something that I'd just say solidified for me when I saw the charts that Rochelle presented on the banking sector. This is a crisis outside of what we've seen before. When I looked at those charts on the conditions that have changed and the risks they were assessing, I thought, "Well, this is great. The banking sector actually sees what so many of my contacts see, which is, we have a pretty uncertain environment and a lot of credit risk out there, in view of how long this is persisting."

But this means that the problems are going to be really complex, and I think President Kaplan said it when he asked, "How should we be thinking about this?" The transition through COVID is so much longer than I think any of us hoped for and many of us thought. And what are we going to do to ensure that we "bridge" people as much as we can without leaving us and them with loads of debt that they can't pay off later? So I think these tradeoffs about how we do

the best for the economy—not just today, but also down the road—are really important, and I would welcome continued discussions in these meetings. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari, please.

MR. KASHKARI. Thank you, Mr. Chair. I support today's policy statement as written. Inflation is running far below our target. The economy is far from maximum employment. As we've all discussed, public health policy must be the nation's top priority. We won't have a sustained recovery without progress on the health front.

Like others here, I believe that fiscal policy is the main action in town. I think the biggest upside surprise for me in the past six months is the way the Congress has come together in a bipartisan manner and taken extraordinary actions. I hope they continue to do that.

Regarding our policies, it's interesting. On the basis of listening to this discussion today, I strongly support moving to outcome-based forward guidance. But also just on the basis of listening to the discussion today, I think it's actually going to be harder to achieve consensus on what that looks like than I had guessed when coming into this meeting. There are a lot of different ideas on the table. Governor Clarida introduced the idea of combining date-based guidance with thresholds—he gave some good reasons why that's interesting. I hadn't thought about that. President Rosengren, I think it was you who talked about focusing more on the employment mandate, because inflation is going to be low for a long period.

Whatever we do, I think it needs to be consistent with our new framework. I mean, we've described in the new framework that we're focused on undershoots of maximum employment, but we recognize how uncertain maximum employment is. And that, for me, at least as a starting point, puts much more focus on the inflation mandate, because we can actually measure inflation, and it's pretty simple. If we have a scenario in which we have low inflation

and the unemployment rate keeps dropping, God bless it. You know, again, that's the rosy scenario that we saw over the past couple of years, and I would love to get back there. And I think both the ECB and, I read in the Tealbook, the Bank of Canada have adopted outcome-based inflation thresholds. So I look forward to that discussion, but it just makes me think that it's going to be a project involving more complicated analysis than I had appreciated coming into this meeting.

In terms of yield curve control, I think I'm where Governor Brainard is. I certainly don't want to take it off the table. I think, with this Committee, the marginal benefits are small because this Committee has a lot of credibility.

One of the things I debated with my staff—you know, we've said in previous meetings that one Committee cannot commit or bind a future Committee. Well, actually, yield curve control might be a way of binding a future Committee, and that might actually be the attractive feature of it. But, obviously, there are some significant things to think about in such an environment or in taking such an action.

So I appreciate the staff's work. Whatever we do, again, I think focusing on outcome-based thresholds will be a real positive, and I do think we should keep yield curve control at least on the shelf, in case we need it in the future. That's it. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I support the statement as written. As indicated in the statement, the economic outlook is largely dependent on the course of the pandemic. In this highly uncertain environment, this is one of the few certitudes.

This resurgence of COVID infections in a large part of the country and the recent slowing of the economic rebound call for maintaining a broad policy focus on preventing disruption in

financial markets, supporting households' incomes and firms' revenues, and fostering conditions to ensure a full recovery over the medium term. And, as I said at our June meeting, it'll be a long road, and we'll need to set out with perseverance and clarity of purpose. In the face of disinflationary pressures, continuing uncertainty, and human hardship, now is not the time to speculate about the timing of liftoff. Monetary policy will need to remain accommodative for quite some time to achieve our dual-mandate goals.

For now, our current forward guidance and asset purchases are effectively fostering stable and favorable financial conditions, supportive of economic recovery. Treasury yields are between 10 and 30 basis points out to the 5-year maturity and around 60 basis points at 10 years. As we gain more clarity on the economic outlook, including the risks, it will be appropriate to provide greater specificity regarding our forward guidance and asset purchases. And this should help anchor market expectations of our future actions, lining them up with our intentions, and thereby support continued accommodative conditions throughout the recovery.

I'll finish up with a few reflections on yield curve control. The memos were very informative. I see the main potential benefit of yield curve control as helping strengthen the alignment of market expectations with our forward guidance. However, one big challenge that the memos highlighted—and that was confirmed by some discussions and explorations we had at the Federal Reserve Bank of New York in thinking through how you would put together forward guidance and yield curve control—was, really, how the Committee could clearly structure and communicate state-contingent forward guidance and yield curve control in tandem. And I thought the memos did a good job of taking us through that process and some of the real-world challenges.

Now, relative to state-based guidance, a pure date-based form of forward guidance is easier to align with yield curve control, because the maturity of the security can be tied to the date-based guidance. But even that carries with it some pretty significant communications challenges.

In any case, in light of the current position of the yield curve and my expectation that we will be able to introduce strong and credible further forward guidance when appropriate, I do not view yield curve control as a tool that we need to deploy anytime soon. Of course, if at some point in the future we find ourselves in the predicament that market expectations regarding monetary policy have swerved significantly from our own despite our best efforts, yield curve control may be an option to rectify that situation.

So, in summary, although I don't see yield curve control as a tool that's needed in the present situation, I am glad we've studied this issue carefully, so that we can include it in our toolkit, ready for use if the need should ever arise. Thank you.

CHAIR POWELL. Thank you. And thanks to everyone for your comments. With that, let's move on to the FOMC vote. Matt, would you like to make clear what the FOMC will vote on and then call the roll, please?

MR. LUECKE. Thank you, Mr. Chair. The vote will be on the monetary policy statement and the directive to the Desk as they appear on pages 5, 6, and 7 of Rochelle's briefing materials. I'll now call the roll.

Chair Powell	Yes
Vice Chair Williams	Yes
Governor Bowman	Yes
Governor Brainard	Yes
Governor Clarida	Yes
President Harker	Yes
President Kaplan	Yes
President Kashkari	Yes

President Mester	Yes
Governor Quarles	Yes

MR. LUECKE. Thank you.

CHAIR POWELL. Thank you. Now we have Board votes on interest rates on reserves and discount rates. May I have a motion from a Board member to take the proposed actions with respect to the interest rates on reserves as set forth in the implementation note included in Rochelle's briefing materials?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Thank you. Next up, the Board needs to approve the corresponding actions for discount rates. May I have a motion from a Board member to approve the establishment of the primary credit rate at 0.25 percent and establishment of the rates for secondary and seasonal credit under the existing formulas specified in the staff's July 24, 2020, memo to the Board?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BOWMAN. Second.

CHAIR POWELL. Without objection. Thank you.

Okay. Our final agenda item is to confirm that our next meeting will be on Tuesday and Wednesday, September 15 through 16, 2020. That concludes this meeting. Everyone, have a nice rest of your day and a nice August. The meeting is adjourned. Thank you very much.

PARTICIPANTS. [Chorus of thanks]

END OF MEETING