

**Meeting of the Federal Open Market Committee on  
November 4–5, 2020**

A joint meeting of the Federal Open Market Committee and the Board of Governors was held by videoconference on Wednesday, November 4, 2020, at 9:00 a.m. and continued on Thursday, November 5, 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  
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

Ron Feldman, First Vice President, Federal Reserve Bank of Minneapolis

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  
Trevor A. Reeve, Economist  
Stacey Tevlin, Economist  
Beth Anne Wilson, Economist

Shaghil Ahmed, Rochelle M. Edge, David E. Lebow, 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

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

Sally Davies and Brian M. Doyle, Deputy Directors, Division of International Finance, Board of Governors; Michael T. Kiley, Deputy Director, Division of Financial Stability, 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, Kurt F. Lewis, Ellen E. Meade, and Chiara Scotti, 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

Michael G. Palumbo, Senior Associate Director, Division of Research and Statistics, Board of Governors

Marnie Gillis DeBoer, David López-Salido, and Min Wei, Associate Directors, Division of Monetary Affairs, Board of Governors; Glenn Follette, Associate Director, Division of Research and Statistics, Board of Governors; Paul Wood, Associate Director, Division of International Finance, Board of Governors

Andrew Figura, Deputy Associate Director, Division of Research and Statistics, Board of Governors; Christopher J. Gust, Deputy Associate Director, Division of Monetary Affairs, Board of Governors; Jeffrey D. Walker,<sup>1</sup> Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Brian J. Bonis, Michiel De Pooter, Zeynep Senyuz,<sup>1</sup> and Rebecca Zarutskie,<sup>1</sup> Assistant Directors, Division of Monetary Affairs, Board of Governors; Paul Lengermann, Assistant Director, Division of Research and Statistics, Board of Governors

Matthias Paustian, Assistant Director and Chief, Division of Research and Statistics, Board of Governors

Alyssa G. Anderson,<sup>1</sup> Benjamin K. Johannsen,<sup>1</sup> and Matthew Malloy,<sup>1</sup> Section Chiefs, Division of Monetary Affairs, Board of Governors; Penelope A. Beattie,<sup>1</sup> Section Chief, Office of the Secretary, Board of Governors

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<sup>1</sup> Attended through the discussion on asset purchases.

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

Michele Cavallo, Dobrislav Dobrev, Anna Orlik, and Judit Temesvary,<sup>1</sup> Principal Economists, Division of Monetary Affairs, Board of Governors

Arsenios Skaperdas,<sup>1</sup> Senior Economist, Division of Monetary Affairs, Board of Governors

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

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

Kartik B. Athreya, Joseph W. Gruber, Glenn D. Rudebusch, Daleep Singh, and Christopher J. Waller, Executive Vice Presidents, Federal Reserve Banks of Richmond, Kansas City, San Francisco, New York, and St. Louis, respectively

Spencer Krane, Antoine Martin,<sup>1</sup> Paolo A. Pesenti, and Nathaniel Wuerffel,<sup>1</sup> Senior Vice Presidents, Federal Reserve Banks of Chicago, New York, New York, and New York, respectively

Satyajit Chatterjee, Mark J. Jensen, Dina Marchionni,<sup>1</sup> Matthew D. Raskin,<sup>1</sup> and Patricia Zobel, Vice Presidents, Federal Reserve Banks of Philadelphia, Atlanta, New York, New York, and New York, respectively

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

Alex Richter, Senior Economist and Advisor, Federal Reserve Bank of Dallas

Ryan Bush,<sup>1</sup> Markets Manager, Federal Reserve Bank of New York

**Transcript of the Federal Open Market Committee Meeting on  
November 4–5, 2020**

**November 4 Session**

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

MR. CLARIDA. So moved.

CHAIR POWELL. Without objection. And before we move to our formal agenda, I'd like to take note of a few things. First, as you may know, President Kashkari is on leave amid great excitement—not to mention sleep deprivation—with the arrival of a new family member, Tecumseh Sebastian Kashkari. So we all wish Neel and his family the best. President Daly, as Neel's alternate, will be voting at this meeting. And in Neel's absence, Ron Feldman will be representing the Minneapolis bank in our discussions today. Ron, welcome.

Now, regarding logistics, we again have a parallel Skype session that participants and others can use to indicate that they have a question or a two-hander. I'd 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 with all presentation materials was distributed yesterday evening. You can open the file at that link and follow along during the proceedings. With that, let's go to our first item on the formal agenda, which is the Desk briefing. Lorie, would you like to begin, please?

MS. LOGAN.<sup>1</sup> Great. Thank you, Chair Powell. My presentation on “Financial Developments and Open Market Operations” starts on page 1 of your consolidated briefing materials. Over the intermeeting period, market participants were squarely focused on developments related to the election, fiscal policy, and the virus, all of which remain key sources of uncertainty for financial markets, particularly in light of the very close election results overnight. Contacts remain attentive to the outlook for Committee policy but do not anticipate any material changes at this meeting.

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<sup>1</sup> The materials used by Ms. Logan are appended to this transcript (appendix 1 and 1a).

Today I'll focus on the developments overnight and three interrelated questions, outlined on slide 2. First, how did evolving perceptions of the election, fiscal policy, and the virus affect financial markets? Second, how did these developments and the material changes to the Committee's September statement affect expectations about FOMC policy? And, third, how did market functioning evolve, and how do market participants assess the tools in place, should challenges emerge?

Starting with my first question: As shown in slide 3, financial conditions tightened modestly, on net, over the intermeeting period but remain accommodative. As outlined in figure 1, through last Friday, the S&P 500 index had fallen 4 percent, high-yield credit spreads had widened moderately, and longer-term interest rates had increased nearly 20 basis points. Notably, the VIX index was up 12 points, to a level near the 95th percentile of its historical range—suggesting elevated demand for protection against uncertainty in the near term.

Obviously, a main source of that uncertainty is the election. Taking into account the moves in markets since Friday and including overnight, financial conditions are even less changed than is indicated in the table shown here. Markets moved notably overnight as investors digested incoming information on the election, and, for your reference, we have distributed a separate short set of materials that update these very recent developments.

Figure 2, which shows the Goldman Sachs Financial Conditions Index, puts the moves through Friday in some context. According to this measure, conditions are near their easiest level since a brief spell in 2018 and, before that, several years in the late 1990s.

I'll now turn to slide 4. For most of the intermeeting period, market participants focused predominantly on the shifting outlook for the election and fiscal policy. Evolving polling data, particularly in early October, were interpreted as indicating a growing probability of a Democratic presidency and control of the Senate, as illustrated by the rise in the blue lines in figure 3. This, in turn, reduced the perceived odds of a contested or drawn-out election and boosted expectations of post-election fiscal stimulus. While there is considerable uncertainty, average estimates for the likely size of a fiscal package vary as much as about \$1.5 trillion depending on which political parties control the presidency and the Congress.

The greater odds placed on a larger stimulus package and higher issuance of Treasury securities reportedly drove increases in longer-term Treasury yields, which neared their post-March highs, as shown in figure 4. Measures of inflation compensation increased modestly despite a sizable drop in oil prices. Real yields rose more notably and appeared to be driven by rising term premiums, as shown in figure 5, consistent with government debt issuance expectations being a key driver.

Alongside these developments, economic data continued to come in stronger than expected over the intermeeting period, and third-quarter corporate earnings have been exceeding consensus forecasts by a record margin. By mid-October, these

developments had pushed U.S. equity indexes up 4 to 6 percent since your previous meeting, as shown by the dark blue bars in figure 6. However, as illustrated by the light blue bars, the equity price movements were subsequently retraced amid concerns about the intensifying upsurge in COVID-19 cases here and abroad.

Before I turn to that, let me just state the obvious: Developments overnight seem to leave the election and the outlook for fiscal policy highly uncertain. As a result, we expect the evolving electoral picture to drive yields, equity prices, and other asset prices over coming days. So far, equity prices are up, and Treasury yields are down, as market participants digest the uncertain results.

As detailed on slide 5, new COVID cases in Europe have accelerated sharply in recent weeks, shown in figure 7, leading to rising hospitalization rates and renewed lockdowns in several countries. The U.S. upsurge, shown in figure 8, has not been as acute, but contacts are closely monitoring these developments.

Differences in the trajectory of the virus, as well as differing expectations regarding fiscal policy, resulted in a significant divergence between U.S. and European asset markets. As shown in figure 9, while the S&P 500 index, in dark blue, fell 4 percent, on net, through last Friday, the Euro Stoxx index, in light blue, declined 11 percent, adding to its underperformance this year. As shown in figure 10, the 10-year German bund fell 15 basis points over this same period, amid the worsening virus outlook and firming expectations of additional ECB easing, which stands in notable contrast to the rise in Treasury yields.

In slide 6, amid the worsening trajectory for the virus and still-lingering possibility of a prolonged and contested election vote count, volatility markets are pricing significant uncertainties ahead. As I noted earlier, through Friday, the VIX index rose 12 points on the period to around the 95th percentile of its historical distribution, as shown in dark blue on figure 11. One-month implied volatilities for emerging market currencies, shown in light blue, typically move with broad risk sentiment and also remain exceptionally elevated. In contrast, implied volatilities on long-term U.S. interest rates and G-7 currencies, shown in figure 12, are at more moderate levels, in part reflecting expectations that monetary policy here and abroad will remain very accommodative.

While the election, fiscal policy, and the virus are by far the most salient near-term risks, our contacts point to a number of other potential catalysts of market volatility. Prominent among these are the possibility of a no-deal Brexit as well as ongoing risks and vulnerabilities in emerging markets and, closer to home, in the municipal market and among corporate borrowers most heavily affected by the pandemic.

My second question, on slide 7, relates to policy expectations, which were generally little changed. As outlined to the left, market participants seemed to view the FOMC's revised forward guidance in the September statement as in line with the expectations developed following the release of the new consensus statement. As

shown in the red bars in figure 13, survey indications for the most likely timing of liftoff coalesced a bit further around 2024.

With respect to perceptions of the FOMC's reaction function, market participants continued to absorb the implications of the new consensus statement and forward guidance. Figure 14 on slide 8 shows the histogram of responses for the 12-month PCE inflation rate expected when the FOMC next raises the target range. Overall, the number of respondents that expect higher realized inflation at the time of liftoff shifted modestly, as reflected in the move from the dark blue to the red bars, and the median respondent expects inflation to be 2.3 percent at liftoff, a slight increase from September. The distribution of expectations for the unemployment rate at liftoff, shown in figure 15, was essentially unchanged. Though expectations for conditions at liftoff have not changed significantly since September, the shift since July, prior to the release of the new consensus statement—depicted by the light blue bars in the top figures—is quite remarkable.

Many market participants suggest that the FOMC's new policies, along with rising expectations of more aggressive fiscal spending, had helped lift five-year, five-year-forward inflation compensation in recent months, as shown in dark blue in figure 16. They also note that this stands in contrast to similar measures in other major advanced economies, which have not been rising.

Regarding asset purchases on slide 9, following the revisions to the forward rate guidance in September, market participants increasingly focused on asset purchases. As outlined on the top, our general sense is that market participants anticipate that the FOMC will at some point evolve its communications to place even greater emphasis on fostering accommodative financial conditions. They are also focused on the prospects for the Committee's guidance to eventually be made outcome based. In addition, many anticipate that the weighted average maturity of Treasury security purchases will ultimately be lengthened in order to support accommodative financial conditions.

In terms of purchase pace, the most recent surveys showed modest increases in median expectations of net purchases of Treasury securities and agency MBS over the next several years. This is depicted in the shifts from the blue to red diamonds in figures 17 and 18. Median responses imply that purchases will continue at their current pace through the end of 2021 and then slow in subsequent years, but there is a wide range of estimates across respondents. Summing up these medians implies total purchases of \$2.5 trillion between now and the end of 2023.

But, of course, these figures reflect expectations of the most likely pace of purchases. In a new survey question, we found, not surprisingly, a high degree of uncertainty around these amounts. A worsening of the pandemic, deterioration in the economic outlook, or an undesired increase in longer-term interest rates were cited as reasons the Committee might increase its purchase pace.

Finally, let me turn to market functioning and how market participants assess the tools in place should stresses reemerge. Starting on slide 10, over the intermeeting period, core fixed-income markets continued to function smoothly, with most market functioning indicators having returned to pre-pandemic levels. This is shown by bid-ask spreads in Treasury security and agency MBS markets in figures 19 and 20. Consistent with the Committee's directive, the Desk conducted purchases to increase holdings of Treasury securities and agency MBS at the minimum pace of \$80 billion and \$40 billion per month, respectively. Weekly operations continued for agency CMBS, although we purchased only modest amounts.

The Federal Reserve's balance sheet, shown in the left-hand figure on slide 11, increased modestly, as growth in securities holdings was partially offset by a decline in central bank liquidity swaps, shown in red to the right in figure 22. In addition, reflecting continued stable conditions across most markets, outstanding balances for liquidity facilities declined slightly, while balances for many of the credit facilities were little changed or increased marginally.

Before the election, market participants anticipated that usage of funding operations and 13(3) facilities would remain at low levels for the rest of this year, although they continue to view them as vital backstops. Slide 12 shows that Desk survey respondents' modal expectations regarding outstanding assets on December 30 declined for most facilities, in some cases by significant amounts, as reflected by the shift from the blue to the red diamonds. Of course, as I noted earlier, market participants have continued to highlight an exceptionally broad range of risks in the current environment that might prompt a renewal in market stress and result in more active use of these backstops.

In the spirit of prudent operational planning for any near-term disturbances, the staff have been working in recent weeks to ensure readiness across a range of scenarios. If needed, the Desk could adjust the parameters of the repo and purchase operations and could work with foreign central bank counterparts to increase the frequency of dollar swap operations. Some measures of market functioning worsened slightly this morning, but conditions overall are very stable, and we'll continue to monitor the situation through the day.

Our assessment is that the existing set of operations and facilities provide a broad range of automatic stabilizers that would support market functioning should stress reemerge, although market participants note that backstops are not currently in place for secondary municipal markets.

With expectations of an elevated risk environment to extend into next year, some Desk survey respondents indicated that they expect operations and facilities to be extended and noted that some terms could be made more advantageous to borrowers. Slide 13 highlights that several facilities are scheduled to expire at the end of the year. Of note, because of the notice of intent requirements for the Municipal Liquidity Facility, it will effectively close to new applicants on November 30. The staff intend

to seek guidance by the January meeting on whether to extend the temporary FX swap lines and FIMA Repo Facility.

Looking ahead, market participants are expecting little upward pressure in dollar funding markets over year-end. As shown in figure 25 and figure 26 on slide 14, the implied spread between the December SOFR and fed funds futures rates and the three-month FX swap basis spread for the euro–dollar currency pair indicate expectations of calm year-end conditions. Reflecting elevated reserve levels, money market rates could actually fall on year-end, as some banks become less willing to take wholesale deposits on their reporting date. Market participants are expecting rates to trend lower over time as reserve levels grow. Rebecca will talk more about this in her presentation on the implications of high reserves.

Your appendix includes the usual summaries on operational testing, Treasury security and agency MBS purchases, and U.S. dollar liquidity swaps outstanding.

Thank you, Chair Powell. Patricia and I would be happy to take any questions.

CHAIR POWELL. Thank you. Any questions for Lorie and Patricia? Feel free to notify me on Skype if there are any. And also feel free to raise your hand or wave or otherwise signify your interest in asking a question. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. Lorie, looking at page 8, chart 14, “Expectations for Inflation Rate at Liftoff,” it’s a relatively small number. It’s only about 20 percent of respondents who think liftoff would take place before inflation gets to 2 percent. That seems to be a little different than my reading of the September statement. Any insights from their responses as to other factors that respondents might be thinking about in making that judgment?

MS. LOGAN. I don’t have a good sense of why the survey respondents are still showing it there. I think that we have heard some uncertainty about how the changes work in practice, and that could be reflected in some not full consensus and understanding about how the new strategy will work. From our market intelligence gathering and the conversations that we are having with market participants, I would say, most are in line with the 75 percent of survey respondents we see to the right, and that’s generally what we hear more broadly.

MR. EVANS. Thanks very much.

MS. LOGAN. I would also just note, that there are a fair number of participants in the bucket—the 1.81 to 2 percent bucket—that are at exactly 2 percent. So this chart reflects above 2 percent. We did that for purposes of presentation, but there are a fair number that are exactly at 2 percent.

CHAIR POWELL. [Inaudible]

MR. HARKER. Jay, you're muted.

CHAIR POWELL. I'm sorry. I was accusing Loretta of having failed to unmute herself. I am the guilty party, let the record show. President Mester, please.

MS. MESTER. Thank you, Chair Powell. Lorie, you mentioned that the municipal facility will have to announce, I guess, it's closed to new participants at the end of November. Are market participants expecting us to do something today about that facility, to extend that timing? And do you have a sense of what they think would happen if we didn't extend that facility?

MS. LOGAN. I have not heard much in terms of expectations for changes coming out of the FOMC meeting. I think there is a sense that the extensions would take place fairly soon, perhaps after the election results have been resolved. As I said, I think the expectations of an extension are fairly high, and I do think that they are seen as a very important backstop. And I think this is particularly the case in the municipal market. I mean, our sense is that there are several municipalities that are intending to use the facility in coming weeks, and Andreas may want to share more about those particular jurisdictions. But I do think, from a broader perspective, it's seen as important for maintaining the improvements that we've seen in market functioning that these facilities are maintained and extended past the end dates.

MR. LEHNERT. I don't have anything to add to what Lorie said. You know, there are two or three muni issuers that have filed or are about to file the formal notice of intent that begins the process of coming to the facility. But the general sort of healing in muni markets, which the Municipal Liquidity Facility has been a part of, generally means that issuers are able to access private markets and that the pricing of the muni facility is backstop pricing. So it's not fiscally attractive during normal times.

CHAIR POWELL. I might add a word, if I could. So, as you know, extending the CARES Act facilities—actually, any of the facilities that expire on the 31st, which are the CARES Act facilities—requires the approval of the Secretary. We'll be discussing that after the election, after this settles down a little bit. I think our position is always going to be that we think it's appropriate to leave backstops in place for a time, even if usage is very low. And that will be a discussion we have with the Secretary. And I don't know how that will come out, but it's coming. I was going to mention this later in one of my interventions, but that's where that lies. President Rosengren, please.

MR. ROSENGREN. Yes. This actually fits very well with the Chair's comment. Lorie, if the Treasury decided they did not want to extend any of the facilities and the pandemic gets worse, how worried would you become about market functioning?

MS. LOGAN. You know, my sense is that we have seen significant improvement in market functioning across all of the asset classes. I also think the increase in reserves that we've put in the system has provided a lot of liquidity and stability to funding markets in particular. And I think that the funding market facilities or operations that we have in place—you know, the repos, the swap lines—are really strong backstops with respect to funding markets.

I do think, in the credit markets, those backstops are still providing confidence that give market participants a sense of security, in terms of their trading and their willingness to take risks and positions in those markets. So I think those backstops are having an important effect on conditions in those credit markets. My sense is that we would see some deterioration in conditions at this point if those were removed earlier than expected. I'll pass it over to Andreas if he wants to share his own perspective.

MR. LEHNERT. Once again, Lorie, I think I agree with you. I think the general sense is that many people expect them to be extended, and there could be a sense of disappointment if they are not.

CHAIR POWELL. Thank you. Any other questions? There are none in Skype. No one is signaling. [No response] Good. Well, thank you. If there are no more questions, we now need a vote to ratify domestic open market operations conducted since the September meeting. Do I have a motion to approve?

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. All in favor? [Chorus of ayes]

CHAIR POWELL. Thank you. Without objection. Okay. We will now turn to our discussion of asset purchases. As you know, this is a nondecisional discussion. It's a chance to share high-level perspectives on the evolution of our asset purchases. Our briefers are Zeynep Senyuz, Paul Wood, Rebecca Zarutskie, and Patricia Zobel. Patricia, would you like to lead us off, please?

MS. ZOBEL. Thank you, Mr. Chair. Can you hear me?

CHAIR POWELL. Yes.

MS. ZOBEL.<sup>2</sup> Okay, great. Thank you. The FOMC's asset purchases initiated during the stresses of last March have been highly effective at restoring market functioning and, through expansion in Federal Reserve securities holdings, have also helped foster accommodative financial conditions. With market functioning largely restored and updated forward guidance on the federal funds rate in place, the Committee may, at some point, wish to consider whether evolving asset purchases could further promote the attainment of its maximum-employment and price-stability goals. Three memos were circulated in advance of the meeting to provide background for these deliberations.

Zeynep will first review the memo "Considerations for Asset Purchases," which highlights features of the current environment that might influence the goals of asset purchases and describes potential structures. Although long-term yields are much lower than during previous periods when large-scale asset purchases were initiated, further purchases could still be effective at sustaining financial conditions, forestalling increases in yields, and supporting forward guidance on the federal funds rate. Zeynep will discuss how the pace and composition of purchases and communications about purchases might help achieve those goals.

Many foreign central banks have also been evolving their asset purchase programs from sustaining market functioning to fostering accommodative conditions. Paul will review the memo "Ongoing Asset Purchases at Foreign Central Banks," which offers perspective on how foreign central bank programs have been structured and how their communications about asset purchases support policy objectives.

Finally, Rebecca will review a memo on how higher reserve levels, associated with ongoing asset purchases, might influence bank balance sheets and money market rates. In a scenario broadly consistent with current asset purchase expectations, overnight money market rates are likely to fall as banks require a higher spread between IOER and deposit rates to absorb additional reserves. The Federal Reserve has effective tools for managing rates in high-reserve environments—increases in IOER provide more room for adjustments in deposit rates, and the ON RRP creates an effective outside option for investors. However, under very high reserve scenarios, downward pressure could intensify. The Committee may then want to consider enhancing the overnight RRP to more effectively absorb reserves or use other tools to broaden the financing of asset purchases beyond the banking system.

With those thoughts, I will turn it over to our presenters to share their insights. The presentation starts on page 19 of your combined handout. After Rebecca's presentation, we would be happy to take questions and hear your thoughts on the questions for discussion on page 36. I'll turn it over to Zeynep now.

MS. SENYUZ. Thank you. As Patricia noted, having updated your forward guidance in September, you may want to next consider whether and, if so, how asset

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<sup>2</sup> The materials used by Ms. Zobel, Ms. Senyuz, Mr. Wood, and Ms. Zarutskie are appended to this transcript (appendix 2).

purchases should evolve to support your goals. I will first summarize three key features of the current backdrop to your deliberations and then describe some design considerations for adjusting asset purchases.

I turn now to page 21 of your packet. Longer-term Treasury yields are already very low, and it may be difficult to reduce them substantially further through an expansion in securities holdings. With yields near the lower bound, interest rate volatility is lower, and asset purchases may be less effective at removing the duration risk faced by investors. Even so, asset purchases may still be effective through other channels, such as portfolio rebalancing or signaling channels.

Some recent research has suggested that longer-term Treasury yields may be subject to the same lower bound as the policy rate. However, even if longer-term yields are close to the lower bound, asset purchases can still be effective in sustaining the current level of yields and in offsetting undesirable upward pressure on longer-term rates, which is related to the second consideration summarized on page 22.

Asset purchases are being conducted against a backdrop of large budget deficits, which increase the stock of total debt outstanding through Treasury security issuance. In addition, the weighted average maturity of Treasury coupon issuance so far this year has been substantially higher than in previous episodes when large deficits were financed. These fiscal actions have already put upward pressure on yields, and prospects for additional fiscal stimulus to address the economic effects of the pandemic remain highly uncertain. Although the degree of fiscal stimulus could prove disappointing, there is a risk that higher-than-expected debt issuance with longer maturities could put further upward pressure on longer-term rates.

A third consideration, summarized on page 23, is that further asset purchases may also be effective at sustaining the level of accommodation already embedded in yields. The current low level of yields reflects the effects of significant increases in securities holdings to date, your forward guidance on the federal funds rate, as well as market expectations for further expansion in securities holdings. As Lorie noted in the Desk briefing, purchases are expected at around the current pace through 2021 and at a diminishing pace for two years after that. While precisely gauging asset purchase expectations embedded in yields is challenging, reducing purchases significantly below what is priced into current yields could put upward pressure on rates.

I will now turn to design features of asset purchases that could be adjusted to achieve your objectives. The four key structural elements of asset purchases to be considered are summarized in a diagram on page 24. The first category, as shown by the top green box, is purchase structure—that is, the pace and composition of asset purchases. Currently, SOMA holdings are increasing by \$120 billion per month. This pace of purchases could be sustained or modified to adjust the degree of accommodation you choose to provide. In the staff's framework, the amount of accommodation provided by asset purchases primarily depends on the current and projected path of SOMA holdings rather than the monthly flow of purchases.

Therefore, a higher monthly pace of purchases over a shorter time could be equivalent in terms of overall accommodation to a lower monthly pace over a longer period. In addition, current purchases include a substantial amount of shorter-dated Treasury securities, and there is some potential to add accommodation by lengthening the maturity of Treasury purchases without changing current total purchase amounts. Even if the composition of Treasury purchases is adjusted, keeping some purchases in shorter-dated securities may be helpful to support market functioning, as needed. You could also consider adjusting the split between purchases of Treasury securities and purchases of MBS.

The second category is your preferred degree of flexibility in purchase structure. A fixed program would specify the initial purchase parameters and would not alter the pace or composition, unless there were significant changes in the economic outlook. Alternatively, in view of the uncertainty associated with the outlook and the low level of current yields, you may choose to have a more flexible program in which relatively frequent changes in purchase structure are made in response to economic and financial developments. A flexible program could signal your willingness to provide more accommodation if economic conditions deteriorate or less if purchases appear to be causing market-functioning issues or increasing other risks. Retaining flexibility to adjust purchases may be beneficial for responding to evolving conditions, but it may be difficult for market participants to understand the Committee's policy intentions or its reaction function.

The third category is related to the type of guidance that you may want to provide for asset purchases. The September FOMC statement indicated that asset purchases will continue "over coming months," and at some point, you may want to provide guidance for purchases over a longer time horizon to clarify your intentions. Providing an indication for when purchases would stop or taper could be based on a specific date or could be tied to economic conditions. Although date-based guidance could provide clear communication about your intentions, it would be relatively inflexible in responding to new information, which may be problematic in some circumstances. Alternatively, purchases along with state-based guidance would be more responsive to changes in economic conditions and could be perceived as more closely tied to your objectives. State-based guidance with very specific or difficult to meet thresholds can result in a commitment to continue purchases over longer horizons than you may desire. More general guidance, using wording such as "until substantial progress is made in achieving the Committee's objectives," could reduce such risks. Another possibility would be to provide more general state-based guidance initially and update it over time to make it more specific as the end of purchases gets closer.

Finally, with either date- or state-based guidance, communications on asset purchases should be well integrated with your forward guidance for the federal funds rate so that the two tools do not end up working at cross-purposes. You may prefer to end asset purchases before the conditions for an increase in the target range are met. This could be accomplished in a variety of ways, and the memo provided illustrative examples of different types of guidance for asset purchases reflecting the design

features that I just described. I will now turn it over to Paul to discuss the foreign central banks' ongoing asset purchase programs and the guidance they have provided about their future purchases.

MR. WOOD. Thank you, Zeynep. As the Committee considers options for its asset purchases, it may be instructive to look at what is being done abroad. I will discuss first how foreign central banks are structuring their asset purchase programs, then how they are evolving the programs as they transition to providing accommodation, and conclude with their current guidance on purchases.

As discussed on page 26 of your packet, many advanced foreign economy central banks introduced or expanded asset purchase programs in response to market functioning strains observed in the spring. The Bank of Canada, the Reserve Bank of Australia, and the Reserve Bank of New Zealand all started large-scale asset purchases for the first time. Some central banks with ongoing purchase programs created new programs to address the new circumstances, such as the European Central Bank's Pandemic Emergency Purchase Programme (PEPP), which is aimed at countering risks to the monetary transmission mechanism and the euro-area outlook posed by the pandemic.

The table on page 27 outlines the structure of asset purchase programs at foreign central banks. Most common are programs that have an announced cap on total purchases, the center column, and an expected end date. For instance, the ECB's new program, PEPP, on the top row, has a cap of €1.35 trillion and an end date of June 2021. The Bank of England's purchase program also has an announced size and end date. These programs have some flexibility to vary the pace of purchases as conditions change while remaining under the cap, and they can be extended with increased caps if necessary.

Two central banks—the Bank of Japan and the Reserve Bank of Australia—have yield curve targets, and they adjust their purchases to meet those targets. Yesterday, however, the RBA announced its intention to buy A\$100 billion of 5-to-10-year government bonds over the next six months, so its program now combines a target for three-year yields with a quantity target at the longer end of the yield curve. The only programs that, like the FOMC's current program, specify a targeted pace of asset purchases are that of the Bank of Canada, highlighted in red, and the ECB's preexisting Asset Purchase Programme (APP), highlighted in blue.

Page 28 discusses the evolution of asset purchase programs at foreign central banks over this year. Since the spring, as market functioning improved but economic activity remained weak, central banks shifted the focus of asset purchases away from restoring market functioning and toward providing monetary accommodation in support of the recovery. As shown below, central banks slowed their purchases of government bonds as markets calmed. The Bank of England, on the left, extended purchases at its June 17 meeting, but at a reduced pace. At the time, U.K. long-term bond yields rose somewhat on that announcement, as market participants had expected the BOE to maintain a more aggressive purchase pace. The ECB, on the

right, also bought less over the summer as financial conditions improved, but the ECB could increase the purchase pace of buying under its PEPP as economic effects of the pandemic worsen. In contrast, the Bank of Canada maintained its purchase pace of government bonds over the summer, even as it shifted the focus of its communications.

Last week, however, as discussed on page 29, the Bank of Canada announced it will gradually reduce its weekly pace of government bond purchases from at least C\$5 billion to at least C\$4 billion while increasing the maturity of its purchases. With markets now functioning well and the yields on shorter-maturity bonds well anchored by its forward guidance, the bank said it will “shift purchases towards longer-term bonds, which have more direct influence on the borrowing rates that are most important for households and businesses.” The bank judges that the adjusted program “is providing at least as much monetary stimulus as before.” Market reaction to the announcement was benign, with longer-term bond yields declining a bit and the Canadian dollar depreciating slightly, suggesting that market participants focused on the maturity extension rather than on the reduction in asset purchases.

The table on page 30 shows some foreign central banks’ guidance on asset purchases. Some purchase programs have date-based guidance, highlighted in red, while other programs have state-based guidance on asset purchases. The Bank of Canada, highlighted in blue, says its purchase program “will continue until the recovery is well underway.” This guidance is less specific than the bank’s guidance on policy rates, in the left column, that is tied to sustainably achieving the inflation target, which in the bank’s current projection does not happen until 2023. This suggests that the Bank expects conditions for stopping asset purchases will be met sometime before the conditions are met for raising interest rates.

There is one example of directly integrating guidance on purchases with that on rates. The ECB’s guidance on its APP, highlighted in green, is linked to the ECB’s guidance on the timing of policy rate increases, in the left column, which itself is based on inflation converging to the ECB’s objective. The ECB expects purchases under the APP to “end shortly before it starts raising” its key interest rates. I will now turn it over to Rebecca to discuss risks relating to adding high levels of reserves to the banking system.

MS. ZARUTSKIE. Thank you. As you consider how asset purchases should evolve, you may want to understand how further increases in aggregate reserves may affect bank balance sheets and money market rates and whether the Federal Reserve has the appropriate tools to manage rates in this environment.

As discussed on page 32 of your packet, the staff reviewed how banks and money markets might respond to an additional increase of \$2.5 trillion in aggregate reserves over the next year and a half, as well as an additional increase of twice that amount, or \$5 trillion. The \$2.5 trillion scenario is broadly consistent with one in which Treasury security and MBS purchases continue at the current pace over the next six quarters, and the Treasury General Account declines from a historically high level.

The \$5 trillion scenario can be viewed as a “severely adverse scenario” in which the increase in reserves would arise from a substantial expansion in asset purchases and lending programs in response to a severe economic downturn.

As aggregate reserves rise, banks may begin to take actions to offset the decline in their net interest margins or leverage ratios resulting from growth in reserves on their balance sheets. Banks may seek to shed deposits by allowing relatively expensive wholesale funding to mature without replacement or reducing deposit rates to discourage deposit inflows, or they may seek to shed reserves by increasing their holdings of higher-yielding liquid assets or other types of lending.

Bank actions in response to reserves growth have the effect of placing downward pressure on short-term interest rates relative to the interest on excess reserves, or IOER rate, as was the case during the 2008–14 period of high reserves growth. Specifically, domestic banks lowered deposit rates to slow the growth of their balance sheets, creating incentives for depositors to shift to money market funds. This process facilitated a redistribution of reserves as money market funds then lent in unsecured money markets to branches and agencies of foreign banks, which were willing to accept additional funding at rates below the IOER rate to then earn a spread by holding reserves or other higher-yielding money market investments. The Federal Reserve was able to maintain control over short-term interest rates by using its two administered rates—the IOER rate and the rate offered under the overnight reverse repo, or ON RRP, facility.

Page 33 considers the scenario with an additional increase of \$2.5 trillion in reserves. The staff assess that in this scenario, banks would likely have sufficient capacity to absorb the increase in reserves without significant pressures on their profitability or leverage ratios. The results of the Senior Financial Officer Survey that was recently conducted helped confirm our understanding that some banks are expecting to manage the future growth in their reserves and that they will likely first seek to let wholesale funding mature without replacement or invest reserves in higher-yielding liquid assets to moderate reserves growth. The level of aggregate reserves at which downward pressure on short-term rates would emerge is uncertain. Importantly, existing tools should be sufficient to manage short-term rates. The IOER rate could be adjusted as was done in the previous period of high reserves to widen the spread relative to the ON RRP rate. Additionally, if market participants are unable to invest funds at overnight rates above the ON RRP rate, primary dealers, money market funds, and other eligible money market participants could shift funds to the ON RRP facility, which would then act as a key safety valve with which to drain reserves from the banking system.

Page 34 considers the more extreme scenario of an additional \$5 trillion in reserves. Here, bank profitability and leverage ratios could decline more significantly. Banks might take more aggressive action to limit reserves growth, such as investing in higher-yielding or less liquid assets or reducing additional liabilities; banks with binding leverage ratios could potentially reduce credit provision. Notably, however, outcomes in this scenario are especially uncertain, because of the

unprecedented magnitude of the reserves increase. In this scenario, money market rates would be more likely to fall to the bottom of the range. In some cases, ON RRP facility demand could increase substantially.

As discussed on page 35, should more notable downward pressures on short-term rates emerge, the Federal Reserve could take a number of policy responses to maintain rate control and ease pressures on bank balance sheets. The FOMC could take steps to enhance the ON RRP facility’s ability to set a floor under interest rates and to increase the safety valve effect of the program by increasing the current limit for ON RRP counterparties or expanding the set of eligible counterparties.

The FOMC could also consider reducing the flow of asset purchases and, thus, the pace of reserves creation while maintaining a given level of accommodation. As described in the memo “Considerations for Asset Purchases,” the FOMC could tilt ongoing asset purchases toward longer-dated securities and thereby remove the same amount of duration risk from the private sector even while decreasing the pace of asset purchases. Alternatively, the FOMC could sell shorter-dated securities holdings while purchasing longer-dated holdings, as was done in the 2012 maturity extension program.

Similar in motivation to the possible expansion of ON RRP liabilities, the Federal Reserve could consider steps that would expand the role of other nonreserve liabilities and reduce aggregate reserves in the banking system. For example, in 2008, prior to the Federal Reserve Act amendment that allows interest to be paid on reserves, the Federal Reserve coordinated with the U.S. Treasury to issue “Supplementary Financing Program” bills to drain reserves from the banking sector.

Finally, the Federal Reserve Board could consider extending the period for the current temporary exemption of reserves from supplementary leverage ratio requirements as a way to ease growing pressure on banks’ balance sheets. Exempting reserves from tier 1 leverage ratio requirements could also serve to ease pressures on banks’ balance sheets but would likely require congressional action, because of existing legal restrictions on amending that requirement. Absent exemption of reserves from leverage ratio requirements, banking supervisors could communicate to banks that they would not negatively view a decline in these ratios over time due to reserves growth during periods of large-scale asset purchases. Thank you. We would be happy to take any questions.

CHAIR POWELL. Thanks. Any questions for our briefers? Mary, I see you waving your hand.

MS. DALY. Yes. Sorry, my Skype went down. I just have a question, Rebecca—you said you’re talking to banks, and you’re doing surveys about what they are likely to do. But I remember we were surprised earlier on this year with bank surveys maybe not talking about how

they are going to manage their reserves quite as well as we would have hoped. And so I just wanted to know—is that a concern, or have we discussed this with them? I know it's a different subject, but I just want to know how you're thinking about these surveys of banks in the context of reserves.

MS. ZARUTSKIE. Sure. I'll provide an answer and then perhaps let some of my colleagues who actually were involved in this particular survey chime in. As you point out, survey responses sometimes are hard to interpret. I think in this current version of the SFOS, there was a little bit of surprise that some banks didn't expect reserves to increase, in view of the pace of expected asset purchases that we're seeing in the primary dealer survey, for example. But banks did respond in the most recent SFOS that should reserves increase, they would attempt to manage them downward. And so we took that as a signal that at some point in the future as reserves grow, we would expect banks to try to push those reserves off their balance sheet either by shedding deposits or other liabilities or investing those reserves in higher-yielding liquid assets. I don't know if others want to provide more insight beyond that.

MS. ZOBEL. Thanks, Rebecca. I think one thing I would add is that what's surprised us to date about the growth in reserves and the level of short-term rates is that we actually haven't seen any softness yet. And so banks telling us that soon they will begin to take actions to start to shed some reserves individually, which will make the price adjust lower a little bit, is actually something we would have expected.

In the survey, we didn't ask them for a particular level at which they would do that, and so I don't think it's giving us the kind of specificity that the lowest level of reserves was. It's more of, what types of actions would you take? At what level do you think you would begin taking them? So we're not pinning it to any particular level.

I would just note also that federal funds futures show that the federal funds rate is going to decline or there are expectations that the federal funds rate will decline in coming months, and we would expect that. We think that that's a natural result of a higher level of reserves.

MS. DALY. Thank you. That was very helpful.

CHAIR POWELL. Thank you, President Daly. President Rosengren, please.

MR. ROSENGREN. My question is kind of at the intersection of Paul's and Rebecca's presentations. Both the ECB and Japan now have balance sheets that are much larger than ours relative to GDP. Have we seen the bank behavior in the Japanese banking system or the European banking system that you're concerned about if we went from \$2½ trillion to \$5 trillion?

MR. WOOD. One thing that I would say, of course, is that they both are in a situation in which they have negative interest rates. And so one thing they've dealt with is needing to do tiering to avoid too much of an effect on bank profitability from the banks getting a negative interest rate. But I'm not sure about the other part of bank behavior.

MS. ZARUTSKIE. I would point out that in those jurisdictions, rates have been able to be effectively managed. I would also point out, however, that in the United States, it's a bit of a different context, because the money market industry is such a bigger component of short-term funding. So we wouldn't necessarily expect the same dynamics in those jurisdictions, but I think we can take some comfort from the fact that bank reserves are a much higher share of bank assets, and we don't see huge problems in the banking sector.

CHAIR POWELL. Thank you. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. This question, I think, is for Rebecca. It's related to the \$5 trillion bank reserve scenario. And I guess I'm trying to figure out the strategy, the

thinking, behind trying to limit reserves. And I call this on myself quite a lot, even in public. It feels a little schizophrenic, in the sense that if we're pursuing asset purchases that increase reserves to \$5 trillion, presumably we have in mind that we are trying to provide more financial accommodation and we're trying to achieve our inflation and employment mandates, and so we're hoping for greater levels of credit intermediation, ideally lending, at lower interest rates. And so any attempt to sort of satisfy taking those reserves away from the banking industry probably gets in the way of that.

You cited 2008 and a Treasury program, and also the ON RRP. I think those are programs that basically try to help us provide slightly more restrictive policies, but now we're talking about something that provides a little more restrictiveness at a time when we're really trying to provide a lot of accommodation. So I'm struggling with those conflicts, because it seems like if we took the reserves out of the banking system, we would be in conflict with the overall asset purchase approach. Thanks.

MS. ZARUTSKIE. Sure, thanks. So I think the way to think about the \$5 trillion case—and, in fact, any case will work, but I'm thinking about an increase in reserves. You're absolutely right that the Federal Reserve is providing liquidity as well as accommodation by lowering rates. We're also providing a massive amount of liquidity when we purchase assets.

Oftentimes, that liquidity ends up in the banking system, and that can be a good thing if the banks have lending opportunities with which to then take those reserves and make loans. The concern, to the banks in particular, starts to come in when they maybe have exhausted their lending opportunities and are kind of trapped with these reserves, and they want to get rid of the reserves but don't have profitable lending opportunities with which to shed those reserves via loans, right? And so the concern is, if you reach a point in terms of asset purchases at which

you've kind of "maxed out" the ability of banks to take those reserves and make loans, you would like that liquidity to be elsewhere in the financial system. In fact, if reserves are going to be taken from the banking system and moved elsewhere, you're not reducing the amount of liquidity that the Federal Reserve is creating by purchasing assets, you're just moving that liquidity elsewhere in the financial system that it's hoped could then use that liquidity to make profitable asset investments.

So it's a concern not about Federal Reserve actions to provide accommodation, it's a concern about, really, the pressures that might emerge on short-term interest rates in particular as banks try to shed excess liquidity they can't use productively. So it's kind of a second-order concern. It's not a case in which you would say you should stop purchasing assets, because the primary purpose there is to provide accommodation, as you point out. It's a question of where that liquidity is going to go.

And so I think a helpful way to think about it is—and some central banks actually do have the ability to issue central bank bills. So instead of funneling liquidity just through the banking system when they buy assets, they're able to have that liquidity go anywhere in the financial system—whatever wants to buy the Fed bills. And so it's a concern more about liquidity in the banking system than liquidity itself. I don't know if others want to chime in who participated in the—

MR. EVANS. If I could just sharpen this, I mean, this sounds in line with the kind of responses I get back from my staff as well. It feels a little bit more like a maturity extension program, in the sense that you're kind of taking those reserves out, but you're trying to get the benefit of perhaps taking duration out of the market. In that way, I'm interpreting you're providing more financial accommodation. But it could be done in a different way, I guess. It

just sort of feels like, “Oh. gosh, why are we still doing this pace if we’re having this kind of dilemma?” which I was referring to as schizophrenia. So, I mean, if it is about the maturity extension, taking the duration out, then that might be a more direct way to characterize it.

MS. ZOBEL. I would just say that asset purchases are a form of maturity extension. We always issue short-term liabilities and purchase long-term assets. And so that’s the nature of the program. And I think, just adding to Rebecca’s point, the way that we would see that banks feel that they’re getting an uncomfortably high level of reserves is downward pressure on money market rates. And so if the overnight RRP take-up increases, I think it’s because banks have already expressed that they are full up on their balance sheets on reserves, and that this allows money market funds and other types of investors to have a different type of Federal Reserve liability. It just broadens the financing of those purchases to, as she said, a broader investor base.

MR. EVANS. Thanks very much.

CHAIR POWELL. Thank you. President Barkin, please.

MR. BARKIN. Thanks. And Rebecca, maybe a different angle on the question: As you got into the \$5 trillion scenario, did you learn anything about even bigger scenarios—\$7½ trillion or \$10 trillion? Is there some level of a second breakpoint that we ought to be aware of?

MS. ZARUTSKIE. So we didn’t go after the concept of the highest comfortable level of reserves—which I think is another way, maybe, of describing what you’re asking. We did do some simulations in the memo. But we didn’t try to estimate how high reserves could go before the banking system “broke,” if you will.

I think our general sense is, it’s very uncertain—even the \$5 trillion scenario is uncertain. And, you know, banks would take actions over time to alleviate either profitability or leverage ratio constraints. So it’s really hard, not having experienced a scenario like that before, to model

bank behavior. We did a little bit of that in the memo, just in the \$5 trillion case. And we didn't take the analysis beyond that scenario, in terms of growth in reserves. But it's an interesting question to ask.

MR. BARKIN. Yes, it would be.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. This may be superfluous at this point—it's really following up on Charlie's comments. And for Rebecca, I interpreted your \$5 trillion scenario, and particularly your comments on extending maturities—you're politely saying to us that if we think more accommodation is needed, we should maybe be more sure that we get more bang for the buck for every dollar of purchase we make. And one way to do that would be to have longer maturities at the get-go, and maybe we could have a smaller size to get the same amount of accommodation or even more accommodation.

MS. ZARUTSKIE. Yes, that's correct. Certainly, for a given level of accommodation, you could structure your asset purchases to create fewer reserves. And one way of doing that would be to tilt your purchases toward longer-dated securities. Or, if on the balance sheet you had short-term securities to swap for longer-term securities, you could do that and create virtually no reserves.

Of course, our memo just focuses on the reserves-creation aspect. There are other considerations that you might want to factor in when, as Zeynep's presentation pointed out, deciding the length of maturities to purchase as part of an asset purchase program. But one potential benefit would be that it would be more reserves efficient. It would create fewer reserves if you were to tilt your purchases to the longer end of the spectrum.

CHAIR POWELL. Thank you. Any further questions? President Evans.

MR. EVANS. Let me probe just a little bit more, because Rob's point, I think, is very useful. If we are worried about the size of the balance sheet, then there are all these different duration assets. And you get to the short bills on your balance sheet—you can switch them. We did that in 2011. And context, I think, is really important, which is part of what I'm probing on. If there's a feeling among markets and the public that if the Fed is really nervous about the size of its balance sheet and they just don't want to go that route because of whatever reason, then that could limit the overall amount of accommodation. Then we get to 2012, and we had to do more, and we couldn't do the extension. And so then we do the open-ended QE3. I guess to make this a question, it's sort of like—I guess there are a whole bunch of different factors that could be involved, including expectations of future accommodation and where we are in terms of progress toward meeting our mandates—I guess if I say "right?" here, it's a question.

CHAIR POWELL. That becomes a question, indeed. [Laughter]

MS. SENYUZ. One thing that I can add is that though it would be possible to provide the same amount of accommodation by shifting some shorter-dated purchases towards longer end. This would make it possible to have the same effect on the 10-year equivalent amounts but with lower purchases. But in the surveys, the market has been expecting purchases to continue at the current pace. So from a communications point of view, it may be complicated, I think, for the market to understand that we are keeping the level of accommodation the same. So that's just one risk regarding communications that I wanted to point out, under the type of purchases that they are expecting, although technically we can keep the accommodation equivalent to what we are doing right now.

MR. EVANS. Thanks, that's very helpful.

CHAIR POWELL. President Bullard, please.

MR. BULLARD. Yes, thank you, Mr. Chairman. Just to follow up on that: Should I interpret the Bank of Canada's policy as being exactly that, where they reduce the pace of purchases but lengthen the duration? And did they communicate that they were providing the same amount of accommodation?

MR. WOOD. Yes, very much so. That was central to its success, I think, in terms of their communications. Part of their motivation, I think—and market participants understood this—is they were starting to be—the purchases were pretty large relative to the market. And there was some feeling that they wanted to reduce the size. Tiff Macklem kind of denied that in the press conference, that it was a strong motivation, but I think people thought it probably was. But they made a significant point of saying they are extending the maturity, and they actually said that they saw it as providing at least as much stimulus. And it seems like the market responded favorably. So it's exactly that kind of thing.

MR. BULLARD. Great, thank you.

CHAIR POWELL. Okay, any further questions? [No response] All right, great, thank you. Let's begin our go-round on this topic, and we'll begin with Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair, and I'd like to also thank the staff, who provided us with excellent research and analysis on balance sheet policies over the period of the framework review and then again today. Our ongoing asset purchases are supporting smooth market functioning and fostering favorable financial conditions. By helping keep the credit pipes open and interest rates low, these purchases add additional accommodation on top of the strong forward guidance on the federal funds rate that we put in place at our September meeting.

The current pace and composition of purchases has been very effective at keeping medium- and longer-term interest rates low and reasonably stable, and I see a huge benefit of

continuing with the current high level of purchases of Treasury securities and agency MBS for quite some time. I'm really not concerned about the current pace of purchases creating unintended negative consequences for market functioning or banks' balance sheets anytime soon, and I am confident that we have the tools for effective interest rate control. That said, we should make sure that our asset purchases are being used as effectively as possible to support a speedy economic recovery.

There are two dimensions by which the efficacy of our asset purchases could be strengthened in the future. The first relates to the communication of our plans for the future pace of purchases. The existing statement language on asset purchases has bought us time as we've put in place our policy framework and the forward guidance on rates. However, the vagueness of our language on purchases does not proactively help align market expectations with ours and risks market expectations becoming entrenched in a manner contrary to our intentions. For these reasons, I see advantages in introducing more explicit, state-based forward guidance on the future path of asset purchases. And I do see benefit to doing so sooner rather than later, so that we can proactively shape and guide market expectations before they become entrenched.

I prefer a state-contingent approach to describing the future path of purchases for the same reasons that we used with our rate guidance. It makes sense both in terms of providing built-in flexibility to changing economic conditions and it fits naturally alongside our existing rate guidance. If the economy outperforms, expectations of total purchases will come down. If, on the other hand, the economy underperforms, expectations of purchases will rise. And I'm not going to offer specific wording for the forward guidance on asset purchases now, but in broad terms, I think we should be conveying that we will need to have made further significant or substantial progress toward achieving our employment and inflation goals and are confident that

we're on track to achieving those in the foreseeable future before we start to moderate the pace of purchases from the current level.

The second dimension concerns the size and composition of our purchases. Assuming we have strong state-contingent forward guidance in place for our purchase program, we will be well positioned to deal with a positive surprise to the economic outlook. As I said, in that case the period of asset purchases will shorten, consistent with the improvement in the outlook, and the total amount purchased will decline.

If, on the other hand, the economic outlook darkens significantly, the lengthening of the period of purchases implied by the forward guidance may not be enough to achieve the appropriate level of policy accommodation. In such a downside scenario, we have options for adding accommodation by adjusting the size and composition of our purchases. We are not running out of ammo.

If the economic outlook calls for additional accommodation, we can extend the duration of our Treasury security purchases by repurposing the shorter-maturity purchases to longer-maturity Treasury securities and thereby provide more downward pressure on longer-term yields. In particular, we're currently buying each month about \$35 billion of U.S. Treasury securities with maturities of three years or less. So there's considerable room to expand the amount of duration we're taking out of the market, without increasing the overall size of our purchases.

Of course, we may find it appropriate to increase the monthly pace of asset purchases and to reduce the effects on reserve balances at banks that we just—it's in the memo and has been discussed. We could partially or fully offset these purchases with sales of Treasury securities whose remaining maturities are three years or less, as we did with the maturity extension program, or MEP, back in 2011 and 2012.

As a reminder, with the MEP we redeemed \$667 billion of Treasury securities, and we currently hold over three times as many Treasury securities with maturities under three years. So we have a whole lot of room for a large-scale MEP 2.0, if that's needed. Thank you.

CHAIR POWELL. Thank you. Governor Clarida, please.

MR. CLARIDA. Thank you, Chair Powell. As the saying goes, there is a first time for everything, and today, for the first time during my tenure as Governor, I'm actually going to answer the four questions posed by the staff and authors of the memos. But first, let me convey my regard to the staff. I thought these memos were excellent, they were substantive, I learned a lot, and a lot of hard work went into them, so thank you.

Starting with question 1, I think the two most important objectives for continuing purchases are to help support the flow of credit to households and firms and, relatedly, to guard against any potential tightening in financial conditions that would result if, contrary to market expectations, purchases were to cease at year-end, which was indeed the Tealbook assumption in September. Truth be told, at least from my perspective, I don't think Treasury securities market and agency MBS market functioning today are reliant on our programs. But, alas, it does seem to me that in times of stress and risk of dislocation, our commitment to backstop these markets must continue.

Question 2 asked about the pace and composition of purchases. And on the basis of deep and rigorous analysis and quiet contemplation, I've come to the conclusion that "If it ain't broke, don't fix it." As the memo confirms, the composition of our existing Treasury program has a duration exposure comparable to both QE1 and QE2. And the current monthly pace is actually quite close to QE2. The economy's been hit with a devastating shock, recovery is incomplete,

we're constrained at the lower bound, and we should be and are deploying all available tools, including robust guidance and asset purchases.

Notwithstanding my status quo bias to maintain the pace and composition of the program, there are, of course, circumstances under which it would make sense to reconsider both. Regarding composition, I would be open to lengthening the duration of purchases in a scenario in which a sharp and sustained increase in the term premium pushed up real borrowing costs to an extent that would put the recovery at risk. However, I should also note that if monetary policy succeeds in anchoring or even boosting somewhat long-run inflation expectations, nominal yields could well rise as a sign of success of an LSAP program, not a failure. And that would not, to me, suggest the need for a change in composition. And indeed, I remind you—and there's a chart in the materials—that we did see nominal rates go up after both QE1 and QE2, and those actually occurred in tandem with a rise in breakeven inflation.

With regard to pace, it's useful to solve backwards from the time we come to expect that the conditions laid out in September for liftoff will be realized. Sometime before then, the pace of our purchases would need to be tapered so that we are not commencing policy normalization with an active LSAP program in place. This suggests to me that in response to question 3, if we are to consider at some future meeting changing the “over coming months” language, state-based guidance for our LSAP program would be far preferable to date-based guidance, and there are some good examples of that in the materials—I won't go into them.

Last but not least, on the question of do we have the tools to manage the pressure on bank balance sheets that could arise with a large increase in reserves, it would seem to me, based on my reading of the memo, that the answer is a qualified “yes.” The qualification reflects my

judgment that in the second scenario studied in the memo, the Committee would need to be willing to scale up substantially the size of the reverse repurchase program.

Before my arrival on the Committee, it was my understanding that there was some discomfort in the System to allowing a large reverse repurchase program lest it disintermediate the banking system. I was not present for that discussion, so I do not know the arguments for and against relying on a huge RRP program to siphon off reserves. But my “takeaway” from the memo is that it would be an essential requirement to manage the increase in reserves in the second scenario. Thank you, Chair Powell.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you, Chair Powell. I'd like to first thank the authors of the memos. I found them very useful. My initial thinking about our asset purchases guidance is informed by three considerations. In order to achieve our goals and ensure accommodation is transmitted along the yield curve, I would be inclined to integrate asset purchases into the framework governing our forward guidance and not introduce a separate set of date- or state-based conditions. I see that as providing the most simplicity and clarity to our communications. I would be inclined to set the initial pace of purchases at their current level while retaining necessary flexibility to adjust the composition and pace as conditions change, as the balance sheet is our marginal instrument while the policy rate is pinned at the lower bound. And I would be inclined to use the balance sheet in the most efficient way, which will likely mean shifting to longer-duration purchases in the not-too-distant future. Let me briefly speak about each.

First, market participants appear to be realigning their expectations with the new forward guidance and our new framework. As we refine the guidance on our asset purchases to switch from market functioning to monetary accommodation, we should seek to avoid setting out a

separate set of conditions that could risk any confusion. Instead, it would be parsimonious to integrate our asset purchases into our overall monetary policy stance in order to reinforce the commitments associated with the forward guidance on the policy rate and keep borrowing costs low along the yield curve.

The objective is to ensure that the yield curve accurately reflects our commitment to provide accommodation until we see improvements in inflation and employment. The current shape of the yield curve reflects not only the significant increases in security holdings to date, but also our guidance on the federal funds rate and market expectations about future expansion of our security holdings.

Just as the forward guidance was the first concrete demonstration of our commitment to achieve the goals in the new consensus statement, so too market participants will view the guidance on our plans for asset purchases as an important indication of our resolve. It's early days still, but as Lorie and Patricia noted, the Desk survey suggests that market expectations have begun to demonstrate an understanding of our new reaction function.

What we say and do next should reinforce that emerging understanding. Because our outcome-based forward guidance on the policy rate is already conditioned on inflation and employment thresholds, I think that the most elegant approach would be to link the duration of asset purchases to the outcome-based forward guidance. So, for instance, we could say that we would increase our holdings of Treasury securities and agency mortgage-backed securities until “some time” before the Committee expects to lift the target range for the federal funds rate to help keep borrowing costs for households and businesses low along the yield curve.

Linking the asset purchase program to our outcome-based forward guidance will qualitatively link purchases to economic conditions. The public’s expectations regarding when

policymakers would start to taper and ultimately conclude asset purchases would be conditioned on—although some time in advance of—the same inflation and employment outcomes as the forward guidance. This approach would also provide clarity about the sequencing of asset purchase tapering and the subsequent liftoff of the policy rate. As the economy makes progress on the three-part threshold established by the current forward guidance, the public would know that purchases would taper and end before the thresholds are met. This is similar to the ECB guidance that Paul noted, which appears to be well understood and accepted by market participants, although the ECB uses the terminology “shortly before,” which suggests a later end to asset purchases relative to liftoff than the proposed terminology “some time before.” It would also be roughly in line with what I see in the market expectations in the October Desk survey, whose median projection is for the current pace to continue throughout 2021, followed by a gradual pace of tapering through the following two years and a decline close to zero at the end of 2023, followed by the first date of liftoff either in the first or second half of 2024.

That takes me to the second goal. Because the current pace is well aligned with market expectations in the Desk surveys and appears to be sufficient currently to maintain the shallow shape of the yield curve and very low long-term rates, I’d be supportive of validating the expectations that we will continue at the current pace initially while leaving some flexibility to adjust the pace or composition if conditions change materially.

In this regard, I found it helpful to compare this path with LSAP3. The current \$40 billion per month pace of agency MBS purchases is the same as the initial pace of LSAP3, but the current \$80 billion per month pace of purchases of Treasury securities is nearly double that of the \$45 billion per month in LSAP3 in 2013. When scaled relative to contemporaneous

Treasury debt issuance, it actually looks more similar—at about 0.4 percent of outstanding issuance, the same as LSAP3.

Despite the very different nature of the two crises, inflation and unemployment around the launch of LSAP3 were similar to today. In fact, the unemployment rate was precisely the same as today, and 12-month core PCE inflation in December 2012 was about 1.7 percent. After one year of purchases at the initial pace, the decision to begin tapering LSAP3 purchases in January 2014 was made at a time when the unemployment rate had declined to only 6.7 percent and, at the end of the taper, unemployment had declined only to 5.7 percent. Inflation actually ticked down, on net, over the life of the program and ended at 1.5 percent.

The framework review may argue for a more patient approach than that taken at the end of 2013. Our shortfalls approach, allowing a more inclusive assessment of maximum employment, and our commitment not to raise rates until we've reached the 2 percent target with inflation on track to exceed 2 percent for some time may lead to purchases continuing until employment increases are more widespread than when LSAP3 ceased. An approach that aims for a greater reduction in employment shortfalls and more progress on inflation at the outset relative to LSAP3 may actually change expectations in a way that could hasten the recovery, all else being equal.

Of course, many have pointed out that the average yield on 10-year Treasury securities today of around 0.8 percent, or 80 basis points, is much lower than during the LSAP3 program, when it averaged 370 basis points. And some observers have argued that there's much less room to bring down these yields. I actually think there is an important benefit in keeping long yields accommodative at a time when there's a potential for imbalances in the supply and demand for long-term Treasury debt due to high and rising Treasury debt supply.

The expectation that the Treasury is likely to expand both the amount and WAM of its issuance in light of increased budget deficits could put, and is expected to put, upward pressure on long rates. These deficits have generated coupon issuance that is larger both in par amount and WAM than in these previous episodes. The memo notes the additional notes issued since April have had a WAM of nearly 11 years, much longer than the 6-year WAM issued following the global financial crisis (GFC). The existing needs for financing coupled with the still-urgent need for additional stimulus ahead highlight the importance of continued asset purchases to help maintain low borrowing costs for households and businesses.

This brings me to the final point that's also been raised by others. Before too long, it will be important to increase the efficiency of our purchases by extending their duration, or, as President Kaplan put it, "getting more bang for our buck." Although longer-term yields are currently at low levels, premature upward pressure could result both from increased long-duration issuance or from market expectations that front-run our assessment of the economy's trajectory.

Because it was launched as a market functioning program rather than an accommodation program, the COVID asset purchase program has a considerably lower weighted average duration than the LSAP3 program, even though the Treasury's security issuance is likely to continue to have a higher duration than the post-GFC coupon issuance. In our current program, almost half, or about \$35 billion, of the monthly Treasury security purchases have a remaining maturity in the 0 to 3 bucket. That compares with none in LSAP3. To date, the weighted average duration is 5.7 years of purchases—considerably shorter than the LSAP duration of 9.5 years. Shifting purchases out of that 0 to 3 bucket into longer maturities is an opportunity to affect longer-term yields to a greater extent with the same amount of purchases. Or,

alternatively, as Zeynep noted, we could get the same amount of accommodation at a lower purchase pace.

I asked the memo authors for the level of purchases required to achieve our current quantity of monthly 10-year-equivalent purchases if purchases currently allocated to the 0 to 3 bucket were reallocated across the remaining sectors. They determined the current 10-year equivalent pace could be achieved with \$30 billion less in monthly purchases. As Paul noted, the Bank of Canada successfully navigated just such a shift last week, extending duration while reducing total weekly bond purchases, noting that this recalibration of the program will increase its effectiveness while continuing to provide at least as much stimulus as before. But I would be worried that any such shift, even if communicated with great care, could be erroneously interpreted as a pullback in accommodation.

And, finally, in response to Rebecca’s presentation and the associated questions, I do believe that our toolkit is sufficient to address the challenges we face.

So, in summary, our guidance on asset purchases will be viewed as the next important test of our resolve in implementing the new consensus statement. I think a few careful modifications can meet this test within a unified framework governing both the policy rate and asset purchases while maintaining some flexibility, using our balance sheet more efficiently, and accomplishing our goals by helping to keep borrowing costs low along the yield curve. But it’s important to avoid signaling any equivocation, which, as we and our peers learned after the GFC, could ultimately lead to the need to do much more rather than less. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chair. I’d like to start by thanking the staff for the work done to frame the Committee’s consideration of this important and complex issue. The memos

and proposed questions were very helpful in generating a robust discussion for me and my staff. And it seems that, for this go-round, I will be playing the usual role of Governor Clarida, and I will not be answering the questions as posed. Rather, I would like to present my three “takeaways” from these discussions.

First, on the communication of an objective for the ongoing asset purchases, I am in favor of dropping the appeal to support market functioning. Second, when considering the pace, composition, and forward guidance of an asset purchase program, I believe that it may be productive to focus our discussion on the channel through which we believe that asset purchases can support achievement of the dual mandate. And, third, I am not convinced that additional accommodation from asset purchases is warranted while the main constraint on the economy remains the coronavirus. In fact, with the U.S. Treasury security and mortgage markets functioning, now may be a good opportunity to scale back our monthly purchases somewhat. I'll flesh out each of these considerations in turn.

On the question of supporting market function, by all reports that I've seen, the Committee's emergency actions in March to initiate asset purchases in the amounts needed have been successful in supporting and restoring the functioning of the U.S. Treasury securities market to pre-COVID levels. In the end, the amount needed translated into \$2.3 trillion through June. And the question now facing us as we go forward is: Are ongoing asset purchases of \$120 billion a month necessary to ensure smooth market functioning?

On this question, I'm not convinced that additional purchases are required for the sake of sustaining market functioning, under current market conditions and the current size of our balance sheet. Therefore, I favor dropping the language that cites market functioning as an objective of ongoing asset purchases. This is not to say that I believe that market stress or

dysfunction cannot recur. However, I believe there is an accurate presumption among market participants that, should major stresses arise, the Committee would authorize the Desk to step in with targeted purchases or expanded repo operations as needed to support market functioning.

I'll turn now to the question of how asset purchases currently figure into our policy toolbox in support of achieving the dual mandate. I found that the objectives proposed in question 1 to be a bit off point. To be sure, the objectives stated are all reasonable and have the flavor of traditional monetary policy, using tools to lower long-term risk-free rates in order to spur economic activity and employment. But I believe there would be value in taking a step back and considering the possible channels—portfolio rebalancing, habitat or supply–demand, or signaling—that we believe have the most influence on longer-term rates. Being clear on the transmission mechanism or mechanisms is, for me, central to assessing both communication and questions of pace and composition.

If the signaling channel is the primary channel in operation, then this would seem to imply that it is the purchasing per se that is important, leaving the composition of our purchases as a second- or third-order concern. And under the current forward guidance on the federal funds rate, an open-ended program along the lines of QE3 could likely fit our needs. If, however, we believe that the rebalancing or supply–demand channels are more powerful, that might argue for a shift in composition toward longer-dated purchases and continued MBS purchases.

Without a clear focus on delineating the channel or channels that are operating, I honestly find it difficult to assess how any of the design considerations could contribute to the effectiveness of our program. And I interpret many of the questions that came after the staff presentation as having this thrust. So it seems that more discussion of this would be warranted.

My final point is that I am not convinced that any of these channels are particularly strong right now. Put bluntly, I do not believe that the level of longer-term interest rates is the margin along which economic decisions are currently being made. As I will detail in the economy go-round, the course of the virus and related uncertainty loom much larger than the nominal level of interest rates in the minds of businesses and consumers right now. And this leads me to conclude that now may, in fact, not be the best time to add forward guidance or make compositional changes to our purchase program. Any changes may have more power once uncertainty has declined somewhat and the economy is further into recovery.

In addition, even in light of the memo on reserves and my confidence in the Desk and our tools, I remain doubtful or skeptical that continuing asset purchases at the current pace for an extended period is without costs or risks. Therefore, were it not for the fact that markets expect asset purchases to continue, I might even go so far as to suggest stopping the purchase program altogether and redeploying asset purchases in the future when they will have more significant power to influence economic activity. That said, I can support the continuation of purchases, as stopping the program now could appear to be at odds with our federal funds rate guidance. I do, however, think that the restoration of market functions may be a good opportunity to reduce the size of our monthly purchases somewhat without imperiling the funds rate guidance. And I would support such a move.

I'll close with one concern that is on my mind. I fear that communicating the proposed objectives in question 1 with a direct emphasis on pushing down longer-term rates could lead markets to believe that we are flirting with yield curve control. I, for one, do not want to go there. By sticking with our current composition and keeping our communications simple—

purchases support the achievement of the dual mandate—I believe that we can avoid such a perception. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. I appreciated reading and discussing the excellent memos with my staff. I want to thank Zeynep, Paul, and Rebecca for outstanding presentations and good answers to my questions.

When thinking about the settings for our monetary policy tools, whether it's the funds rate itself, forward guidance about the rate, or asset purchases, the guiding principle is the same. We should position our instruments to achieve our dual-mandate goals in as timely a manner as possible. We should concentrate on doing what it takes to achieve our desired outcomes—inclusive maximum employment and, in light of our earlier shortfalls, inflation that runs moderately above 2 percent for some period of time—to bring average inflation up to 2 percent. Faithful execution of our September forward guidance about the funds rate will go a long way toward producing these results. And, to achieve them in a timely fashion, we also need to articulate a plan for asset purchases.

The first part of that plan should be to state that the main objective of our asset purchases has transitioned to the provision of monetary accommodation to further ensure we achieve the same outcomes as delineated in our guidance for interest rates. Although we should always be prepared to take necessary steps to address particular market strains, smooth market functioning has been achieved, at least for now. It is time to move forward and clarify asset purchases' role in providing appropriate monetary accommodation over the next few years.

How should we describe the planned path of purchases? In light of our experience from the financial crisis, I think qualitative state-based guidance would be preferable. The

Committee's 2012–18 experience leaves us with a good playbook to follow. Here's the sequence we used then—I'm sure it's familiar to everyone. QE3 had open-ended asset purchases linked to economic outcomes. To complete the program, the flow of purchases was gradually reduced to zero over an extended period of time. We then maintained the size of the balance sheet for another extended period by reinvesting maturing securities. Finally, the Committee allowed maturing assets to roll off gradually to direct the SOMA account toward its new steady-state path.

I realize deciding on the exact guidance for the balance sheet in our present situation is an important conversation for an upcoming meeting, but here are my current views. Recall that our qualitative guidance during the QE3 program said we would continue asset purchases until there was substantial improvement in the labor market in the context of price stability. Given today's desired outcomes, the analogous guidance would be to continue purchases until we've seen substantial improvement toward inclusive maximum employment and in the prospects for inflation averaging 2 percent over time. Adopting such a linkage seems like a good plan to me for now, and I think some of the other ways this has been described, in the memo and the way that Governor Brainard did, are very similar, and so I think that we're all well aligned on that.

The guidance given during QE3 also said that in determining the size, pace, and composition of its asset purchases, the Committee would take appropriate account of the likely efficacy and costs of such purchases. I would amend that now to also say that the Committee would take appropriate account of the rate of progress toward this goal. Unforeseen shocks may dictate a different pace of purchases. And even in the absence of further shocks, we're quite uncertain about the size of purchases we will actually need to achieve desired outcomes, and we may well have to adjust plans if our progress is too slow.

Given market expectations, I think that starting with the current pace of purchases makes sense. I think starting with the current mix between Treasury securities and MBS also makes sense, though I would leave it to the experts on the Desk to keep us informed on any potential market functioning issues and recommendations for adjustments to avoid them. I'm open to discussing the maturity composition of our asset purchases. Obviously, that could be a very important and effective part of what we're trying to accomplish.

I would note another advantage of fashioning our guidance now in parallel with what we said in 2012 and 2013. Markets will recognize the similarities and probably assume we will follow the same game plan that we did then—namely, taper purchases gradually and then reinvest maturing assets to prevent our balance sheet from shrinking until sometime well after liftoff in the funds rate. Gradual tapering helps avoid an unconstructive market tantrum. And, as monetary theory tells us, maintaining our SOMA size for a substantial time will be necessary to ensure that our purchases have the biggest bang for the buck.

But because it might be a bridge too far for us to communicate these intentions *ex ante*, using guidance about asset purchases along the lines we used for QE3 may be a good way of signaling that this sequence would be the likely outcome.

I know that these suggestions leave open the prospect of a large increase in our balance sheet. This likely makes some nervous about potential risks that might accompany such an expansion. At least, if the Committee is like it was back in 2012 and 2013, I would expect that nervousness. In this regard, I found the staff memo on risks associated with large reserve balances reassuring. All of the issues in the memo either seemed a pretty small consequence for macroeconomic outcomes or were pretty technical in nature, and I trust our experts could work

out the solutions. And I thought the answers to my question sort of indicated that that should be the case.

If you're just more nervous in general about providing substantial monetary accommodation, well, that just comes with the territory of ensuring we average 2 percent inflation over time. The ELB has dealt us a bad hand, and we have to counteract it. Important relevant research comes from our Fed colleagues, such as Leo Melosi, John Williams, and Thomas Mertens. Their research indicates that asymmetric policy accommodation is needed to offset the inherent downward biases that the ELB generates and that would otherwise inhibit achievement of our inflation and employment mandates. That means that, at times, we will have to provide substantial monetary accommodation and use tools other than the funds rate to do so.

In other words, we'll need to use promises of lower-for-longer interest rates and large-scale asset purchases to achieve inclusive maximum employment and help us get inflation to average 2 percent. If we do not use such tools aggressively, we will fall short on delivering the policy goals we so recently all agreed to in our revised monetary policy framework, and I don't think we should back off that. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. I'm going to answer the questions in order. So, starting with question 1, I expect that markets are likely to continue to function smoothly, under our current asset purchase program. However, I would keep the market-functioning justification explicit for our asset purchases until the risks associated with the uncertainty regarding the second wave of the pandemic, the election, and our facilities' end date have abated. I hope this will happen no later than March, at which time this justification could be removed from the statement.

In terms of the broader objectives for our balance sheet policy, I believe our asset purchases are currently providing some stimulus and are important for helping to maintain policy accommodation. Should economic conditions deteriorate and fiscal policy not step up, I would be in favor of providing further accommodation, with maturity extension first and additional purchases only after extending maturities. Still, the scope for such policy to provide significant accommodation is limited by the already very low Treasury and MBS interest rates.

On question 2, in view of the legitimate concerns about reserve buildup, I would focus on purchasing long-duration securities. I would increase the rate of our asset purchases only if long-term rates rose too much in response to a fiscal stimulus announcement or if the economy deteriorates a good deal as a result of the pandemic and a lack of fiscal support. However, my own view is that the use of 13(3) facilities may be a more effective tool than additional asset purchase at this time for lowering costs and making funds more available for potential borrowers. In fact, I'm actually surprised we're not talking more about those tools as a tradeoff with these tools, because I think the 13(3) facilities still have plenty of potential to actually provide further accommodation.

Regarding question 3, we have already provided firm state-based guidance, in terms of when liftoff of the federal funds rate from the zero lower bound will occur. Thus, a statement that is state based should be preferred to be consistent with the funds rate guidance. I would also prefer to maintain more optionality with our asset purchases. We should not increase the rate of purchases unless the economic outlook deteriorates, and we should not taper purchases until we are clearly on path to meet our mandated goals. At the same time, my preferred communication approach is for the statement to be vague, similar to example 6 in the staff memo, with the

internal expectation that tapering will begin by the middle of next year, assuming that a robust recovery is under way at that time.

And finally, with regard to question 4, I do believe that we have sufficient tools. If we are seeing reserve problems, I would first move to longer maturities. Were the economy to deteriorate sharply, requiring more asset purchases than expected, my preference would be to remove excess reserves from the required capital ratio calculations. There is no default risk on reserves, and the growth of reserves is a monetary policy action, which the banking system has no option but to accommodate. If we see the growth of reserves presenting a problem, we would not want banks to adjust other assets in a way that is counterproductive to our monetary policy accommodation goals. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester, please.

MS. MESTER. Thank you, Mr. Chair. I want to thank the staff for the memos and for the presentations today that I think really helped frame the discussion we're having. Our asset purchases are fulfilling two roles. At the start of the pandemic, we began purchasing Treasury securities and agency MBS to help restore orderly functioning in financial markets. The Desk indicators at this point suggest that these markets have essentially returned to normal functioning. But with interest rates at the ELB, our asset purchases are also adding to monetary policy accommodation in support of economic activity and attainment of our goals of price stability and maximum employment.

The bulk of research evidence suggests that the effect of the purchases depends on the economic environment. For example, the first LSAP program implemented in response to the Global Financial Crisis is estimated to have had a larger effect than the next two programs, partly because financial market conditions were quite strained at the time.

Another factor that can affect the efficacy of LSAPs is Treasury security issuance and the stock of Treasury debt outstanding. As pointed out in the staff memo and in the memo provided to the Committee in July—and Governor Brainard pointed this out as well in her remarks—in light of projected fiscal budget deficits, both the volume of Treasury debt issuance and the weighted average maturity of Treasury debt are expected to increase over the next few years, putting upward pressure on yields. So for any given amount of assets we purchase, Treasury security issuance will be a countervailing effect on longer-term yields that we'll need to consider.

I think about the purchases in terms of the degree of accommodation we're trying to achieve rather than the size of the program per se. Unfortunately, we don't have very precise information that links purchases to economic effects. The estimates vary across studies and across time periods, and I think that severely limits our ability to implement a rules-based purchase program that links the flow or size of the program to precise economic conditions.

I also think that we should be wary of trying to align the guidance on purchases too tightly with the guidance on the funds rate. Communications are difficult enough, and this could confuse things rather than clarify. However, I do favor communicating the rationale for the purchases, and that means making it clear that we're now purchasing these assets mainly to support the recovery and promote attainment of our goals of price stability and maximum employment. For this purpose, as shorter-dated securities add little in the way of accommodation, I would favor shifting our purchases toward longer-term securities.

Now, though there's uncertainty about the precise effect of the program, I do believe that purchases are accommodative, and I'm comfortable with the current pace of purchases. I agree with Vice Chair Williams that we do have room for further asset purchases. Treasury yields are

quite low, and I don't think we have that much scope for bringing them down further. But the current low level of long-term yields partly reflects market expectations that we'll continue the purchases.

Market expectations are well aligned with my own. That said, I would like to maintain some flexibility so that we can adjust the program, if necessary, in response to changes in economic conditions—in other words, to be able to scale it up if needed and if market dysfunction arises again.

In terms of the current statement language, I believe we should plan to change the language as early as December to something more reflective of our policy intentions. We currently indicate that we're planning to continue purchases at least at the current pace over coming months, but we're likely going to continue the program for longer, given the outlook. The current language also does not link the program to our policy goals, so it does not yet segue from purchases intended to restore well-functioning markets to purchases that support the recovery.

In terms of the examples provided in the memo, I would prefer language that blends elements of example 3 and example 6—something like “The Federal Reserve will increase its holdings of longer-dated Treasury securities by at least \$X billion per month and of agency MBS by at least \$Y billion per month to support the recovery. It expects to continue these purchases of longer-maturity assets until substantially more progress has been made toward the Committee's employment and inflation goals.”

Now, one reason for qualifying the degree of progress is that it gives us a way to signal future policy intentions. As we get closer to slowing down the pace of purchases, we could change the language to “until more progress has been made” as a signal. And then, once we

decide that it's time to taper our purchases, we can indicate that, in our view, substantial progress toward our goals has been made. This frames the guidance language in terms of our progress toward those goals and also provides some advanced signaling of our intentions for changes to the policy.

Although it may seem far away, there will be a time when it will be appropriate for the Committee to slow and eventually end LSAPs. We should discuss how we are viewing the timing of that with the timing of a change in our policy rate. The ECB has been explicit about its intentions to continue asset purchases until shortly before it starts raising its policy rates. The Bank of England is reviewing its earlier guidance, which said that it will not unwind its purchases until after it's raised its policy rate, with Governor Bailey suggesting it might be better to do this in reverse order to ensure there's enough balance sheet space to address market dysfunction.

Although this is not an immediate concern for us, in light of our recent experience of using the balance sheet to address issues of market functioning, I do think it would be helpful for the Committee to discuss the approach we'll follow with respect to our policy rate and balance sheet tools once the economy is on a sustainable expansion path. Coming to a common understanding on that will help inform our forward guidance on purchases and whether guidance as suggested in the staff memos or the guidance that Governor Brainard suggested today would be the most effective way to communicate. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin, please.

MR. BARKIN. Thank you, Mr. Chair. I'm hesitant to move too quickly to make too much of an additional forward commitment on asset purchases. We've done quite a lot over the past couple of meetings to "land" a new monetary policy framework and strong forward

guidance. Our current level of asset purchases is significant by historical standards. The environment is still very uncertain. The markets don't appear to be misaligned. That said, I know it's important for us to plan how our guidance might evolve, and so I value this discussion.

Why is patience my bias when it comes to adjusting our programs or communicating more forward guidance about asset purchases? Partly because I don't think there's more value to add by more specificity, with rates as low as they are. Partly because I believe market participants are overindexed to what might be our next trick, and they will then jump to the one after that. Partly because times are uncertain, and I'd prefer to husband our few additional tools for when they might be most needed—I do value that flexibility. Partly because some of the justifications for acting border on yield curve control that I'd rather not pursue. Partly because specificity is really complicated to get right and to communicate seamlessly, or at least I find it so. And partly because, despite the memo describing how we would manage a balance sheet expansion, there must be some limit to what we can do, and I'd rather delay testing those boundaries.

In truth, perhaps like President Bostic, I see purchases as playing a strong signaling role but maybe less of an economic role than others might. Estimates of the effects of asset purchases on term premiums range widely, and the confidence intervals are quite large. I do accept that “over coming months” is phrasing that likely needs some clarification at some point. Last time, we conditioned asset purchases on continued strengthening in the labor market.

When we do feel the need to clarify, this kind of qualitative state-based guidance would be fine with me. Examples or guidance like “until we weather the virus,” similar to what's been done by the ECB for the PEPP, or “until the recovery is well underway,” as the Bank of Canada has done, or “substantial progress” in example 6 are all comfortable notions to me. I just find

more specific state-based guidance, in conjunction with our current forward guidance, quite unwieldy to think about. So I'd suggest a simpler path—something like the ones I suggested. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker, please.

MR. HARKER. Thank you, Mr. Chair. Let me also thank the staff for their work on this. So, with the very low level of long-term interest rates, I think there's very little scope for additional policy accommodation through asset purchases. In the current environment, as others have said, asset purchases are likely to be a weak tool for implementing further monetary accommodation. Their primary value is to ensure that market functioning remains robust and efficient, and, to that end, the Desk, I believe, has done an excellent job of maintaining the smooth and orderly function of the financial markets. So a shout-out to the Desk.

An important component of our asset purchase program is the role of signaling—enhancing our forward guidance language by making it more credible. It is difficult to know the degree to which this is the case, but we do run the risk that any significant and immediate deviation of our purchase plans from the current pace could be misinterpreted and lead to an adverse market response. Perhaps now is not the time to venture down that path. And as Governor Clarida said, this is not the time to fix it. It may be better to wait until early next year when we have a better take on the path of the virus and the likelihood of a vaccine as well as what future economic stimulus is enacted.

My modal outlook is optimistic on both fronts. And if it becomes increasingly likely that we will begin returning to a more normal economic environment in the second half of 2021, then it would be appropriate to start scaling back asset purchases and start unwinding the balance sheet in 2022. As well, absent any significant increase in inflation, I actually see no need to rush

the decision with the pace of the scaleback. For now, market expectations are consistent with the belief that monetary policy will remain accommodative, and any additional clarity can wait until next year when we will have a better sense of how the economy will evolve. There is just a lot of uncertainty right now.

I do, however, see arguments for future altering of the composition of our purchases in favor of a greater percentage of Treasury securities. With residential real estate activity robust and mortgage interest rates quite low, there is little reason for favoring the housing sector. Indeed, we might run the risk of contributing to another asset bubble in real estate. I would also support shifting our purchases to longer-dated securities.

I also believe that any guidance we give regarding the direction and pace of asset purchases should be based on our economic outlook. However, we should not base policy on a desire to actively manipulate risk premiums. As President Bullard has emphasized on many occasions, risk premiums are largely an expression of our ignorance. We simply do not know enough to use risk premiums in a state-based way. As well, I would be wary of countering real rate effects induced by fiscal policy. As others have said, increases in real rates induced by expansionary fiscal policy should be welcomed, as they would signal a successful stimulus being given to the economy.

Finally, the memo pertaining to the risk of very high reserve balances could indicate that we should leave some “headroom,” in case the economy faces additional adverse shocks. Now, though it is likely that our existing monetary policy and regulatory tools can be adapted to meet any future challenges, overly large reserve balances may not be without consequences.

So, to summarize, in the current economic environment, our asset purchase program’s primary purpose is a technical one, in my mind: to ensure the smooth functioning of financial

markets. Under my modal forecast of the economy, it likely will be time to start scaling back the program in 2021 and unwinding it in 2022. Of course, that is subject to change. The unwinding could be linked, as others have said, to progress on the vaccine or therapeutics that make the return to a more normal economic environment more likely. For now, it is probably best not to get ahead of ourselves or we may run the risk of inadvertently weakening our forward guidance.

Lastly, Governor Brainard's comments on integrating our asset purchases into an overall monetary policy stance and the related language is something that I think is worthy of support. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard please.

MR. BULLARD. Thank you, Mr. Chair. I'm actually going to answer the questions today—a rarity for me.

Question 1 had these four different categories of what we're doing with our purchases: maintaining policy accommodation, providing additional accommodation, guarding against potential tightening, or maintaining smooth market functioning. Of these descriptions of our current policy, in my judgment, we are maintaining policy accommodation in addition to maintaining smooth market functioning. And so I guess I am agreeing with President Mester's characterization of where we're at here. I would say, some fraction of the purchases is being devoted to each of these purposes. And, for simplicity of discussion, you might just say, well, it's 50 percent to each of these purposes.

Now, as some have mentioned, it's not really necessary to devote a fraction of purchases to the maintenance of smooth market functioning any longer. If you look at the St. Louis Financial Stress Index, along with other indexes in this class, they have generally returned to

January 2020 levels. We did not think that we had to maintain smooth market functioning with major asset purchases in January 2020, and so it makes sense that we do not have to do so today.

So, logically, we could reduce the pace of purchases by the fractional amount that is devoted to this particular purpose. However, I'd advise against taking such a course of action at this time. We are still in the middle of a crisis, and I agree with Governor Brainard that pulling back on the pace of purchases at this juncture would probably have negative signaling effects, as mentioned by President Harker and President Barkin, leading to higher long-term yields, and the signaling effects are likely much stronger than any direct effects of the purchases themselves.

And I would remind the Committee that the taper tantrum, centered on the June 2013 FOMC meeting, caused an increase in real yields of around 100 basis points, according to TIPS markets. It was very persistent. So the lesson from the taper tantrum, in my mind, is that these QE programs are explosive, and the taper tantrum experience is inconsistent with the idea that these are bland, benign policies that have little effect on financial markets. I don't think that's the case. I think that they can be very explosive if they're mishandled, so we want to be very careful about that.

Now, as for providing additional accommodation through a faster pace of purchases, I don't think it's necessary at this time, which echoes other comments around the table this morning. Current longer-term interest rates, and, in particular, longer-term real interest rates, are quite low by historical standards and are unlikely to be pushed still lower by an enhanced purchase pace. As for guarding against the potential tightening of financial conditions, as I see it, we are likely accomplishing this objective already with our current pace of purchases. It seems to me that the mere threat that we could take additional action, if necessary, is, by itself, enough to lean against an unwarranted increase in longer-term rates over the near term.

I do expect, however, that longer-term nominal rates will continue to rise, as they have during the intermeeting period, as the economy continues to improve and markets come to more solidly expect higher real growth along with higher inflation. This increase in longer-term rates will, in my view, be welcome, as it is and will continue to be a natural consequence of continued recovery in the U.S. economy. It would only be increases in yields above and beyond this natural level that the Committee may want to protect against, and, in my view, we are already providing that type of protection with the current pace of purchases and the implicit threat to do more if necessary.

The second question was, under what circumstances should the Committee alter the pace or composition of purchases or both? First and foremost, we are still in a crisis, and the hallmark of any crisis is that new twists and turns can develop in unexpected ways. Our current constellation of a near-zero policy rate, coupled with asset purchases and 13(3)-based liquidity programs, has been successful in keeping financial stress at a low level along with low longer-term yields. I would not try to mess with success at this point, and on this I agree with Governor Clarida. Nevertheless, there will come a time when the economy has made sufficient progress toward our goals that it will make sense to reduce the pace of asset purchases. This can probably be done at an appropriate juncture in a gradual way.

The actual taper that began at the December 2013 meeting with the decision—and the implementation in the first part of 2014, which continued throughout 2014—was executed fairly seamlessly and without significant problems. And I think this is a fact that we may wish to stress in the current environment even though there was confusion and volatility earlier in 2013. An actual taper executed at the right moment and with sufficient understanding by markets will likely be quite successful.

There are reasons to think even today, before the crisis has ended, that an eventual reduction in the pace of purchases may be warranted, and it may not be quite as far as away as people think. As I've already emphasized, by some measures, market functioning today is no different than it was in January 2020.

In addition—and I'm echoing President Bostic and President Harker here—an important portion of our current purchases is in mortgage-backed securities in a situation in which the U.S. residential housing market is actually quite strong. We may at some point hear criticism that we are trying to buoy markets that do not seem to need much help. For this reason, I think it may be wise to note that, eventually, a reduction in the pace and composition of purchases will be warranted; that such a program can be carried out seamlessly, as it was in 2014; but that the Committee will likely not be in a position to make a judgment about the pace of purchases until there's more clarity on the path of the pandemic and the recovery.

Should forward guidance be date- or state-based? A classic question for the Committee. I agree with Vice Chair Williams. I've been a consistent advocate of the idea that any forward guidance on purchases should be state based, and so we should be tying the decision to reduce the pace of purchases to the Committee's progress toward its goals.

Date-based guidance does not work if the economy does not cooperate. You might think you can say “end of the year,” or “end of next year,” or whatever, but conditions at that moment will dictate whether you can actually follow through. And, in my opinion, the Committee has been burned significantly on several occasions in the past decade by saying we would do something at some juncture, and then the economy doesn't cooperate with us and we get into having to renege on that previous commitment. So that gets us out of sync with markets, and I

think that's not a good way to do business. And that's why I've been a consistent advocate of state-based forward guidance.

My preference here—and I'm agreeing with President Rosengren and Alan Greenspan—is to be suitably vague about what will constitute an appropriate level of progress. Greenspan was once asked a question, and his response was, “I think I’m on the record as being vague about that.” Why should we be vague? I guess I have a good reason at this particular juncture. I would stress that we remain in a crisis. There may be many surprises ahead, and those surprises may include permanent effects on key aspects of the economy that we cannot fully anticipate at this time.

So, because of this possibility, I think it might be unwise to be too specific about exact conditions under which the Committee would alter the pace of purchases. Instead, this will simply have to be left to the Committee’s judgment as we progress through the crisis and the recovery. And, in my view, financial markets will give us a lot of sympathy on this, because they are uncertain as well. So they will understand this aspect of the situation.

And the last question is, are you comfortable with the tools that the Federal Reserve has to manage pressures on bank balance sheets and money market rates associated with increases in bank reserves? I thought the two scenarios on reserves discussed in the memo were instructive and informative and well done. For the near term, I found the conclusion that possible pressures on funding markets can be managed to be compelling. However, I would also stress to the Committee that we should eventually move toward standing facilities as a way to manage short-term interest rates without creating potential problems from large levels of reserves that could interfere with intermediation activity. I think if we made a transition in this direction these kinds of issues would be greatly mitigated. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chair. And I also want to thank the staff. Your memos really helped me and my team come to grips with these various issues and have good debates and ensure that we were debating the right issues. One of the things I did with my team is—and I think it echoed President Evans and the comments of others—we went back and studied what actually happened from 2013 to 2018 and '19. And, for me, it was particularly useful to see that we started the taper—and we actually finished the taper—before we commenced federal funds liftoff in 2015.

And then, obviously, we had to be comfortable that we achieved sufficient liftoff before we began to address shrinking the balance sheet. And I think looking at that template helped, at least for me, frame my thinking about what we should do here. And I'll just say at the outset, while we're in the teeth of the crisis—which I believe we are—I would support continued purchases at the current pace with the current composition. I think we should be giving clarified guidance, but I'm happy with it being vague—although I'll come back to that—until we have more confidence about the future path of the economy, which we don't yet, and we may not for at least some period of time.

I listened carefully to what Presidents Bostic, Evans, and Rosengren said about this, and I believe we should, over time, be transitioning away from the “maintaining market function” language to rely more on the language about providing accommodation. But I'd be happy to be patient on that and wait until the spring, as President Rosengren suggested.

In terms of beginning the taper, and as we look ahead to forward guidance, I believe conditions for beginning the tapering of asset purchases should be based on language something like “weathering the pandemic,” “economy on track to meet our dual-mandate objectives,” or

maybe “substantial progress” language that I think was in the memos. But the point of it is, it should be short of the standard for federal funds rate liftoff but consistent with that standard—in other words, make clear that we’re on the way to meeting that standard. I don’t know that we need to complete our taper before rate liftoff, but I think that’s something that this Committee should be discussing as the months go on—whether we want to complete the taper before rate liftoff as we did before.

In the future, I like having more tools in our pocket. And I could see a scenario, if things don’t go well, where we may need to provide additional accommodation. We’ve got a great option here in lengthening the period over which we conduct our purchases and extending the maturity of our current Treasury purchases in order to generate a greater level of accommodation. And we’ve also got, as was suggested, our existing portfolio, and we could also do a maturity extension program under which we could sell shorter-dated maturities and replace them with longer-dated maturities. I’m glad we’ve got those options, and I’m glad we’ve got those tools in our pocket and are seen to have those tools.

On the final question about confidence in our tools regarding maintaining interest rate control and bank reserve management, I guess I would have said, on the one hand, I’m not sure about the \$5 trillion scenario, but having read the memos and heard the presentation today, I have a lot of confidence—and, again, echoing President Evans—in the staff.

Your potential policy responses made sense to me, and I have a lot confidence we’ll find a way to figure it out. But I do believe if we get to the point—which I hope we don’t—when we need to increase the actual size beyond the additional \$2½ trillion, I hope we’ll seriously consider these maturity extension options first before we actually increase the size of the balance sheet. We can talk more at a later time, but I think there is a political-economy sensitivity to the

size of our balance sheet, and I'd love to be able to find other ways to create accommodation that are short of increasing it further beyond the additional \$2½ trillion. Those are my comments.

Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. I want to join others in thanking the staff for these clear and concise memos. I, too, found the analysis helpful in framing the important and difficult decisions we face.

With market functioning having returned to normal and the pandemic having transitioned from a panic to a persistent grind, the continuation of the purchases we launched in March, especially at the current pace, has shifted to providing accommodation. I sense that the market came to this conclusion months ago. Providing guidance as to how these purchases fit into our overall monetary policy strategy and how best to communicate this to the public and the markets will be important not only as a matter of transparency and accountability, but also as an essential element of ensuring the effectiveness of these purchases. Not doing so is likely to result in repeated rounds of chasing the market, rather than guiding it.

Under different circumstances, the resumption of stable market functioning might have allowed us to ease back the purchases, understanding that they could be ramped up quickly if conditions were to deteriorate again. But persistent public health concerns and continued calls for further fiscal support have rendered that option moot and leave us with continuing these purchases as policy accommodation.

The question, then, is how to consider their role in the context of our overall strategy. In deciding between date-based and state-based frameworks, let me be the first here to say I see some appeal in a date-based approach. Part of this reflects my own preference to keep the

purchases tied to the evolution of the pandemic rather than to the achievement of our dual mandate. The ECB offers an example of making this link between its purchases and the pandemic explicit, and I'm sympathetic to that motivation.

Under a state-based approach, I believe we could run the risk of overcommitting this policy tool relative to our understanding of what it is able to achieve. Promising asset purchases until we achieve an inflation overshoot, for example, risks losing control of our balance sheet with ever-expansive purchases, as has been the experience with the Bank of Japan.

A more general framing of balance sheet guidance might allow us to recalibrate purchases as we judge the economy's progress. When considering guidance options, I prefer the general to the specific. And I prefer an implicit tie to the economic disruption of the pandemic, along lines similar to our guidance on the policy rate earlier this year, rather than a link to our longer-term objectives, as is our current guidance on the policy rate.

When discussing state-based guidance, as I looked at the memo options, I prefer a guide of "substantial progress toward" rather than "substantially closer to" our employment and inflation goals. Of course, if conditions deteriorate substantially, we do have the option of increasing the pace of purchases or extending a date.

With our recent forward guidance, we have essentially set the policy rate on autopilot, and so I see some advantage to maintaining optionality with asset purchases. By adjusting the parameters in response to developments in the economy, we have a mechanism for showing the public that we will deploy policy tools as necessary.

One adjustment that we might consider is the extension of duration with a simultaneous reduction in the overall size of purchases. This recalibration is consistent with the transition of the basis for our purchases from maintaining market functioning to the provision of

accommodation. The Bank of Canada showed last week that such a “pivot” is possible without disrupting markets. We could benefit from their example. That said, I would set a high bar with respect to further increases in the pace of purchases. With long-term interest rates as low as they are, I believe the capacity for purchases to further lower rates is largely tapped out. It’s quite possible, however, that an increased pace would further boost asset prices.

With the pandemic already contributing greatly to a widening of economic disparities, in terms of both the wealth distribution and the split between hard-hit small businesses and better-performing large firms, monetary policy accommodation that works primarily by boosting asset prices could only further advantage the already advantaged at the expense of the disadvantaged. Although our typical assumption is that accommodation lifts all boats, I believe we have to be particularly aware of the distributional consequences in the current uneven environment.

Finally, our consideration of asset purchases as a tool of monetary policy must also include an understanding of the constraint on our actions. Historically, it was well accepted that inflation was such a constraint. And although I continue to believe that inflation may constrain us in the long run, it seems likely that inflation in the near term will not be that signal to ease back on asset purchases. One potential constraint was featured in the staff memo on the operation of banks in high reserve environments even though it focused more on the technical aspects of monetary policy implementation. I think about the overall effect of a large balance sheet on the ability of the banking sector to sustain its traditional role in supporting economic growth.

When does our “footprint” become so large that it alters the functioning of the financial system in ways that are difficult to reverse? And when do we own such a large share of the MBS market that the Federal Reserve will forever be confined to playing a key role in housing market

finance? I don't have answers to those questions, but I don't think it's too soon to start thinking about how we get out of this. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Bowman, please.

MS. BOWMAN. Thank you, Chair Powell. I'd also like to add my thanks to the staff for the excellent background memos. As always, they really helped me shape my thinking in advance of our discussions. But I'd like to start with an observation that others have made and I also think is quite relevant for today's discussion. Economic and financial conditions have significantly improved, though unevenly, since the severe disruptions last spring. In retrospect, I think our asset purchases have played a role in generating these improvements. As we look ahead, considering the gains in financial and economic conditions, this is a good time to begin the process of assessing the purpose of further asset purchases. I've heard, as all of us have, from the staff and from outside contacts that market functioning appears to have essentially normalized. If that is the case, tying our ongoing purchases to sustaining smooth market functioning may no longer be the best approach.

Regarding the economy, if employment and economic activity continue to recover at a faster pace than in the staff forecast, we may need to reassess the degree of accommodation provided by our asset purchases sooner than we currently anticipate. But let me be very clear: I'm not saying that we should start scaling back our purchases now. Although the recovery thus far has been impressive, downside risks remain. And some of the improvement in financial conditions may very likely reflect expectations of further purchases. But, at some point in the not-too-distant future, I hope conditions will allow us to begin gently guiding expectations toward a gradual reduction in the pace of our purchases. And in the months ahead, my views on

the appropriate pace will be informed by their effect on risk-taking behavior in the financial markets.

I realize that one of the goals of this tool is to encourage lenders and investors to rebalance their portfolios toward risk assets, which in principle would result in lowering borrowing rates for businesses and households and increased spending. But at what point does additional risk-taking become excessive? In this context, I take some signal from the staff's latest assessment of the risk to financial stability, which points to elevated business debt vulnerabilities and increased asset valuation pressures.

One additional consideration that informs my views on this topic is that I'm mindful of the effects of our purchases on the size of the Federal Reserve's balance sheet. I'd like to see us consider ways to make our asset purchases more efficient in the sense of providing accommodation while reducing the need to expand the size of our balance sheet. We should not take for granted that we can continue to rapidly expand the size of the balance sheet, as we have so far this year, without attracting outside attention or generating adverse side effects.

And with this in mind, I'm also intrigued, as many others have noted, by last week's changes to the Bank of Canada's asset purchase program. The Bank reduced the size of their total purchases, while increasing the purchases of longer-term securities. And the Bank noted that it judged that the new configuration of its purchases would provide at least as much accommodation as the old one. So I would definitely like to hear more about the applicability of this experience to our circumstances here. I'd also be interested in the scope for something like the maturity extension program that the Committee implemented in 2011, when purchases of longer-term securities were matched by sales of shorter-term ones.

A more efficient implementation of our asset purchase program—where buying fewer assets while focusing more on purchases of longer-term securities—could also help address some of the issues raised in the third staff memo. For example, with a more efficient asset purchase program, aggregate bank reserves wouldn't have to increase as much, which could help mitigate the risk that overabundant reserves pose to our influence over the federal funds rate and other money market rates.

And, finally, recognizing that communications with the public about our asset purchase plans can be very tricky, we would of course want to be very careful to avoid unwelcome financial market reactions or another taper tantrum. That said, it's still worth considering potential strategies for guiding market expectations, first to a more efficient asset purchase program and ultimately to scaling down the accommodation that we are currently providing with our purchases.

Regarding guidance, I see greater promise in state-based guidance than in date-based guidance. State-based guidance could provide greater clarity to the public about our purchase strategy as well as give us greater flexibility to adjust in response to changing conditions. In thinking about state-based guidance, I prefer approaches that clearly emphasize that we expect to end our current asset purchase program well before we start raising the target range for the federal funds rate. I'll stop there, and I'll look forward to future discussions on this topic. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles, please.

MR. QUARLES. Thank you, Chair. We always say this, and all of us always say it, but I don't think it can be said enough. We have a great staff. These were excellent memos. They

were both clear and clarifying, and they have set up, I think, a really interesting discussion this morning, and I'm very grateful for it.

So, what's the context in which we're evaluating these questions on asset purchases? As Governor Bowman noted, the economy has continued a robust recovery through October. But we are still far from meeting our full employment goal. And even a sunny optimist like me will recognize that downside risks related to the COVID-19 event have increased somewhat in recent weeks. So the economy continues to benefit from support. And although I want to reflect more on President Bostic's always interesting thoughts from this morning, I think that maintaining the current pace of asset purchases is an important part of that support.

Governor Brainard went through a comprehensive review of the Treasury security issuance situation, which I fully agree with. I don't know if that's the first time in one of these meetings that I have said that. Long-term interest rates in the United States are very low, but the memo details how the market's expectations about future purchases are preventing premature and meaningful increases in longer-term rates.

You know, the Congressional Budget Office's latest projections for the federal deficit and debt include a \$1.8 trillion deficit for next year. And, of course, I always look at that in the context of—in my last year as the domestic undersecretary of the Treasury, responsible for the debt management among other things, we had a \$116 billion deficit, and people were losing their minds over the profligacy of it all.

And, on top of that, the ratio for publicly held federal debt to GDP will reach its highest level ever, according to CBO projections—higher than in World War II—by 2023. So the staff estimate that that level of issuance and, as Governor Brainard emphasized, and very importantly,

the expected increases in the weighted average maturity of the federal debt would add between 85 and 150 basis points to the term premium over the next few years.

But an asset purchase program that met the market expectations given in the September Desk survey would offset that increase in the term premium about exactly: It would add about 0.7 percentage point to GDP through 2023. So, against that backdrop, I would not want our communications about asset purchases to be materially less accommodative than the communications in our current policy statement. But, as many of you have said, I would like the guidance on purchases to remain more flexible than the commitment that we made in our forward guidance on rates.

Now, that may be a difficult needle to thread, because the Desk survey indicates that market participants are interpreting our intention to continue the current pace of asset purchases “over coming months” quite expansively, with significant asset purchases continuing well into 2022, which is quite a few months coming. But Oliver Wendell Holmes famously said that the Constitution does not exist to enact Herbert Spencer’s *Social Statics*, and, similarly, the Federal Reserve does not exist to validate market expectations. So we shouldn’t put undue weight on them if they’re out of sync with our forecast.

Now, in that case, the staff’s baseline forecast for 2021 already includes continuing the current level of purchases through the end of next year. And those projections, that baseline forecast, is consistent with that pace and duration of purchases. But we are seeing continued outperformance of the economy relative to each projection. And the current projection does not assume any additional fiscal policy support to the economy.

I think that whatever is happening on the interactive maps while we are meeting here, I think there is going to be additional fiscal support. So I put significant weight on the support

scenarios in the Tealbook. And those alternative or additional support scenarios have unemployment reaching 4.6 percent or lower by the fourth quarter of next year, 2021, and I would hope that we had at least begun tapering asset purchases by the time unemployment declines to those levels.

And, conversely, if the economic outlook were to weaken substantially, I wouldn't necessarily oppose a decision to increase asset purchases. I'd want to be careful that the benefits continue to outweigh the costs. I am already beginning to reflect on President Bostic's comments. I see uncertainty about the effects of asset purchases as quite high right now. And our experience in coming months may suggest the need for a better understanding of the mechanisms that are at work here.

Moreover, in light of the level and trajectory of the federal debt, the public may view an expansion of our asset purchase program, especially if it coincides with another large spending package, as fiscal accommodation rather than monetary accommodation. That hasn't become a drumbeat yet, but it could easily become one. So because the current market expectations about the size of purchases and the high level of uncertainty in the outlook make date-based guidance difficult to calibrate relative to the existing guidance on rates, I prefer state-based guidance at this time.

My generally more upbeat assessment of the outlook and a desire for asset purchases to fully taper before the conditions to increase interest rates are attained would lead me to choose a potential date at which to begin tapering purchases that likely would be much sooner than what markets currently expect. And so for those reasons, I prefer language that's similar to that in example 6 of the staff memo, which says that asset purchases would continue "until substantial progress has been made toward the Committee's employment and inflation goals."

On the question of market functioning, I'm somewhat hesitant to put on the flight suit on the deck of the aircraft carrier and declare a victory or to reduce purchases on the short end of the curve just yet. I indicated that market functioning and liquidity obviously have generally returned to normal. In the absence of further shocks, markets seem to be absorbing the current pace of Treasury issuance.

But the continued substantial issuance of securities by the Treasury—which a large fiscal package in coming months would exacerbate—combined with the increased uncertainty in the outlook and associated higher volatility argues for caution, in my view. Over recent weeks, I've had a number of public exchanges with Darrell Duffie and others who have expressed concern about whether during a stress event the private sector currently has the capacity to absorb the flows generated by the much larger stack of Treasury securities. Overall, I prefer wording close to that of example 4 in the memo, “The Committee will adjust purchases to maintain accommodative financial conditions and support the attainment of its employment and inflation objectives.”

So then, finally, turning to the related issue of whether the banking system has the capacity to absorb a large quantity of central bank reserves, I thought the memo and the briefings on this topic were comprehensive, very informative. I agree with the analysis that at the lower level, at the \$2½ trillion level, the banking system would have the capacity to absorb those reserves.

I am somewhat more skeptical, maybe materially more skeptical, that it will absorb even the smaller \$2½ trillion of additional reserves without some unintended effects. So you'll all remember, there was a lot of concern in the spring about the limitations of the leverage ratio on the significant increase in deposits. That was a particular problem for the processing banks.

And then the pressures of the spring abated. The universal banks had generally said, “We’re comfortable with where we are.” The large universal banks have begun, over the course of the past month, coming in to say, “We are now concerned about our compliance with the leverage ratio, with the supplemental leverage ratio, and significantly with the tier 1 leverage ratio.” And we could look at that from our vantage point and say, “Well, they’ll just issue some more capital then.” You know, they can continue to absorb these deposits and deploy them in loans if necessary, and they’ll issue some more capital in order to comply. And they can do that, but I do not believe they will. If I were the CEO of a bank, I would not do that. I would find some other way of managing my reserves so I didn’t run into those leverage ratio constraints. And that’s a problem, again, that’s been raised—not with folks’ hair on fire, but it is being raised currently as something that large banks and smaller banks are saying: “We need to begin managing our reserves down now so that we don’t run into these limits.”

You all know we provided temporary relief from the supplemental leverage ratio for the large banks—they were subject to that regulation. And we have the authority to do that simply as a matter of regulation. But the tier 1 leverage ratio is becoming an issue for some of these firms. And we cannot change the tier 1 leverage ratio without a legislative change. That would require a change to the Collins Amendment.

Over the course of the summer, in light of what happened in the spring, I proposed a change to the law that would allow us to make just temporary variances in an emergency to prevent this constraint on financing. I was immediately met from some quarters on the Hill with hyperventilating outrage that would have been equally appropriate had I offended decency in a public park. So I think that actions on the leverage ratio will be hard as a matter of political economy. And, as a result, I see the options for funding asset purchases through alternatives to

reserves as likely to be necessary, and necessary sooner rather than later—probably sooner than is indicated in the staff memo.

We have the overnight RRP option. That could be expanded to include additional counterparties. But that means we'd be draining deposits and reserves from the banking system, in which they're generally considered to be stability enhancing, and creating a larger money market fund sector. Now, in one sense, money fund liquidity is enhanced when they hold Federal Reserve assets. Jeremy Stein and others have argued that for some time. But one of the principal lessons of March was that simply having larger and more liquid liquidity buffers in money market funds does not necessarily ensure stability if the regulatory framework does not allow those buffers to be usable.

And, indeed, we had larger liquidity buffers in the money market funds that were subject to pressure in the spring. But the regulatory framework implied that people needed to be worried about gates or fees being imposed in order to preserve those liquidity buffers, and that created a whole set of contagion pressures on their own. So, without broader reform in the money market fund sector, I think vulnerabilities remain high if our solution was to push the liquidity there.

Another option would be to establish a special financing program with the Treasury. This avoids the potential financial stability risk associated with market participants flocking to the overnight reverse repo facility in a stress event. That brings its own concerns about coordination with the Treasury and could raise questions about our independence. I think, there, the coordination would be in the service of our objectives. I remember one of the first lessons I learned about federal bureaucracy when I arrived 30 years ago, working for a young assistant secretary named Jerome Hayden Powell, was that coordination is what you do to the other guy.

And so as long as the coordination is in favor of our principles, I'm not sure that I would be concerned about it.

So, to summarize, I think our asset purchases are providing necessary support for the economy. They're insurance against renewed market stress. So a revised communications strategy should maintain the current level of accommodation but be based on a policy that can be adjusted to both upside and downside risks. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. First Vice President Feldman, please.

MR. FELDMAN. Thank you, Mr. Chair. And thanks to everyone who helped prepare the memos. Like everyone said, they were very helpful. We're going to largely be repetitive of what's gone before. I'll have to talk to Neel about picking when to go last next time I have to do this.

We said that the current objective is maintaining policy accommodation as opposed to market functioning. We are comfortable with moving to that language. It doesn't have to happen immediately, but we're comfortable with making clear to market participants and the public that that's really what our objective is. In doing so, I think we want to be careful not to somehow suggest that we wouldn't step back in if market functioning was the issue. I don't think that's going to be difficult, but we should just keep that in mind.

In terms of the factors that we're considering, we view the asset purchase program as just being part of our tool set to achieve the right level of accommodation toward the dual mandate. Right now, we believe that the current program is effective; it is consistent with the right level of accommodation; and, as many have said, we wouldn't change it—it seems to be working. That said, if conditions worsen, then we would, with all of our tools, respond to current conditions and our forecast.

In terms of communication, we are also in favor of a state-based approach. We would want to synchronize what we're doing with asset purchases so that it's at least consistent with the general direction of what we're doing with regard to rates. And maybe building on what President Kaplan said, we would want to be clear about the process that would be used not just as we continue asset purchases, but as we decide to reduce them before interest rates change.

And then, finally, in terms of the tools that are available to us, we're comfortable with those tools and, in particular, increasing the ON RRP or changing the maturity composition of what we're buying—those seem like the most effective of the ones that were available.

Thank you.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you, Mr. Chair. I promised Neel I would channel him a little bit and go last on at least one of them, so here I am. And it goes without saying, then, that all of my remarks will have callouts to all of you as if I were at the Oscars, so just consider yourself acknowledged on that.

But I really do want to second the sentiment that Governor Quarles put forth about the thanks to the staff. It can seem like, if you hear it a lot, it's just the *pro forma* part of our jobs, but it's actually not at all. I think the staff memos through the long-run framework review, through the crisis, and now have just been top notch and really contribute so materially to the debate. So I'm going to just second that sentiment.

Now, as financial markets have recovered from the severe stresses from earlier this year, the role of our asset purchases, to my mind, has just naturally evolved. At this point, I see our asset purchases primarily providing policy accommodation and further support to the economy. Although, as many have noted, I don't want to discount the fact that just their presence is a

backstop that gives us a sense of insurance to the financial sector even if it's not the primary reason they're there. All of this that I just said seems largely in line with market commentary on the subject, so I think the markets are aligned on those views and probably have been for some time.

So then the question to my mind is, what more is needed, and what's the best way to communicate this to the public? So let me start with what more is needed. Even in the optimistic scenarios—and I do have a little bit of that sunny optimist in me as well—it seems clear that the economy will require some additional support to return to full employment and to 2 percent inflation on average. And, because of the size of the hole we're in—which I'll talk about later—even with the rapid recovery we've had, we now have a recession that looks a little bit more like the financial crisis recession, which I think most of us hoped would be the worst thing we saw in our lifetimes. So, taking into account the size of the hole, we're going to probably need to extend our asset purchases, along with the low federal funds rate and the robust forward guidance we've already put into place. To me, that's appropriate policy.

On when and how we should best communicate our plans, I'm influenced by the lessons drawn from the previous crisis, which many people have already mentioned. A key “takeaway” for me from that experience is, our policies are most powerful when they're used holistically, in coordination, as the staff memos highlight. So now with the long-run framework and the September funds rate guidance in place, I see it as the next appropriate step to provide more clarity about the future time path of our asset purchases.

And, again, the markets are mostly there. The yield curve is virtually flat, and the 10-year Treasury rate is below 1 percent despite improving economic data and an expected flood of Treasury issuance. But the Desk survey also suggests or confirms that primary dealers and

other market participants expect us to continue purchases of Treasury securities at the current pace at least through next year. And those expectations are providing important support—in fact, contributing to the yield curve being relatively flat and to the 10-year Treasury rate being low. So they’re endogenous, essentially, and we can’t really take, I don’t think, a lot of comfort from the place that markets are in today, given that they have those expectations built into why they think that. And when I think about that, I find the range of current disagreement on expected purchases just to be uncomfortably large, especially when we know markets can be fickle.

So moving away quickly, as early as December, from the “in coming months” language, I find to be important. It will clarify our plans and ensure that markets hold on to our policy views and not be pushed around by the volatile changes in the news—which can go from very good to very bad very quickly. And I would rather them stay highly centered on our own views even as our own views evolve.

In terms of specifics, I think it’s important to solidify our expectations, as I said, around our other policy goals, the policy stance. And I think the way Governor Brainard said it is right. We want these to be integrated, right? We want them to be holistic. So I’m attracted to the example from the ECB or the Bank of Canada—or, if we’re looking at the memos, example 6 or example 4—but, basically, things that say, “We are going to continue to support the economy through all of our tools, asset purchases included, until we are nearing our full employment or our full recovery goal.”

And regarding the timing that many have laid out where we taper before we lift off, that all makes sense, but we have some time ahead of us before I think those things are likely. I personally would also like to shift the composition of our balance sheet toward longer-dated

assets, following the “more bang for your buck” policy. But, also, it’s consistent with our lower-for-longer stance. We want to keep the long rate low, in my opinion, to further stimulate the economy. It also, if you think about reserves, is one of the tools we can use to not have reserves be too high and then have to use tools we’re less confident in.

So if we do all of this, to my mind, this would confirm in writing, in our statement, what we’ve already implied with our stated commitment that, Chair, you make regularly, that we’re committed to using all of our tools to achieve our goals.

Finally, I’d like to say a few words about the costs and benefits of a larger balance sheet. I know this has come up repeatedly. It came up repeatedly in the previous debates and is coming up now. On the cost side, I understand the argument that a large and expanding balance sheet can lead to financial fragilities or political concerns. But, for the past decade, we’ve been thinking about those things and examining the potential issues. And, so far, at least my reading of the evidence does not reveal a strong link on either of those fronts. Moreover, I’d say our financial stability monitoring that we’ve put in place, our “tabletop” exercises, have proven to be effective tools for identifying risks and thinking about how best to mitigate them more directly without using the blunt tool of monetary policy.

I’d also note that our expanded outreach to the Congress—and, Chair Powell, you’ve done this, but so have many others—and to the public have helped improve understanding of our actions and reduced the concerns that we are overstepping our role or that we’re simply financing the debt as opposed to performing monetary policy. The work is still ahead of us, but I think we have proven that we can do that effectively. So, in other words, though the potential costs are well known—the theoretical ones are possible—the actual ones have really been harder to see and find in the data.

In contrast, the benefits of our asset purchase programs seem clear. They are already adding valuable support to the economy. Whether it's the signaling channel or another channel, all of those channels have power. So it is just one of our tools in the toolkit, and using it, even if its effectiveness is lower in a stack ranking than the funds rate or forward guidance, assures that we are doing all we can to achieve our dual-mandate goals. And with the economy, again, in such a deep hole and us not fully out of the coronavirus crisis, doing all we can is imperative.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. And let me echo what a great job the staff did here with the memos and also in the Q&A today. I'm really proud to be associated with you. And it has been great all along. A principal goal of this meeting, though, was to explore different ideas about the path forward for asset purchases. And I feel very much that this has been a great discussion from that standpoint. I hear a lot of good ideas—a number of them had not occurred to me—and a lot of common ground as well.

I haven't personally reached definitive conclusions and will reflect a lot on what's been said today. And I do expect that the path forward will become clearer as events evolve, as is always the case. So I'll offer just a few current thoughts, though. I guess I see our highly accommodative policy stance as appropriate for the current state of the economy and for the baseline outlook. Policy, as we sometimes like to say, is in a good place for now.

In recent months we've completed our monetary policy review and unanimously approved a revised policy framework now embodied in the revised consensus statement. And we've implemented forward guidance on rate policy that's consistent with the new consensus statement. Our lending programs have done a lot of good and are now mainly operating as backstops. The facilities set up under the CARES Act terminate on December 31 unless

extended. We would likely support such extensions, of course, but that decision requires the agreement of the Treasury and is something we will turn to in coming weeks.

That leaves the asset purchase program, and there's a growing focus on how our plans will evolve. I do not see an urgent need to adjust the program, which is delivering substantial support for market function and economic activity. On "market function," I would just add that I do think that the life expectancy of the market function language has longer to run. I wouldn't be eager to take that out, but I do think its time will come, and that could be in the first quarter or second quarter of next year. But, for now, I would keep it for the reasons that others have said.

Also, the environment can change very quickly, as it has in Europe. So it's timely for the Committee to be thinking carefully about our next steps. So I thought the memos did a great job of laying out the considerations regarding this question as well as ways to think about adjusting the many parameters of the asset purchase program. And we're going to face a series of questions that will begin soon and last for several years about the evolution of the program. While we're mainly focusing on the near term today, I find it helpful to consider the next steps in light of a broad conception of the program's path from start through ultimate balance sheet normalization, as a number of you have mentioned as well.

I see the program evolving through a series of phases like those that played out in the previous cycle and that markets are likely to come to expect unless we guide them otherwise. Of course, we're not bound to the path from the previous cycle, and "this time will be different," to coin a phrase. In particular, policy is likely to remain accommodative for longer under flexible average inflation targeting as we seek inflation that runs moderately above 2 percent for some time and as we react to shortfalls from maximum employment.

So, in this first phase, which is the one we’re in now, asset purchases are providing, in my view, significant support for market function and economic activity. They are an important tool and a component of our overall policy stance, albeit in a supporting role for our main tool, the federal funds rate. During this phase, we have the ability to provide additional accommodation, for example, by increasing the size of purchases, by shifting purchases toward longer maturities, or by changing the composition of purchases. Though all of these options are available to us, if the economy performs worse than expected, I would hold off on those for now, at least in the short term, and I would resist the temptation in any case to make small moves that can be easily misunderstood generally—something I’ll come back to.

It may, however, in my view, be desirable to update the guidance on asset purchases fairly soon—in particular, to modify the language “over coming months.” And this will likely be the first of many decisions we’ll need to make over time. That language has served us well, putting us in a holding pattern while we awaited evidence on whether the recovery would gain a solid foothold.

Surveys show that markets broadly expect purchases to continue at least at the current pace through the end of next year, and that seems about right to me in the base case. So we could, at an upcoming meeting, change the guidance to say that we expect purchases to continue at least at the current level until we reach some state-based goal. And I would like to link it to a state-based goal, referencing perhaps further progress toward our statutory goals and confidence that we’re on track to achieve them. I think there are a whole bunch of different elements.

The idea of integrating that set of goals into our longer-run goals and into our broader guidance on rates is a good one, and I think we’ll look at a lot of language over time to see how that might work. I’m not proposing language here today, just the general idea. I would not try to

be too precise about when that will be—I would not. And the reason is, there's so much uncertainty about the path of the economy. Although it might be appropriate when the time comes to note that market expectations, as I mentioned a minute ago, were consistent with the baseline case, assuming that is still true.

Of course, we won't simply stop asset purchases cold. The second phase will very likely begin when we announce a gradual taper, stressing that purchases are not on a preset course. No doubt. The taper for QE3, as others have mentioned, took about a year to complete. And this time, markets will be looking for something like that and will be open to guidance or to different approaches. It may be longer, as some of you noted.

Anyway, once that taper is complete, there will likely be a third phase, which can be short or long, in which we're holding the balance sheet constant. We would presumably announce guidance about the timing of balance sheet normalization, presumably linked to the conditions for liftoff that we specified at the previous meeting. And the length of this phase will depend on the path of the economy and on progress toward our goals as specified in the guidance that we've given.

In the case of QE3, another full year passed between the end of the taper and liftoff. Under our new approach, our new framework, it may well be appropriate for that to be shorter, because we will have held policy accommodative for longer. But I think that's something we'll be exploring.

So this broad sequence of events will be familiar to the public and pretty much as expected. It's essentially what we did in the previous cycle. And I think it's useful and appropriate, as a number of you mentioned, that we just keep this broad sequencing in mind, even though we would not be making or announcing all of the other decisions that are best

made later. But I think we do need to be mindful of the path forward when we start making the first decision.

So I guess I would consider changing the asset purchase guidance fairly soon. We know we've got to be very careful with communications about asset purchases, telegraphing our moves well in advance, and moving at a stately pace when the time comes. Communicating our intentions fairly soon, well in advance of taking action, will minimize the chances of an unwanted tightening in financial conditions. In addition, there's a risk that markets will just push expectations further out if we fail to provide clear guidance.

The performance of the economy in the period ahead is, of course, highly uncertain. It's possible the economy will recover strongly in 2021 and bring us much closer to our goals. It's also possible that the current spike in cases or a substantial delay in the arrival of a vaccine will bring far less positive outcomes, and all of those are illustrated in various alternative simulations. We need to be ready in case a downside scenario does come to pass, and our response may require a forceful strengthening of our asset purchase program.

Finally, on the baseline path, I am reasonably confident that the costs and risks of expanding the balance sheet would not pose significant concerns at present. There's uncertainty about that. We saw what happened in September 2019. But we do have the tools to manage the balance sheet and reserves implications of purchases under the sort of plan I've been describing. Banks can adjust. We can adjust. And I think we've been able to figure it out, as some of you noted.

I will close with a couple of smaller points. One, in what we do and what we say publicly, I think it's extremely important not to send negative signals—for example, that we're losing heart or that we doubt the efficacy of our tools. I think it's always going to be appropriate

for us to perpetuate the view that the market now has that we are strongly committed to using our very powerful tools until the job is well and truly done. So I do think that that is itself a tool, and I think we've learned, to the extent that we deviate from that and show a lack of resolve, if you will, you'll wind up having to do more, not less.

The last thing I'll say is that, particularly when it comes to asset purchases, you've got to be so careful and risk averse on changes. So I would lean heavily toward the "don't mess with success" school of approach to changes. Nonetheless, I will just close by saying, this was a really excellent discussion—very much what all of us had hoped to achieve. So thank you very much for it. And, with that, at almost exactly noon, we will break for lunch, and we'll get back together at 1:00 sharp. Thanks very much.

[Lunch recess]

CHAIR POWELL. Thank you. And welcome back, everybody. Next we'll have our discussion of economic and financial developments, including financial stability, and we'll start with the briefing on domestic economic developments from Paul Lengermann. Paul, please.

MR. LENGERMANN. Thank you. Can everyone hear me?

CHAIR POWELL. Yes.

MR. LENGERMANN.<sup>3</sup> All right. My materials are going to start on page 38 of the packet. I'll begin with a quick review of the near-term data and outlook in light of the news we've received since the October Tealbook. As you can see in panel 1, real GDP rose at a 33 percent annual rate last quarter, though the level of GDP remains well below its previous peak. This record growth was surprisingly strong in all the main categories of domestic final demand. Consumer spending, line 4, contributed the bulk of the Q3 increase, but both residential and business fixed investment, line 6, also snapped back and by more than we anticipated in September.

The stronger GDP data, combined with the slight deterioration in equity prices since the October Tealbook, left our medium-term projection for economic activity little changed. The bulk of the Q3 rebound reflects the jump in activity in May and June as the economy reopened following COVID-19 lockdowns. Since then, the

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

recovery has been proceeding more moderately. We now expect GDP growth of 3.4 percent in the fourth quarter and then expect growth to slow to just under 1 percent in the first half of next year as fiscal support unwinds.

We have only limited data on activity in the current quarter. Weekly retail spending data from market research company NPD, the black line in panel 2, have been choppy but suggest sales held up through late October. Business spending is bouncing back much faster than in previous recoveries. As shown in panel 3, capital goods shipments, the black line, quickly ramped back up to pre-pandemic levels. The flattening out of orders, the red line, at a level a bit above shipments signals more moderate investment in the months ahead.

Panel 4 shows alternative measures of the monthly change in private payrolls, which exclude the swings to Census employment in government payrolls. The blue bars are the BLS estimates, while the red bars are our estimate from the ADP microdata on paid employment. As indicated by the hashed blue bar, we project a gain of 825,000 jobs in October in the BLS report due out this Friday, well below the ADP–FRB estimate of 1.4 million. While this discrepancy could indicate some upside risk, the lower BLS figure we project is consistent with a shrinking pool of workers on temporary layoff and a limited recovery in the hardest-hit service industries.

Your next exhibit reviews recent developments for inflation. Friday's release of PCE prices through September surprised slightly to the downside, leaving the 12-month change for core PCE prices, the black line in panel 5, at 1.5 percent, lower than our October Tealbook projection but still up markedly from the trough in April. The other two lines in the panel show alternative measures of inflation that attempt to abstract from volatile or idiosyncratic factors.

Comparing the three series shows that the bulk of recent fluctuations in the core index reflects idiosyncratic factors, such as changes in categories vulnerable to social distancing, like accommodation, airfares, and apparel, as well as a strong acceleration in used vehicle prices. Still, according to all three measures, inflation is lower than before the pandemic.

As shown by the black line in panel 6, a sharp rebound in goods prices this summer was strong enough to push the 12-month change close to zero, which historically has been unusual and transitory. Within goods prices, price increases of durable goods—most notably, motor vehicles and major household appliances—were particularly strong, consistent with surging demand for many of these goods along with some supply disruptions. We expect that the high inflation rates in these categories will prove transitory. Indeed, durable goods prices slowed in September.

In contrast to goods, panel 7 highlights the recent soft readings on housing services. While these prices had risen steadily in recent years, shown on the left, they have moved up more slowly since the pandemic and have been contributing less to overall core inflation, shown on the right. Rent inflation could be slowing for many

reasons, but—in addition to the usual effect of labor market slack—a rapid shift in housing demand away from urban centers may be playing a role.

Putting it together, panel 8 shows that core inflation slowed in September as goods prices, the red bars, flattened out, and soft readings on housing services weighed on overall services inflation, the blue bars. As shown by the bars in the shaded area, we expect modest monthly inflation for the next few months as these trends continue.

Turning to the next exhibit, I'll summarize our medium- and longer-term projections. Because the revisions since the September Tealbook are relatively small, here I focus on how our projection has evolved over the course of the year. Though still historic, we expect the 2020 contraction to be less severe than we did in May. As shown in the inset box in panel 9, we now project a decline in GDP of 2.6 percent this year, nearly 4½ percentage points less than we projected in May.

What have we learned? For one, the goods sector has been surprisingly resilient: Consumer spending on goods is well above pre-pandemic levels, and home sales are at their highest level since 2006. Beyond 2020, the outlook remains tremendously uncertain. We now anticipate the recovery will be flatter through the middle of next year. In part, this reflects our interpretation that much of the surprising strength since May was a pull-forward of gains we expected to see later. Also, relative to May, we expect a bit more restraint from social distancing early next year.

By the middle of next year, we'll have reached a point at which more rapid progress requires an end to the health crisis. This same pattern of surprising resilience followed by moderating improvements also shows up in unemployment and inflation in panels 10 and 11. Panel 12 highlights the large revisions the staff has made to its federal funds rate assumption. The revision from January to May of course reflects the policy actions taken in response to COVID-19. The revision since May reflects the staff's adoption in September of an interest rate rule meant to be broadly consistent with the updated consensus statement. This change has the funds rate lift off much later and rise more slowly.

The revisions to our policy rule, along with our assumption this round that SOMA purchases will continue through 2021, add to the already substantial support we expected from accommodative monetary policy in the May Tealbook. By the end of 2023, we project that output and unemployment will have largely returned to their values in the January Tealbook. Beyond 2023, our projection is stronger than in January. Core inflation briefly breaches 2 percent in the middle of next year—reflecting the swings this year—before settling back down below 2 percent through 2023 and rising to 2.2 percent in 2027.

Of course, other outcomes are possible, and in the next exhibit, I'll discuss two especially salient risks to our projection. The first and most obvious is COVID-19. Once again, cases are rising sharply in the United States. Panel 13 shows that the number of hospitalizations, the blue line, is moving up, along with the positivity rate,

the black line. And although the number of deaths has remained stable, the numbers typically lag the spread of the virus.

Our baseline assumes the spike in cases will be contained as in the summer without the need for costly mitigation measures, but the risk of such measures has risen. Indeed, as Paul will describe shortly, new lockdowns have been announced in Europe.

A second, but upside, risk is fiscal policy. Panel 14 illustrates just how much we think the withdrawal of the unprecedented support enacted earlier this year will weigh on activity early next year. In the October Tealbook, the staff removed the \$1 trillion in additional fiscal support we previously assumed would be enacted this quarter. But regardless of how the election results play out, the prospect of additional stimulus is a clear upside risk. In the November primary dealer survey, the median respondent attached a 75 percent probability of additional stimulus over the next six months, with the median expected size around \$2 trillion.

Panels 15 and 16 contrast our baseline outlook for GDP and the unemployment rate with the corresponding outcomes from the “Second Wave” and “Additional Fiscal Support” alternative scenarios. The “Additional Fiscal Support” scenario considers the effect of a \$2 trillion package that begins later this year. It greatly accelerates the recovery early next year, with the level of GDP 2½ percent higher than the baseline by midyear and the unemployment rate 1 percentage point lower.

In the “Second Wave” scenario, broad reinstatement of social distancing in the fourth quarter, along with a deterioration in financial conditions, depresses household and business spending, while a slump in foreign demand and a stronger dollar lower exports. By the middle of next year, the unemployment rate reaches 8.7 percent and GDP falls nearly 5 percent.

The next two exhibits dive a little deeper into consumer spending and why we expect growth to moderate in coming quarters. Panel 17 shows the quarterly contour of PCE growth through next year on the left side and the annual growth rates on the right. Growth is decomposed into contributions from factors like fiscal stimulus and social distancing. For example, the historic decline in PCE in the second quarter was largely driven by social distancing, as shown in the green bars, and would have been considerably larger were it not for the outsized support coming from fiscal stimulus, shown in the orange bars.

In 2021, the unwinding of fiscal stimulus imposes a significant drag in the first half of the year, but spending accelerates later in the year as that drag fades and social distancing lifts. Over the first half of 2021, we project PCE to decline modestly. This may seem unusual, in light of the ongoing labor market improvement that we expect and the elevated saving rate, shown in panel 18, which should lift spending.

Two factors are at play. First, panel 19 shows that durable goods spending has been above the pre-COVID trend for several months, even though lost second-quarter

spending has already been made up. While households' desired stock of durables is likely above its level before the pandemic because they are spending more time at home and interest rates are low, it seems unlikely that households will continue to accumulate new furniture and cars at a pace so far above trend indefinitely.

The second factor is that the saving rate masks considerable heterogeneity among households. Panel 20 shows our estimate of the aggregate "excess" savings accrued by households through the third quarter. As discussed in a Tealbook box, excess savings are savings above what we projected in January. These savings cumulated to a whopping \$1.2 trillion by the end of Q3, as consumption has been depressed, the red bars, and unprecedented support being provided by fiscal policy, the yellow bars, has more than offset earnings losses, the blue bars.

Panel 21 decomposes accrued excess savings across income quartiles. Somewhat surprisingly, the savings cushion appears quite evenly distributed. In the case of low-income households, as seen on the left, fiscal policy support has more than offset earnings losses, while in the case of higher-income households, on the right, spending declines are an important reason for increased saving.

The implications of these different patterns are summarized in panel 22. We estimate that, on average, lower-income households have accrued enough liquid assets so that savings will not be exhausted until early in 2021. Of course, some households, particularly those ineligible for unemployment insurance, are already struggling financially. Thereafter, and with joblessness heavily concentrated in the bottom income quartile, we expect that spending for many such households will decline.

Another consideration informing our forecast is the expiration of forbearance programs and eviction moratoriums, though it is possible that they could prompt even sharper cutbacks than we have assumed. Our forecast is supported by analysis, shown in panel 23, using the Survey of Consumer Finances. We find that continuously unemployed households in the bottom two income quartiles, the blue and red dots, have accrued enough savings to maintain regular expenses through early next year.

One potential downside risk, shown in panel 24, results from a study based on checking balances for JPMorgan Chase bank account members, which found that balances for unemployed account holders dropped very sharply in August. However, the fact that spending has held up through October suggests a somewhat later savings "cliff" is more likely.

For higher-income households, we expect discretionary spending will recover only once social-distancing restrictions end and fears of the virus ease. Even then, we expect the saving rate for this group will remain elevated because of precautionary motives. An upside risk is that they may tap into accrued savings more quickly over the medium term. I'll now turn the presentation over to Paul Wood.

MR. WOOD.<sup>4</sup> Thank you, Paul. I'll be referring to the materials starting on page 46 of your packet. Since the September FOMC meeting, we learned that foreign economies rebounded more sharply than expected from their first-half collapse but that the way forward looks less favorable. Page 47 shows real GDP levels for key economies that have reported data for the third quarter. As shown to the left, real GDP in Canada and the euro area fell much more sharply than in the United States in the first half amid more severe lockdowns to combat the coronavirus, but strong third-quarter rebounds put their net output loss not much greater than that of U.S. real GDP.

As shown to the right, China's economy, the blue line, has recovered its entire first-quarter decline, boosted by effective virus containment and moderate policy support. Korea and Taiwan, the yellow and red lines, faced much smaller downturns, as their effective virus responses avoided widespread lockdowns, and their economies are now near or above pre-COVID levels. In contrast, Mexican real GDP, although also rebounding, remains much lower than at the end of last year, as uncontrolled virus spread in that country has depressed services activity even as manufacturing recovers along with exports to the United States.

As shown on page 48, the recovery in manufactured exports has been strong for Asian emerging market economies, particularly in electronics, the blue line, and, more recently, vehicles, the green line. Those economies and sectors have benefited from a rebound in the global economy, and they could be particularly vulnerable to a reversal of that trend. In the euro area, as shown by PMIs on the right, manufacturing activity continued a solid recovery through October, but services activity turned down as consumers pulled back amid a resurgence of the virus in Europe, the subject of your next slide.

Following the spring lockdowns, new coronavirus cases in the euro area and the United Kingdom, the yellow and red lines in the top left panel, were at low levels over the summer, but as Lorie discussed earlier, the autumn brought a sharp rise in cases throughout the region. Hospitalizations and deaths remain well below their levels in the spring but are on the rise and likely to follow new cases higher, even with improved treatment protocols that may reduce the lethality of the virus.

As shown on the bottom right, mobility connected to retail activity and work, which had recovered substantially over the summer, has slipped since September amid voluntary social distancing and government restrictions that were initially localized and limited. As discussed on page 50, as recent health trends deteriorated, government restrictions have become more widespread. Just in the past week, France, Germany, and England have imposed nationwide restrictions on activity.

Though broad based, these restrictions are less severe than in the spring. They mainly target mobility and social activities, effectively closing nonessential services such as bars, restaurants, cinemas, and gyms. Essential services, such as grocery

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

stores, pharmacies, gas stations, and hairdressers, remain open in many countries. While teleworking is strongly encouraged, mobility for work reasons is permitted, and schools are still open in many regions. Moreover, in contrast to the spring lockdowns, factories are allowed to continue operating in most areas.

The table shows our “heat map” of the stringency of restrictions in the euro area and the United Kingdom this year and our assumptions about future steps. After severe lockdowns, the red bars, in April, restrictions loosened to a notable level, orange, in the following months and to moderate, yellow, over the summer. The return to “orange” in November represents the reimposition of widespread notable restrictions.

We assume that current restrictions will largely remain in place through January, and that governments will be able to control the virus spread with these measures and stabilize their health systems. We assume these measures will be relaxed to “yellow” starting in February, and the virus will be controlled from June onward, with a vaccine available to certain subgroups in the population, although not widely available until the second half of the year. The plus signs indicate that we have increased our assumed restrictions in these countries through May of next year.

The extent of economic damage will depend in part on the degree of fiscal policy support, discussed on page 51. As European governments announced new restrictions, they indicated new income support for households and businesses. France and Germany announced new aid to small businesses, and the United Kingdom extended its job retention scheme, instead of phasing it out as originally planned.

These extensions add to the significant contribution of advanced foreign economy fiscal policy to GDP growth, the red bars, this year and help avoid a fiscal cliff, with only a modest drag on GDP next year as fiscal support lessens. Fiscal policy in emerging market economies, shown in blue, also has boosted GDP this year but is subjected to more limited fiscal space. Brazil is an example in which active fiscal policy has helped the economy this year, but the increase in debt will limit future support.

As discussed on page 52, central banks abroad are exploring options to address the renewed economic headwinds. With the U.K. economy facing a new lockdown and Brexit negotiations sowing uncertainty, we expect the Bank of England to increase the size of its Asset Purchase Programme and extend its end date into next year—probably at its policy meeting tomorrow.

The Bank has also openly considered other policy tools, including a negative policy rate. Preliminary analysis, published in the Bank’s *Monetary Policy Report*, highlighted potential drawbacks of negative rates, but market policy expectations, the red line on the left, suggest that market participants see some chance of negative rates next year.

Last week, the ECB signaled that, in December it “will recalibrate its instruments, as appropriate, to respond to the unfolding situation.” We expect a €500 billion addition to the ECB’s Pandemic Emergency Purchase Programme that I discussed this morning and a six-month extension to the end of next year. We also expect the ECB to improve the terms on its targeted longer-term refinancing operations, possibly by lowering further the most favorable rate, the dashed red line on the right, at which banks can borrow if they meet their lending objectives. That rate is currently 50 basis points below the ECB’s deposit facility rate.

Page 53 discusses our assessment of the near-term forecast for Europe, which we have been progressively revising down since September, as restrictions have become more widespread and severe. Several major European countries are shutting down large parts of the services economy for at least one month. With factories still open, recent solid manufacturing growth may continue, but, even with support from fiscal and monetary policies, uncertainty and loss of income threaten demand.

We now see real GDP in the United Kingdom and the euro area contracting significantly in the fourth quarter, around 10 percent at an annual rate. Although we have not yet built in widespread spillovers to other economies, the European contraction could be a significant drag on the global economic recovery, especially if financial stresses increase.

The red line in the left panel of page 54 shows our forecast of the path of real GDP in the euro area. After contraction this quarter and a timid recovery next quarter, we expect GDP to rebound more significantly through the rest of next year, as the economy more fully reopens and confidence returns. Our forecast for other foreign economies is a mixed bag. At one extreme, we expect China’s real GDP to resume its pre-COVID path. At the other extreme, Latin America is likely to suffer a long-lasting loss of GDP as those economies struggle with continued fallout associated with this year’s disruptions and the run-up in public debt reduces space for fiscal policy support.

Altogether, we project that foreign GDP, the black line on page 55, will flatten out over the next couple of quarters before resuming a recovery with above-trend growth over the next few years. With a resurgence of the virus in Europe and, to a lesser extent, in Canada, our baseline forecast is moving closer to the Tealbook’s “Second Wave” scenario, the blue line, in the near term.

This scenario, however, involves lockdowns that are more widespread across countries, with tightening of financial conditions that amplifies the economic effects, leading to more prolonged stagnation in the foreign economies. This scenario is less severe than that in the September Tealbook, but we now consider it to be more likely than we did in September.

There’s also a risk of a still more-adverse scenario if the development of effective vaccines is delayed and confidence among businesses and households deteriorates significantly amid doubts about the capacity of fiscal and monetary policies to

support the global recovery. In this scenario, shown by the orange line, the adverse financial shock is greater, with particular fallout for vulnerable emerging market economies that have limited policy space and structural problems, and foreign GDP in this scenario falls back to its second-quarter low by early 2022. Thank you.

MR. KILEY.<sup>5</sup> All right, Paul, thanks. I will pick it up with the materials that begin on page 56 in the consolidated deck, which summarize our view on conditions affecting the stability of the financial system. I will focus particularly on vulnerabilities that could amplify an adverse shock over the medium term, but I'll begin with near-term risks, summarized on page 57.

Outreach to a range of institutions conducted over September and October for this month's *Financial Stability Report*, or FSR, indicates that respondents' core concerns have shifted since the first half of the year. A greater number of respondents cited political uncertainty, corporate and SME defaults, and insufficient policy response—notably, fiscal policy response—while fewer cited COVID.

Note that the outreach was conducted before the recent upswing in COVID cases. Respondents also cited increased concerns about stretched asset valuations. Time will tell whether yesterday's election will lead to a diminution in some of these concerns, but the course and economic effect of COVID is likely to remain unclear for some time. Moreover, respondents' concerns over corporate and SME debt and asset valuations echo some of the issues discussed in the forthcoming FSR.

The next page turns to the staff's assessment of asset valuations: Accounting for low interest rates, valuations appear moderate, but prices remain vulnerable to significant declines. The importance of low interest rates jumps out when looking at equity prices and associated risk premiums, reported on page 59. Despite renewed volatility recently, equity prices relative to earnings are near historic highs, as shown in the left chart.

At the same time, measures of the compensation for risk associated with equities lie in the broad middle of their typical range, as can be seen in the two measures reported at the right. The black line reports a simple measure—the 12-month forward earnings–price ratio minus the real 10-year Treasury yield—which sits somewhat above its long-run median, while the blue line reports an estimate from a staff dividend discount model, which sits somewhat below its long-run median.

The story is much the same in corporate debt markets, discussed on page 60. Bond prices are high and yields are low, the left panel, reflecting the low level of Treasury yields. But compensation for risk is within typical ranges, as can be seen in the excess bond premium to the right. This measure estimates the compensation for risk embedded in bond prices above and beyond default risk and sits moderately below its historical median.

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

Overall, risk spreads do not point to excessive risk appetite. At the same time, uncertainty remains palpable, and the staff judge the risk of sizable declines in asset prices should an adverse shock hit as sizable. Moreover, commercial real estate is an area in which prices may decline even in the absence of negative shocks, as discussed on page 61.

To date, commercial real estate price indexes have started to decline in some sectors, as shown in the left chart. Market conditions, including rising vacancies and declining rents, point to a risk of further declines, especially in severely affected sectors. These risks can be seen in the prices of equity REITs for various sectors, the right chart, which show a sizable deterioration in the office, retail, and residential sectors. Some financial institutions may have substantial exposures to CRE, especially smaller banks.

The next page shows vulnerabilities associated with household and business borrowing. Overall, historically high levels of business debt and the weakening in household finances could pose a significant medium-run vulnerability for the financial system.

Page 63 reports total nonfinancial credit relative to GDP, which jumped during the first half of the year, reflecting increased borrowing and, to a larger extent, the drop in nominal GDP. The role of the decline in GDP in the ratio's jump can be seen by comparing the black line, where the denominator of the ratio is nominal GDP, with the blue line, where the denominator is nominal potential GDP as estimated by the CBO.

Relative to potential GDP, the increase in debt is much more modest. This comparison illustrates that policies that support the rapid return of income to potential are among the most important steps that can be taken to ameliorate vulnerabilities associated with private-sector debt—one example of the general point that policies to support full employment are often those that also support financial stability.

Regarding the next page, the staff judge that vulnerabilities associated with debt may weigh on households and businesses in coming years. Household finances may become increasingly strained. The left chart illustrates an aspect of these risks: While the set of mortgages that are delinquent is low, many mortgages are currently in forbearance programs—as are other types of household debt—and repayment challenges may rise.

In addition, business debt levels were high before COVID, as shown in the right panel. Net leverage for the subset of firms in Compustat, which are primarily publicly traded firms, sat near historic highs in 2019. Note that gross leverage of these companies, not shown, rose considerably in the first half of this year, but this increase is not apparent in net leverage, as it appears much of this borrowing was precautionary and went into cash holdings. The high level of business debt remains an important vulnerability that could amplify an adverse shock, as we have reported for some time.

Page 65 turns to financial leverage. To date, solvency concerns have not emerged for key financial institutions, but the pandemic will likely weaken balance sheets.

Page 66 illustrates the story for banks. As shown in the left panel, banks had substantial loss-absorbing capacity before COVID and generally remain resilient, with common equity tier 1 ratios edging up so far this year. Nonetheless, losses may accumulate, especially should adverse shocks materialize. Moreover, the weakened economy and low interest rates will weigh on bank profitability even along a baseline scenario.

Markets signal increased concerns of this type. For example, price-to-book ratios, reported to the right, point to investor concerns about a worsening in banks' medium-term prospects since COVID. The next page looks beyond banks. Though banks have generally been a source of resilience, nonbank financial intermediaries, notably, corporate debt mutual funds and money market funds, amplified the turmoil earlier this year; much of this reflected funding and liquidity pressures—issues I will turn to shortly.

Looking forward to potentially underappreciated vulnerabilities, we find that life insurers are relatively highly levered compared with historical norms, as shown in the left panel. Moreover, life insurers hold a substantial quantity of illiquid and risky corporate and CRE debt, the right panel. This combination—elevated leverage, risky assets, and limited liquidity—could spell funding troubles under a very adverse scenario. Nonetheless, at this point, these concerns simply bear watching and remain an area of staff research and focus.

Page 68 turns to funding risk. The big-picture story is that structural vulnerabilities in markets for short-term funding and corporate bonds remain. As shown on the next page, flows into money market mutual funds, the left panel, and into mutual funds investing in corporate debt, the right panel, have largely reversed the sizable outflows seen in March.

Emergency facilities were critical in restoring functioning and remain as backstops, but usage at all of the short-term funding facilities has declined dramatically since the spring. Nonetheless, the susceptibility of money funds to runs and liquidity mismatch at investment funds may require structural reforms. Shoring up funds that offer daily redemptions will require changes to reduce or eliminate the first-mover advantage that redeeming investors enjoy during stress episodes, and the staff is currently evaluating options for money fund reforms.

My final page wraps up. To summarize, high asset prices could fall sharply if adverse shocks are realized. Vulnerabilities in CRE and business debt are high. The resilience of the financial sector—including the banks—has arguably taken a hit and will be watched carefully. And structural vulnerabilities related to short-term funding and liquidity transformation remain, although emergency facilities likely limit near-term risks.

That concludes the set of presentations for this go-round. Both Pauls and I would be happy to answer any questions.

CHAIR POWELL. Thanks very much. Questions for our briefers? President Kaplan, please.

MR. KAPLAN. This is a question for Paul Lengermann. I appreciate your presentation. One question I had, and this goes to page 44, which tries to estimate when households—particularly lower-income households—are going to run out of savings.

I guess one concern we have here is recent weakness—and I mean in the past two or three weeks—in consumer spending. We are wondering if that doesn't indicate that maybe these lower-income households are running out of savings faster than we may have estimated. I am curious what your reaction is to that.

MR. LENGERMANN. That's certainly a possibility, though we haven't seen too much weakness yet in some of the high-frequency indicators we've seen. And so maybe the jury is still a little out on that, but certainly that's kind of why I showed the results from JPMorgan Chase Institute, which showed a possibility that excess savings are running down a bit faster than we've assumed.

The spending data were kind of mixed in October. It's messed up by, you know, Amazon Prime week and things like that, so it's hard to tease out what's happening in the high-frequency data that we're seeing. But, certainly, if we saw a more consistent downturn in some of those indicators, it might be a reason to worry.

MR. KAPLAN. Okay. Thank you, Paul.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you. This is for Paul Lengermann and maybe Mike Kiley. So—and I apologize if I just forgot or didn't hear it in your presentation—when I think about the fiscal

stimulus that you have penciled or not penciled in, do you think of those as symmetric? So if we get fiscal stimulus, the economy goes up by a certain amount, and if we don't get fiscal stimulus, it goes down by a certain amount? Because when I was listening to Mike's presentation and from what I'm hearing from my contacts, it seems like the downside risk to no fiscal stimulus is far higher than the upside gain, just in the sense that you can get this spiral: that there are evictions, there are forbearances that can't be paid, and this just sort of multiplies itself. So I didn't know how you thought about it in the domestic forecast.

MR. LENGERMANN. It's certainly a possibility that there's this interaction between the delay or lack of additional stimulus and a lot of the risks that we've been worried about and that I tried to highlight. To some extent, we are assuming that there are some recessionary dynamics that are coming—with the amount of—in early next year already that, because we're seeing an absence of fiscal stimulus, it's certainly possible that those could become worse. But it's unclear, too—aggregate excess savings are pretty high.

MS. DALY. Okay. Thank you.

CHAIR POWELL. Okay. Any further questions? [No response] Okay. If not, we have an opportunity to comment on financial stability, and we'll begin with President Mester, please.

MS. MESTER. Thank you, Mr. Chair. And I want to thank the staff for continued impressive work in monitoring risks to financial stability in these really unique times. I really appreciate the materials that were provided.

I appreciate the update on the System's efforts to increase our understanding of the implications of climate change for financial stability and how we'd be able to incorporate those risks into our financial stability monitoring framework. And I really encourage the staff to continue to work on this, as these risks are going to become larger over time.

I also appreciate the review of the turmoil that afflicted the Treasury security and MBS markets in March. These are very illiquid markets, but that didn't protect them from market dysfunction, which required action by the Fed to quell. These markets are critically important to the overall functioning of the global financial system, so it's critically important that we consider what types of structural changes are needed in order to make these markets more robust. And I'm very supportive of the work that's going on across the System along these lines.

Now, as the draft of the *Financial Stability Report* shows, so far the financial system has come through this shock much better than expected. Bankers are routinely telling me that they were expecting—they are experiencing very low delinquency rates, much lower than they actually anticipated they'd see. And they also are telling me that their customers' balance sheets remain quite healthy.

Partly this reflects the low interest rates that make debt service easier for households and businesses, but partly it reflects the forbearance that bankers have offered their customers and then the fiscal support that we just talked about as well. Bankers tell us many customers have been able to weather through without asking for the forbearance, and bankers are surprised that households and businesses have fared as well as they have. But, that said, the bankers are increasing their loan loss reserve levels in anticipation of problems they expect to see in six months' time.

The regulatory framework put in place after the Great Financial Crisis, which implemented higher capital and liquidity requirements, meant that banks were better able to handle the negative pandemic shock. But firms went into the pandemic already with very high levels of debt, and as the pandemic wears on, it's going to be harder for some of these firms to manage this debt. The levels of nonperforming loans and insolvencies can be expected to rise.

Now, this may not lead to bank failures on a large scale because of the capital positions of the banks at the moment. But the pressure on those capital levels could lead to a reduction in banks' ability and willingness to lend. The potential for capital pressures to lead to reductions in lending was highlighted in recent research sponsored by the Conference of Presidents Financial Stability Committee, which I chair and on which Presidents Rosengren and Harker and Vice Chair Williams serve as members.

The staff's review of the empirical literature on banking indicated that most studies find that lower capital levels are associated with less lending. Across the studies, for each 1 percentage point decline in the capital ratio, the decline in lending growth ranged from 0.7 percent up to 10 percent. Most estimates fall in the lower part of that range, but the effect was larger for smaller banks.

Part of the staff's study extends this work using a structural model to help distinguish supply and demand factors, and it finds results similar to those in the literature. Model simulations suggest that in a *U*-shaped stress scenario similar to the COVID-19 stress-test sensitivity analysis, bank lending declines more than 19 percent. Relative to this drop, a capital injection consistent with a 1 percentage point increase in bank capital ratios during the stress scenario would imply an increase in loan growth of about 2½ percent next year and in the following year, with much of the adjustment coming from banks below the top 10 in terms of assets.

Another part of the staff's study used syndicated loans data and the Shared National Credit database and estimated that a 1 percentage point decrease in bank capital is associated with a 1 percent decline in bank loan supply. Now, if you define a resilient banking system as one in which banks not only remain solvent but continue to lend in the face of downward shocks,

then we should be particularly attuned to what happens to bank capital levels. Given the forecast, we should continue to restrict dividends and share buybacks.

The staff's study finds that the relationship between capital levels and lending is strongest at the smaller-sized banks. Commercial real estate makes up a sizable share of assets for many of these smaller banks, and those in the commercial real estate market are expecting problems to arise over the next year. To the extent this leads to losses at smaller banks, it could result in a pullback in lending that would disproportionately affect small firms already hit hard by the pandemic. Such a pullback in lending would mean less support for the recovery. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. I have two comments on financial stability. First, I want to highlight the results of the October Senior Loan Officer Opinion Survey on Bank Lending Practices. It shows that banks have continued to tighten lending conditions and terms on both commercial real estate loans and on commercial and industrial loans. It is important to note that it is not necessary to experience widespread bank failures to, nonetheless, suffer a significant reduction in loan supply that has serious consequences from a macroeconomic standpoint, something that President Mester has just highlighted.

Too much of the financial stability discussion tends to focus on the solvency of large banks. However, the focus should really be on credit availability. In particular, the driving factor may not be the current level of bank ratios, though comments by Governor Quarles indicate that buffers may already not be sufficiently large regarding the leverage ratio, but the extent to which banks have a cushion of excess capital beyond their required capital ratios.

Thus, the question should not be “Do banks have enough capital to avoid insolvency?” but rather “Do banks have sufficient capital to ensure they do not significantly tighten credit availability during a downturn?” In a second-wave scenario, particularly one more severe than the “Second Wave” scenario envisioned in the Tealbook, this may become even more pressing.

A second comment concerns our current financial stability framework. Much of our framework seems focused on the metrics of possible asset price bubbles. A more useful framework would be to focus on directly measuring financial imbalances and excessive risk-taking, which can contribute to subsequent real and financial distortions, including asset price bubbles. It is relatively straightforward to determine that firms or households have much more leverage than in the past, exposing them to possible tail events, or that mismatches of maturities make financial intermediaries more susceptible to runs.

Focusing on asset price bubbles alone, which are quite difficult to clearly identify a priori, has made it too convenient to argue against taking action, even when excessive risk-taking is apparent. These two areas of concerns, which are apparent in this downturn, are one reason why I would've preferred to have implemented a robust counter cyclical capital buffer (CCyB) during the recovery period.

Unlike with fixed capital requirements, the ability to reduce required capital ratios quickly as allowed by the CCyB provides a pressure release valve so that banks do not have to tighten credit availability to the same extent in a downturn, thus easing the restrictions on credit availability that can retard economic activity during the recovery.

It is important for us to research the amplification of current problems that has occurred because we did not create policy space using our financial regulatory tools before being hit by the pandemic shock. I hope that in subsequent meetings we can have a more robust discussion of

financial stability concerns and whether our supervisory and monetary policy actions could be made more robust in the future. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. First Vice President Feldman, please.

MR. FELDMAN. Thank you, Mr. Chairman. We remain concerned about the condition of large banks. And we'll talk briefly about three points that people have raised to suggest that banks are in good shape and then talk about why we don't find those compelling, building on what Presidents Mester and Rosengren said, as well as what Mike Kiley said.

First on that, pointing to the accounting measures that banks have, in terms of their capital levels as evidence of their strength. Second, people have pointed to the lending that banks have been engaged with during the pandemic. And, finally, and admittedly a low bar, people have pointed out that the banks did not need to be bailed out. In all three cases, we have concerns.

The Federal Reserve Bank of Minneapolis recently had a virtual event focused on transparency and an assessment of large bank conditions—topics on which Sir John Vickers, former chief economist at the Bank of England, spoke. And his point was very similar to what Mike Kiley showed in one of his graphs: We should be looking more seriously at measures like price-to-book or more sophisticated versions of those which look at market value of equity instead of book value of equity.

And as Mike's graph showed, for all of the domestic GSIBs, they are—except for JPMorgan—below 1 by that measure. And if you look across these kinds of measures, you'll see that Citicorp and Wells Fargo show up as having very low measures, which suggests at least that markets have material concerns about their condition. Now, certainly, these measures aren't perfect, but they're informative, and they suggest that a high degree of concern is merited.

Second, in terms of lending and the fact that banks continued to lend during the beginning part of the COVID crisis, it is worth taking a look back at bank lending in the period from mid-2007 to the end of 2008. During that period, when generally it's believed that firms drew on their unused committed lines, we saw a pretty large increase in lending, about 20 percent. And then shortly after that, bank lending collapsed.

So the fact that you can see a large increase in bank lending, particularly as people are drawing down on their lines, is not necessarily evidence of the long-term ability of banks to continue to lend. And if you look at the more recent data for the largest banks around C&I lending, it does look like, I think it's the general consensus, that what's going on is, banks—that their borrowers are pulling down on their lines. And those are the lines that were committed many years in the past for potential aid.

So I think there is a little bit of caution about whether we should view that increase in lending as something suggesting that banks will continue to lend at the same rate. And you were going to point to the same SLOOS data that Eric discussed to suggest that we've already seen a tightening of conditions.

And then, finally, to the point that banks have not been bailed out as a sign that maybe we shouldn't be as concerned as we might be otherwise, I think we find that a little bit misleading in that the substantial amount of fiscal policy support as well as all of the activities of the Federal Reserve clearly benefit the banks as much as anybody else. So while it's not a direct bailout, the support was clearly there.

In sum, I think we hope that banking conditions remain strong, but we think that there are important warning signs already. Thank you.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. This most recent QS report makes clear that fragilities in the financial system continue to be present despite improving economic data. Highly leveraged businesses and unemployed households pose significant default risk to lenders as policies support fades and the pandemic persists.

Beyond the banking system concerns, nonbanks face substantial funding risks should conditions deteriorate again. While asset prices have increased, household balance sheets have strengthened by some measures, and the outlook for corporate defaults has improved, the extent to which these developments rest on stronger fundamentals as opposed to the benefits of policy support remains unclear. Indeed, while the memo notes that the outlook for corporate credit quality has stabilized among sectors not directly affected by the pandemic, it assumes no additional COVID waves and the benefit of further policy support, a questionable assumption at best with today's uncertainties and risk.

Against this backdrop of great uncertainty about possible future stresses and losses, bank dividend payouts continue to slow capital growth. Even though recent stress-test results suggest that banks would be adequately capitalized through the hypothetical severely adverse scenario, supervisory observations on the sensitivity analysis conclude that bank capital outcomes strongly depend on additional stimulus and that several banks face near-minimum capital levels. This analysis suggests further capital conservation would be prudent.

Finally, the report notes the observed dislocations in the Treasury market precipitated by stresses at many nonbanking entities across the financial system. Although beyond the Federal Reserve's direct regulatory reach, addressing this vulnerability remains a key priority. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chairman. I'm going to make a comment regarding financial stability among nonbank financial firms. I've mentioned in previous meetings that back to March, part of what happened in the markets that caused them to seize up was clearly COVID and related shutdowns. But part of it was forced selling due to excess risk-taking, particularly by nonbank financial firms.

And I like the comment that President Rosengren made. This issue of excess risk-taking for me is less about assessing whether valuations are excessive and more about understanding positioning and how firms are positioned. And what I mean by that is, a nonbank or a financial institution or market participant could be taking excessive risk, and it looks benign until volatility spikes, credit spreads gap out, and liquidity dries up.

Now, the good news for me is, while it's not perfect, we have a good regime for banks in assessing their positioning. We have tough capital requirements, but more importantly, we have stress testing. So even if positioning looks benign, we can see it's not benign when we stress test it. We don't really have that same regime, or even authority, for nonbank financials. And I think a lot of what happened in March was in the nonbank financial area.

This is why I strongly support—and I've heard Governor Quarles talk about some of the work that's being done at the G-20—efforts to debrief and better understand what happened in March: I think that's great. To the extent that, in the future, there are FSOC efforts to debrief on what actually happened in March and slow down and really dissect this and see what lessons and potential reforms would be appropriate as a result, I think that would be a great development.

I'm very mindful that in these meetings in the past, many of my colleagues have said—and I understand their point—that, really, monetary policy should keep its focus on how it affects the economy and how we achieve our goals. And I get that. But I think, with this—for me—bit

of a blind spot we have and lack of authority on nonbank financials, it's easy for people like me to get distracted in trying to look at how monetary policy also affects financial stability.

With the good work that others are doing to take a harder look at what happened in March and we hope develop some reforms that will also affect nonbank financials, I think it'll be easier for us and, for me, personally, in the future to keep my focus on monetary policy, on how it affects the economy and achievement of our goals, and a little less on worrying about how it affects financial stability. So thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you. Thanks, Mr. Chairman. I'll address three parts of the financial system that I'd see as key to sustaining financial stability as we're navigating through the recovery. First, the large banks at the core of the financial system continued to show substantial resilience through the end of the third quarter. I noted that President Mester said they showed more resilience than expected. That might depend on who was doing the expecting. Second, the potential damage related to some of the vulnerabilities stemming from high business leverage appears to have been contained by the forceful actions of the Federal Reserve in March and April and by the stronger-than-expected recovery, which, obviously, is significantly driven by the first. And, third, on a cautious note, the vulnerabilities revealed in the Treasury market and in nonbank financial intermediation when panic set in during March remain salient and will have to be addressed.

So, first, the banks. Earnings reports for the third quarter revealed a banking system that continues to weather the COVID event. Large banks' CET1 capital ratios and loan loss provisions are now materially above where they were at the beginning of this year. And that's

each of them, not the capital positions and loan loss provisions together as a single cushion. But both capital ratios and loan loss provisions are higher than they were before the COVID event.

The previous aggressive provisioning in the second quarter and the much better-than-expected economic performance have allowed banks to moderate provisioning in the third quarter, which has supported continued profitability and, therefore, continued accumulation of capital. As we look forward, measured credit quality has held up much better than expected, even than I expected, with delinquency rates not having shown substantial increases. In some cases, they've even declined despite the economic damage that we absorbed last spring.

Now, that resilience has been attributed in some cases to forbearance programs and to the support for households and businesses in the CARES Act. So there's a certain amount of uncertainty about underlying credit quality. But I think it's significant that both the Senior Loan Officer Opinion Survey on Bank Lending Practices and bank earnings reports indicate that the share of loans in forbearance has decreased significantly from the second to the third quarter. And we haven't seen cliff effects in quality resulting from that exit.

Bank of America declared that the deferral story is largely over in their most recent earnings report. Some large banks reported that most, 85 to 90 percent, of their auto and credit card customers that exited deferral have remained current. And the further tightening of lending conditions that's been reported in the SLOOS that a number of you have commented on, the recent declines in outstanding loans at banks, does make ongoing credit availability a concern.

But I don't see evidence that, right now, bank lending is being unduly constrained by their capital or liquidity positions. And that's consistent with the SLOOS, in which banks continued to cite the uncertain economic outlook and industry-specific problems as the most important reasons for tightening conditions on business loans. The SLOOS, in fact, showed

some easing of standards for GSE-eligible residential mortgages—which suggests that banks are looking for opportunities to expand lending profitably.

And most of the declines in bank loans are concentrated in areas in which demand is unarguably weak. Declines in business loans at large banks are mainly attributable to repayments of previous draws on corporate credit lines, and business loans at small banks have been about flat. Credit card loans have decreased sharply this year, which reflects higher payments from borrowers who received fiscal support, as well as lower transaction volumes.

Now, there remains an overarching concern about banks' ability to generate consistent profits during a very long period of ultralow interest rates. We'll have to be closely monitoring the adjustments that banks make in response to those challenges in order to be sure that they're just not adding risk in ways that they don't understand or that contribute to systemic vulnerabilities. But the largest area of vulnerability for banks right now—and not just for banks, for many other financial intermediaries—is in their exposure to business debt, particularly commercial mortgage debt.

Businesses entered the COVID event highly leveraged. A good number have added significantly more debt, although as Mike Kiley noted, in many cases, firms may have held the proceeds as a precautionary cash balance to ride out the disruption in economic activity. Businesses in sectors most exposed to disruptions relative to COVID-19 are likely to continue to struggle. Long-standing retailers have filed for bankruptcy. Hotel occupancy rates are still depressed. The high-frequency data show a high and growing share of restaurants that have closed permanently.

But aggregate data have painted a picture that, like the broader economy, suggests more resilience to date than, again, even I had thought. The pace of corporate bond and leveraged loan

downgrades has continued to slow considerably. It reached pre-COVID-event levels in September. The three-month trailing default rate on corporate bonds is now only modestly elevated.

And as the current low interest rate environment is unlikely to change over the medium term, maybe longer, I'm comfortable putting significant weight on indicators that adjust for the current levels of interest rates. By that standard, valuations on corporate bonds and equity are near the middle of their historical distribution. And although the resilience of the bond and leveraged loan markets surely reflects the availability of support from the Federal Reserve, the actual active use of the facilities remains quite low.

Third, the *Financial Stability Report* highlights the dysfunction in the Treasury market and the substantial weaknesses in the liquidity and resilience of nonbank financial intermediaries, particularly those engaged in liquidity and maturity transformation like prime money market funds and even longer-term bonds and bank debt funds.

And, as I noted in my remarks on the asset purchase round, I see continued vulnerability in the Treasury market, as the *Financial Stability Report* details. We saw a generalized dash for cash on a scale we've never seen. Many people point to hedge funds as a significant factor in the March dysfunction, but the *Financial Stability Report* provides evidence that direct selling by hedge funds was not likely the predominant factor.

Among other factors, I suspect these fragilities stem in some significant part from the massive current and expected deficits. The resulting burgeoning of the total volume of Treasury securities appears to have outstripped the private sector's ability to handle those flows during times of crisis, like in March, or in periods like September 2019, when different factors led to significant strains, even in an otherwise healthy economic environment.

The Financial Stability Board is also currently studying the disruptions in government bond markets around the world that occurred this spring. And I think clearly one of the recommendations from the FSB here has to be that we need better data on government bond markets. As President Kaplan noted, as I've noted in our previous financial stability discussion, the Financial Stability Board is also reviewing more broadly the vulnerabilities revealed in the nonbank financial intermediation sector and will make recommendations with regard to potential responses, not just a study.

In the context of considering those recommendations, some have been tempted to fall back on the reforms that we implemented for large banks: higher capital requirements, higher liquidity requirements for large and interconnected firms, especially because they appear to have worked well for banks. But we know that the macroprudential framework for banking is not easily adapted for the types of intermediaries that are under the most scrutiny: money market funds and longer-term bond funds. Banks benefit from traditional backstops: deposit insurance, the discount window.

Little support exists currently for the expansion of that type of government support to funds. Additionally, the strains that arise across funds that are marked to market daily have similar structures and the same investment objectives can't be alleviated just by enforcing higher prudential standards on the largest funds or fund complexes in the same way that we focused on the largest banks with higher regulation, higher liquidity, and capital standards.

So regulators around the world took steps after the Global Financial Crisis to address some of these issues, such as imposing fees and gates on mutual funds. The COVID event revealed that vulnerabilities still exist. Indeed, it's at least arguable—I mean, the jury's still out, but it's arguable—that some of those measures actually exacerbated the problem as opposed to

alleviating it, because some reports suggest that the existence of gates led investors to rush to withdraw funds before those gates were closed.

In closing, I see banks and households remaining resilient. Nonfinancial businesses not directly affected by the COVID event are holding up surprisingly well thus far. And I'm looking forward to the continuing work of the FSB and others as to how to best address the ongoing vulnerabilities in nonbank finance. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you, Mr. Chair. Thanks to the staff again for the analysis and to Mike—that was a great presentation. I want to make just four quick points. The first one is something that Mike said, which I want to just re-emphasize, that our policies and our actions, our facilities, and those things have all helped with reaching our full employment goals and supporting the economy. And, ultimately, that is one of the foundations to financial stability. So that's such an important point I wanted to highlight it. It's not that we're taking on more risk by doing this; we're actually mitigating risk if I've read the report correctly there.

The second thing, and I'm saying this point just after Governor Quarles and others, my contacts are telling me, especially in real estate but also in places in which forbearance was given and things, that they've been surprised at how resilient businesses and consumers have been. But they're not sure that the past 6 months predict the next 12—a point I'll come back to later in the economic statement—just because you eat through all of the foundational buffer you have, and then you're in a more vulnerable position. So I think I take a lot of solace from how resilient it's been so far, but I think there are still risks ahead that we'll have to continue to watch in the FSR.

Now, regarding the two other points, it's clear from the analysis that our actions and our policies have been helpful. And something that my staff did led me to believe they've even been more helpful than some of our aggregate measures might describe. And so I wanted to just point to this research and offer that this is something we could probably look at.

So on this point about credit lines, it was clear that many of the credit lines were drawn down. These are predominantly held by large firms. They draw them down, and there's a persistent reduction in bank lending then to small and medium-sized firms. That's what my staff found in the data. But they went on to do this research and said that once we opened our credit facilities, some of these drawdowns are put back because now they can access the capital markets more easily. And then lending to small and medium-sized businesses went back up.

Now, it might not be at levels that we're all satisfied with, but it was still that reaction that suggests that our credit facilities, even if they're not targeted toward a group of small and medium-sized businesses, have positive spillovers. And it seems like factoring in those types of distributional effects would be important in just evaluating where our facilities have been very effective, where they've been less effective, and which ones we want to, I guess, double down on.

The final point I want to make is that I was very pleased to see the box in the accompanying memo on climate risk in the FSR. As I mentioned in the past, I see climate change as an important challenge to financial stability both as a source of shocks and as an underlying vulnerability. The tragic wildfires in my District—and you can think of hurricanes and others in other parts of the country, but the wildfires in particular in my District illustrate just how quickly climate change can abruptly erode balance sheets and financial institutions.

One of my contacts, who owns a smaller bank but still a very well capitalized one, said that he had 2 percent of his loans in the areas affected by wildfires, but he was spending 100 percent of his attention on that because his expectation was not only that those loans would be at risk, but that, importantly, there'd be repricing more generally in the aftermath of that as people internalized the risks to their asset holdings.

So as regulators and supervisors, we need to ensure that banks are prepared for this risk. And so I second the sentiment in the FSR that more study is needed to build our capacity to do this accurately and identify vulnerabilities and prepare for future shocks. Ideally, I think we would use this expertise to formally incorporate climate risks into our stress tests and our regulatory framework down the road, largely because, as we've learned in the past, reducing vulnerabilities and doing that intentionally is just as important—in fact, probably more important—to reacting to the shocks once they've occurred. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you. My compliments to the authors on an outstanding *Financial Stability Report*. I want to mention three “takeaways.” First, the resilience of financial markets at present is premised at least in part on market confidence associated with our backstop facilities. Prudence would argue for extending these facilities beyond year-end. The report reminds us there are two ways in which the emergency facilities support the flow of credit.

At times of peak stress, the facilities directly help meet credit demand in the classic lender-of-last-resort mode. But even when they're not actively in use, the capacity of the 13(3) facilities to step in provides investors with confidence that there is a backstop buyer. The FSR concludes that strains in credit markets were eased by the mere announcement of the

facilities, well ahead of their first credit extension. And it assesses that money markets would still be fragile today without the facilities in place.

December 31 is a uniquely poor date to end any backstop facility. Allowing all of the facilities to expire at a time of rising virus spread and elevated uncertainty about fiscal support, with the added complication of year-end market dynamics, could invite run risks and a pullback from intermediation. As noted by the Chair, I hope we can work with the Treasury to extend these facilities into the next year.

Second, I agree with President Kaplan and Governor Quarles that the first financial crisis since the GFC has revealed important vulnerabilities in short-term funding markets and has laid out an agenda for future reform. As Mike Kiley noted, the need for emergency interventions during the COVID shock in some of the same nonbank sectors as in the GFC and the fragilities in the Treasury market highlight the priorities for future reform.

Vulnerabilities associated with risk at nonbank financial institutions have increased because of the renewed growth in prime money market funds in the preceding two years, as well as the increase in corporate debt held by open-ended mutual funds. Earlier reforms to prime money funds appear to have accelerated runs as liquidity levels fell close to their required 30 percent weekly liquid assets requirement. Over the worst two weeks in mid-March, net redemptions from institutional prime funds amounted to 30 percent of assets—similar to the 26 percent in the worst two weeks in September 2008.

A similar concern exists for certain mutual funds that offered daily redemptions against \$1.7 trillion in the corporate bonds they held in the second quarter, which is about one-sixth of outstanding corporate bonds at that time. The record outflows in March caused considerable strains for those funds, and their forced sales contributed to a deterioration in liquidity in fixed-

income markets that was alleviated only by our intervention. This structural vulnerability had been previewed extensively. Similarly, mortgage REITs also appear to have contributed to market dysfunction in ways that had been well anticipated before the crisis.

In addition, March saw renewed fragility in the critical Treasury securities market as participants attempted to raise cash by liquidating the securities that they viewed as least liquid. Bid-ask spreads for off-the-run Treasury securities widened as much as 20-fold. Market depth for on-the-run 10-year Treasury securities dropped to about 10 percent of its previous level, and daily volume spiked to more than \$1.2 trillion at one point, roughly four standard deviations above daily average trading volumes in the previous year. It looks like foreign institutions liquidated about \$400 billion in Treasuries in March, more than half from official institutions. Domestic mutual funds sold about \$200 billion during the first quarter. And hedge funds reduced cash positions an estimated \$35 billion—somewhat less, as Governor Quarles noted, than many outside observers estimated.

Procylical margining may also have been a contributor. Absorption on the other side of those trades appeared to have been impaired, possibly in part because of constraints on dealer balance sheets imposed at the top of the house during a period that may have been complicated by the move to work from home. Those fragilities necessitated about \$750 billion in Treasury purchases by the Federal Reserve during the second half of March.

That puts a high priority on a future reform agenda that could include wider use of central clearing in Treasury cash markets and the potential for wider access to platforms that could promote all-to-all trading and less dependence on dealer intermediation, as well as the important FIMA repo facility that was put into place.

Third, like President Daly, I welcome the analysis recognizing that climate change could pose important risks to the financial system and exacerbate financial stability vulnerabilities. The box does an excellent job of explaining why financial markets have difficulty analyzing and pricing climate risks. A lack of clarity about true exposures to specific climate risks for both real and financial assets, as well as heterogeneous beliefs across market participants about the sizes and timing of these risks, can lead to widely dispersed valuations.

An important feature is the possibility of nonlinearities, or tipping points. A slow evolution toward a threshold that generates an abrupt shift to an entirely new regime of shocks poses considerable modeling challenges, especially in cases in which there's little to no data on historical distributions of such shocks. Chronic hazards like a slow increase in mean temperatures, or sea levels, or a gradual change in investor sentiment about those risks could produce abrupt repricing events.

Acute hazards such as storms, floods, or wildfires may reveal shifts that may cause investors to update their perceptions of valuations abruptly. Anticipating the timing of those swings in sentiment is extremely difficult. Our supervisors expect banks to have systems in place that appropriately identify, measure, control, and monitor all of their material risks, and I look forward to a point at which banks can have effective modeling in place for climate risks and we are able to use hard data and analytical models to talk about the magnitude of risks to their portfolios and what that means for vulnerabilities to the financial system.

Incorporating climate risks into our financial stability assessments will necessitate considerable investments in data collection and model development. Standardized disclosures will be crucial, and our work with the TCFD and the FSB is very important. The Board's and New York Fed's staff are leading efforts on the FSB, as Governor Quarles mentioned, and on the

Basel Committee. I'm hoping we'll be able to join the NGFS, and we're working with U.S. agencies and foreign central banks to learn about climate scenario analysis and stress testing.

Substantial work remains to get from the recognition that climate change poses financial risks to a stage at which the quantitative implications can be clearly assessed and managed, and I'm delighted to see all the good work around the System.

And finally, just briefly, I appreciated the comments of Presidents Mester, Rosengren, and George and First Vice President Feldman on the importance of retaining strong capital buffers, rather than making payouts, in order to ensure that banks will continue to extend credit.

The sensitivity analysis that we performed a few months ago suggested many banks would be operating within their stress capital buffers and close to their minimum requirements in the *U*-shaped and *W*-shaped scenarios. Banks operating close to their regulatory minimums are much less likely to meet the needs of creditworthy borrowers, and I would not want to see tightening of credit conditions that could impair the recovery. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. And that concludes our round of comments on financial stability. We'll go straight into our comments on the economic outlook. And we'll begin with President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. At our previous FOMC meeting, significant uncertainty about the likelihood of a second wave of infections was expressed. It seems that we are experiencing that second wave right now. What remains uncertain is the size and persistence of the wave and how severely the economy will react to it.

In Europe, as Paul described, hospitals are already being stressed. Europe's more modest interventions, such as limited curfews, proved insufficient, and now France, Germany, Spain, and Italy, among other European countries, are applying economic shutdowns of varying

degrees, although less restrictive than last spring. Mobility data for these countries had already started to slow, even before these additional closures, showing that voluntary reductions in activity were increasing. Once these added economic restrictions are in place, mobility will likely decrease further.

In the United States, most states have seen a rise in infections, and many states began the fall with higher infection rates than most European countries had at the end of the summer. While most states have not reached the same level of hospital capacity constraints currently faced in the worst-hit European countries, hotspots around the country are beginning to run out of hospital beds. In fact, some locations have already begun opening field hospitals.

In more rural areas, medical personnel and facilities may start to become a more severe constraint. While state leadership of some severely affected states may prefer to ration adequate medical care rather than throttle the economy, self-preservation may contribute to additional behavioral changes in individuals even in the absence of any comprehensive public health response that restricts activity.

Consistent with growing economic concerns, stock prices have slumped. Until more recently, oil prices had fallen, and Treasury rates had wavered. There is little doubt that the economy has partially adapted to this pandemic, in part because of what we've learned about the virus and better therapeutic treatments. Hence, I would not expect the magnitude of the effect of the second wave on the economy to be as strong as last spring.

Still, under my underlying assumption of a significant second wave of infections taking hold in the current quarter, I expect a rockier road on our path back to full employment than the rapid recovery depicted in the Tealbook baseline. Specifically, I expect only limited progress in labor markets over the next two quarters and a more gradual return to full employment. My

forecast still has unemployment well above 6 percent by the end of next year, a substantial difference from the Tealbook projection.

As we enter the second half of next year, however, I expect that the rollout of a vaccine and the effects of my assumed substantial fiscal stimulus package will cause a significant rebound in activity that continues into 2022. My near-term forecast pessimism is due in part to the variety of ways a prolonged period of high infection rates will take its toll on the economy.

In the labor market, we have already seen labor force participation rates decline. A widespread and significant second wave of infections likely ensures that most schools remain closed and the ones that are open shut down at least part of the time. Many families, therefore, will be forced to continue to juggle educating and caring for their children with conducting their work. *In extremis*, parents working in occupations in which work at home is not possible will simply be forced out of the labor market.

As a result, I expect the decline in labor force participation rates to persist for some time. The longer the pandemic continues, the more problematic this becomes, and the need for some parents to drop out of the labor force highlights the lack of good childcare options, particularly for low- and moderate-income families. Workers dropping out of the labor force for caregiving purposes also has implications for long-term growth, should people be reluctant or unable to obtain similar jobs after a substantial period outside the labor force.

A prolonged period of high infections is also likely to result in more bankruptcies and firm closures, which are likely to lead to more long-term unemployment. Hence, in the short run, monetary policy must be as accommodative as possible to ensure a relatively quick return to full employment. Despite the need for near-term policy accommodation, the implications of long periods of low interest rates pose some serious long-term risks for the economy. My staff

has looked at the role that high debt levels are playing on the depth of this recession despite a significant policy response.

Work with macrodata finds an amplification effect on unemployment from a previous period of rapid credit growth or low-risk premiums. A more micro approach looked at the differences between publicly traded firms that declared bankruptcy this year and those that have not—at least yet—in the consumer discretionary sector.

Both groups had debt-to-EBITDA leverage ratios less than 2 from 2007 until 2012. However, the debt-to-EBITDA ratios of the firms in these two groups then diverged, with the median debt-to-EBITDA ratio for the first set of firms that failed in 2020 steadily increasing from 2012 onward and peaking at more than 7 in 2019. Note that the Main Street Lending Program, designed for troubled borrowers, only allows a maximum debt-to-EBITDA ratio of 6, as of the end of 2019, and only if there is collateral.

The consumer discretionary sector that relied more heavily on credit after the Great Recession includes retail establishments and restaurants, sectors that employ many low-income workers, women, and minorities. If low interest rates encourage excessive risk-taking and excessive risk-taking results in firm bankruptcies that, in turn, contribute to significant losses of employment for the most disadvantaged members of society, then prolonged periods of low interest rates should be undertaken only with solid guardrails against excessive risk-taking.

The linkage between low rates, excessive leverage, and firm failures in economic downturns should be explored more, both how it is affecting labor markets now and how it might affect labor markets in the future with our new policy framework. Despite the unnecessary suffering caused in part by the public health failure and the likely economic distress caused by a

further prolonged period of high unemployment, I do expect that expansionary fiscal and monetary policy will be reinforcing once the public health situation improves.

It is important, however, to begin examining whether the pandemic shock will have a more long-lasting effect on the economy than the typical recession. The ability of many firms to continue to operate efficiently with many more remote employees may have a lasting effect on the business and office space landscape. On the positive side, more employees will stay in the labor force if they have more flexibility about where and when they work. However, creativity arising from informal employee interactions around the office is likely to be adversely affected by the loss of serendipity when people interact less spontaneously via planned Zoom meetings.

It's not just a coincidence that supercities were great creators of innovation and wealth. Similarly, much of our urban infrastructure, from tall buildings in which to live and work to mass transit to get workers into major downtown areas, could become stranded assets if firms transition to a business model that minimizes the demand for expensive downtown real estate.

Finally, the most flexible workers tend to be those who are highly educated and adept with computers and other technology. This means that workers with less educational attainment may be disproportionately left behind if some of these economic shifts become more permanent features of the economy. Such patterns will not be healthy for our economy or our democracy.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida, please.

MR. CLARIDA. Thank you, Chair Powell. The flow of macrodata received since our September meeting has continued to surprise on the upside, and GDP growth in the third quarter was reported last week at a very robust 33 percent annual rate. Although spending on many

services continues to be held back by voluntary and mandated social distancing, the rebound in the GDP data has been broad based across goods consumption, housing, and investment.

For the third quarter as a whole, consumption expenditures are up 40 percent, residential investment 59 percent, and equipment investment 30 percent, and, of course, all of those annualized. These are, of course, the components of aggregate demand that benefited most from robust fiscal support as well as low interest rates and our successful efforts to sustain the flow of credit to households and firms.

In the labor market, private payrolls in September were up 877,000, and the unemployment rate fell to 7.9 percent. Both were better than expected. But the unemployment rate fell for the wrong reason—a decline in labor force participation, as pointed out by President Rosengren. And total payroll gains at 660,000, while very healthy, fell short of consensus expectations.

Core PCE inflation, which has rebounded strongly since May, came in weaker than expected in the third quarter and is now running at a 1.5 percent annual rate on a year-over-year basis. As I look ahead, notwithstanding the decline, if not collapse, in prospects for the passage of a fiscal package before year-end, the economy does appear to have entered the fourth quarter with very good economic momentum. And I'll talk about the coronavirus in a moment.

Increases in personal income and outlays in September were much stronger than expected, as were housing starts and durable goods. While Q4 GDP growth will downshift from the once-in-a-century—we hope—33 percent growth rate in Q3, it is clear that, since the spring, the economy has, at least so far, turned out to be more resilient in adapting to the virus and more responsive to economic policy support than many, including myself, feared.

In particular, I would note that while the buffer of aggregate savings accumulated by households is starting to be drawn down, especially by lower-income households, the household savings rate remains elevated at 14 percent, and the staff projects—and we can see that in the exhibit—that the aggregate savings rate will return to its pre-pandemic level of about 7 percent over the next three years.

Now, this is just a forecast, but if it happens, as a matter of arithmetic, this implies that aggregate consumption will be growing much faster than disposable income, on average, over the next three years, and that will, of course, be a material tailwind for the economy. Another potential tailwind for the economy would, of course, be any fiscal package that the Congress might ultimately deem to pass. As I understand it, the staff has built in zero incremental fiscal stimulus to its baseline. While I will defer to others on assessing the odds, they clearly are positive and not likely to be offset by a scenario with incremental fiscal contraction relative to the baseline.

As I pointed out in September, the Committee’s SEP baseline and staff projections foresee a relatively rapid return to mandate-consistent levels of employment and price stability, certainly compared with the GFC. In particular, a return to mandate-consistent levels is projected by the end of 2023 in the SEP, and the staff projections are similar. But to put these projections in some context following the GFC, it took more than seven years to achieve roughly comparable levels. Of course, these are projections, and a lot can go wrong as well as right.

My baseline outlook remains close to this, but I must acknowledge that the economic outlook is remarkably uncertain and really more uncertain than I would’ve thought at our September meeting. In particular, the surge in new cases and hospitalizations in the United States and the news out of Europe regarding the second wave and shutdowns reminds us all that

the downside risk to the outlook will remain until the arrival of an effective and widely deployed vaccine is a reality. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you, Mr. Chair. The large and unprecedented jump in third-quarter GDP caps a string of upside data surprises, at least upside data surprises to me, and confirms that the economy has made up a good fraction of the lost ground that it experienced in the initial stages of the pandemic. But as I said earlier, this means that we now have a recession that looks more like the Global Financial Crisis, which we thought was really bad and we wouldn't see again. So that just puts some perspective on it.

And similar to what President Rosengren said, this is also one that is heavily tilted toward those who are least able to bear it—those at the bottom of the wage distribution and earnings distribution. So it's the same size as the Great Recession but more heavily tilted toward the low end. And so this leaves us with a question of how protracted the remaining part of the recovery will be, and I don't sense a lot of optimism among my contacts on this front.

We spent a lot of time talking to a wide range of people about what their view is on this, and they're very nervous about the prospects for continued growth. They've given me several things that they feel worried about, and they dovetail nicely with the things that I also worry about, so I'm going to go over them in order. First, we're in a much weaker position now to weather any additional shocks. So whether there is a COVID shock or some other kind of shock, we're just in a worse position to weather it. When the pandemic started in the spring, the economy was very strong; balance sheets were healthy, by and large, all around; and the strong fundamentals helped cushion the recessionary blow. But from now on we won't have this kind of insurance or buffer.

Second, the economic rebound that we have seen over the beginning months—the first six months of the recovery—has been supported by tremendous monetary and fiscal stimulus. And some of that support remains—for example, our monetary stimulus. Home and car sales are still being boosted by low interest rates. I think one of the strengths of the housing market has to do with the fact that we have low mortgage interest rates, so I think those are really good outcomes. But the fiscal stimulus from the CARES Act has declined, and the size of any new fiscal package remains highly uncertain, although I’m not as pessimistic as the baseline. I’m more on the idea that the probability is we’ll get something that’s positive. I even think it’s likely.

Finally, an important pre-condition for continued recovery—and others have mentioned this—is that the virus remains well contained. And, unfortunately, the public health trajectory here is very worrisome. COVID caseloads and hospitalizations are trending higher across the country, and a resurgence of the virus, even if there aren’t lockdowns associated with it, will damp people’s willingness and ability to engage in economic activity. And the associated economic slowdown will weigh on balance sheets and financial markets. Balance sheets of households and small businesses, in particular, I think would suffer if consumer demand falls off in any material fashion.

To get a sense of this, we only need to look abroad. Right now, most of those in Europe are in the midst of a second wave, and they are already seeing measures of economic activity starting to slow. So although I am not penciling in a dramatic slowdown in the United States as my modal forecast, I do think that the next 12 months are very unlikely to look like the past 6 months. And I see this especially in the labor market, for which it’s easy to get ongoing real-time data.

During the first six months of the pandemic—and here I’m saying things we all know—the unemployment rate spiked as we all went to our homes to try to fight the virus. As it became safer to engage, unemployment then fell sharply, retracing two-thirds of its rise. And this is something that we’ve all seen. It’s highlighted in the Tealbook.

More recently, though, data on the labor market recovery have been less vigorous as more conventional recovery dynamics take hold. So, if you were just looking at a simple picture of the past six months, it would look like a “1980s”—sort of a *V*-shaped—recovery: Unemployment goes up sharply, then it comes down sharply. And you think we’re in good shape, but then the recent data are pointing to something that looks much more like the past two so-called jobless recoveries.

If you look for a reason for this, well, there is ongoing uncertainty holding back aggregate demand. Layoffs remain elevated, and the job finding rate has dropped. So these are things that are just part of normal recessionary dynamics. Importantly, if you look at the data, the composition of laid-off workers has also changed—sorry, my cat has just decided to get up here, sorry, guys—shifting from largely temporary to mostly permanent, meaning that the ties to—hopefully she won’t turn this off. Come here. Just sit here. Okay. So using—sorry, guys. She always comes at the wrong time. Basically, if you shift from temporary layoffs to permanent layoffs, you separate the ties from all the workers, and they don’t have their employment relationship anymore. So there’s just a slower onboarding once they do get into a position to find jobs.

If you take all of the data I just mentioned before my cat made her debut and you put them in a model—the San Francisco Fed staff have found that using past historical dynamics and

the data that are incoming in the past several months—then the unemployment path will slow quite considerably over the next 12 months relative to what it's been over the previous 6 months.

So, of course, slower progress in unemployment is bad news for workers, households, and also for potential output, as highlighted by President Rosengren and as also shown in the special box in the Tealbook. Protracted recoveries leave lasting damage that takes effort to unwind. The longer that people are out, the harder it is for them to get back in. Skills depreciate, organizational capital falls as firms fail, and businesses reduce capital and labor investment as they reassess the future.

But the size of these effects and their duration depend, in part, on our policy response, and here I find the experience of the Great Recession to be very instructive. In the wake of the largest economic decline since the Great Depression—and as I said earlier, the one we hoped would be the deepest in our lifetime—there were pervasive concerns.

I've spent years of my life, actually, studying these—about skill mismatch and scarring, and when we permanently push workers out and when the labor force participation rate never recovered because there had been some lasting damage. And what we saw in the previous expansion was that those concerns proved to be unfounded. Supported by monetary policy, with a long expansion, people came back into the labor force, and the unemployment rate fell to historic lows.

And the same is possible now. While it's true we can't turn retail, travel, and hospitality workers overnight into coders doing technical work, a robust economy and robust job market will provide opportunities to encourage firms and workers to take them. In my view, the real lesson, if you boil it down, about the Great Recession for the labor market is that firms and workers are flexible. They reinvent themselves regularly, and they prove much more adaptable

than our models would predict. And that's evidence-based optimism, I think, more than just our good disposition, Governor Quarles. So I see no reason the same thing can't be true this time.

Finally, let me say a few words about our other mandate: inflation. An improving economy has contributed to encouraging views on inflation. Although higher prices partly result from transitory factors like a surge in pent-up demand for durable goods—also known as used cars—San Francisco Fed analysis points to a steady inflation recovery in sectors most directly affected by the pandemic, and I think the Tealbook analysis also shows that. But even with these increases, inflation is barely back to its pre-pandemic levels. So, clearly, more progress is needed, especially under our new framework of flexible average inflation targeting.

To sum up my remarks, there is no doubt the economy is in a better place—a better place than I expected just a few months ago. But continued progress toward our goals is far from guaranteed, and it will take our continued efforts to ensure that we eliminate employment shortfalls and achieve average 2 percent inflation over time—a topic that I will return to tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker, please.

MR. HARKER. Thank you, Mr. Chair. I'm in general agreement with the baseline forecast in the Tealbook. And like the staff, I acknowledge the unusually high degree of uncertainty surrounding this forecast or, frankly, any forecast. It is an uncertainty that we have never dealt with, and the medical landscape is one that can change rapidly and unexpectedly as we are seeing. But I remain cautiously optimistic that an effective vaccine will be widely available in a year's time, and that life will slowly return to a more normal setting.

The strength in consumption that is reflected in the staff's forecast is borne out by the high-frequency credit and debit card data that we collect at our Consumer Finance Institute. And

we're seeing little evidence that the end of government stimulus has, as yet, affected consumption. Consumption growth has not varied much across Zip codes and we are experiencing varying degrees of unemployment in the District, but we're not seeing that consumption growth is really varying. It's not really varying much between consumers who had low, as opposed to high, credit scores before the pandemic, so it's pretty widespread.

The data we collect on credit and debit card purchases are also consistent with fairly strong consumer spending, with some data showing noticeable improvement over the same week a year ago. Strength continues to be concentrated in groceries, other nondurables, and home improvements. Relying on our fifth national survey conducted between September 1 and 17, my staff has taken a deeper look at personal income and saving behavior. Compared with the first week of April, we observed a decline in the percentage of workers furloughed from roughly 18 percent to 12.6 percent.

And the profile of personal income has remained remarkably stable. Slightly more than half of respondents reported no change in income, and the percentage reporting that they have received no income declined from 11.2 percent in April to 4.8 percent in September. However, roughly half of the respondents reported some disruption in income at some point during the crisis. And although the percentages reporting some disruption are remarkably similar across income groups, they are disproportionately affecting the young and people of color.

On a positive note, 72.4 percent of people who were employed before the pandemic reported being employed consistently since the outbreak of COVID-19, and 22 percent have returned to their old jobs. This is actually consistent with national statistics on reemployment. Thus, a large fraction of those who were working pre-COVID remain employed. More troubling is the fact that nearly 30 percent of all respondents indicated they worry that they will not be able

to make ends meet over the next three months. There does appear to be a good deal of uncertainty hanging over many families.

Regarding consumption and savings, over the next three months, 76.3 percent of those surveyed plan to spend at least as much as they are spending now, even though 34.5 percent of respondents saw a decline in their liquid savings since March 1. Based on this result, fourth-quarter spending should remain fairly strong. The biggest drivers for the decline in savings were the loss of income and an increase in living expenses. For those who experienced an increase in savings, the main reasons were stimulus payments and a decrease in both living and transportation expenses.

Regarding the Third District, the regional economy continues to improve but does remain below its pre-pandemic levels. The service sector and manufacturing surveys are at or above their nonrecessionary averages, and manufacturers are experiencing robust activity. The indexes for general activity, new orders, and shipments are at healthy levels, and manufacturers remain optimistic, with plans to increase future employment and cap-ex. The service sector is also improving but, of course, at a slower pace.

One highly diversified manufacturer reported some extremely upbeat news about current circumstances and his outlook for 2021. While most lines are still below pre-pandemic levels, activity is significantly stronger than he expected five months ago. His Asian business is experiencing a *V*-shaped recovery, and growth should, on net, be positive over 2020. High-tech and autos have been especially strong. In Europe, despite the resurgence of the virus, there has been a nice rebound in activity, and he is experiencing his first positive backlog in 18 months. In the United States, the rebound is slow and steady, with activity still below pre-pandemic levels. He has two months of solid orders, and the intermediate goods he produces are selling through to

final users. He also cannot meet all of his current demand. With saving on contractors and travel, there has been solid growth in cash flow, and he is actually expecting income growth of 10 percent in 2021. As a result, additional investments are being contemplated. According to this contact, the experience of COVID-19 is nothing like the pain his firm underwent in 2008 and 2009. And barring further lockdowns due to COVID-19, he expects 2021 to be a strong year.

Regarding Pennsylvania, consumption in Pennsylvania appears to be somewhat above pre-pandemic levels but is still lagging in New Jersey. It has been especially robust in low-income Zip codes, perhaps reflecting the fact that 69 percent of CARES Act recipients were receiving income at or above their pre-pandemic levels, and that the median replacement rate was 134 percent.

A special regional survey of small businesses shows that we are seeing significant improvement in hours worked, in the number of locations open, and in the number of people working. Small business revenue has also been improving since April, but the trend in these series has flattened in recent months.

In summary, with a few exceptions, the regional economy continues to improve. But, again, it is below its pre-pandemic levels. There appears to be some breadth in the improvement, and contacts remain fairly upbeat, fairly optimistic. And the available high-frequency data that we have examined lead me to project continued but somewhat slower growth. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester, please.

MS. MESTER. Thank you, Mr. Chair. Overall economic activity in the Fourth District continued to improve over the intermeeting period, but firms indicated that a high level of uncertainty is clouding their outlook, notably the recent surge in COVID-19 cases. So far, that

uncertainty has mainly affected planning horizons, which have become much shorter than they are in normal times.

The Cleveland Fed's staff diffusion index of business conditions was plus 39 in November, its highest reading since the spring of 2018. The increase reflects a shift among companies that previously reported declining conditions to now reporting stable conditions. On average, revenues across firms are about 90 percent of pre-pandemic levels, but this continues to be a tale of two cities, with some sectors doing very well and others still in a deep hole.

For example, through the beginning of October, spending at hotels and restaurants in the District's states remained about 20 percent lower than a year ago, while spending on entertainment and recreation remained at least 35 percent lower. A recent survey of Ohio restaurants indicated that nearly two-thirds expect that, if they continue to operate at current restricted capacity levels, they will go out of business within the next nine months. In contrast, sellers of consumer durables, such as automobiles, appliances, and furniture, reported robust sales in recent weeks.

Apparel and general merchandise retailers also reported that their recent sales had been better than expected, with more in-store traffic than had been expected even as COVID-19 cases have increased again in District states.

Manufacturing in the District has also picked up, with District auto production in September about 6 percent above year-ago levels. And several producers noted that some of their orders reflect customers acting to replenish their inventories.

The housing market in the District remains strong, and there was some improvement in activity among nonresidential builders. Several reported that projects that had previously been

put on hold had been restarted. The outlook for office and retail construction continues to be weak, but demand for warehousing and industrial space remains relatively strong.

Now, the pickup in activity has begun to strain available freight capacity, resulting in much longer delivery times to receive shipments and sharp increases in freight spot rates. One freight company has increased its per-mile rate for truck shipments by 30 percent compared with a year ago, while rates to ship containerized cargo across the Pacific have reportedly more than doubled since the start of the year. Capacity is expected to remain tight through the middle of next year.

The District's labor market continued to improve at a pace similar to that of the nation. The District's unemployment rate fell again in September to 8.1 percent. But despite high unemployment, many firms report they're having trouble hiring workers, and some are raising wages in response. Auto production has been hard to maintain at some plants as COVID cases led to quarantines, and it's been difficult to attract enough workers with temporary replacements.

Contacts are unsure of what the main driver of the labor scarcity is. Some cited the expanded unemployment benefits offered earlier in the pandemic as being a factor, but they haven't seen an improvement since these benefits have been scaled back since the end of July. Others cited the workers' need to provide childcare for preschool children or those being schooled remotely, similar to what President Rosengren reported on.

Recent results from the Cleveland Fed's daily national survey of consumers indicate that compared with workers without children, those with children were considerably more likely to report a change in their normal work schedule since February and, conditional on a change, were more likely to report a reduction in hours.

Even firms that are not looking to hire more workers are finding labor market conditions challenging. Several District contacts reported they're finding it hard to maintain their productivity because of the variability they're experiencing in their workforce levels where, on any given day, there are some workers who unexpectedly have to stay home because a school is closed or because they've been exposed to the virus. These labor market dynamics are something that I think we need to look into more to understand what's really happening there.

Regarding the national economy, incoming data continued to surprise to the upside, and the economy is proving more resilient than expected. As anticipated, real GDP growth rebounded in the third quarter, with strengthen in consumer spending, housing, and business investment and equipment.

Labor market conditions have improved faster than expected, with strong gains in employment and declines in the unemployment rate. But, remember, this is really the reopening part of this recovery. The levels of output and employment are still far below their pre-pandemic levels. As of the third quarter, the level of real GDP remains 3½ percent below its peak in the fourth quarter of last year. As of September, payroll employment is 7 percent below its level in February, and that's almost 11 million jobs.

The recovery continues to be very disparate across sectors, and I expect that to continue, because of the nature of the pandemic shock. The service sectors that are relying on person-to-person contact are going to languish until a trusted vaccine is developed and widely distributed, and this is going to take some time. Sectors that benefit from the country's move to online work and the need for social distancing are benefiting, with many operating at levels that are higher than those they saw before the pandemic.

The disparities are also being seen in the inflation data, in which strong demand for goods such as used cars, furniture, and appliances has pushed up durable goods inflation to its highest level since 1995, while weak demand has led services price inflation to be at the lower part of its range over the past 10 years.

Now, the disparities in the recovery are going to cause some challenges for monetary policy. The natural policy response in a situation like this is targeted fiscal action that can provide relief to the households, firms, and state and local governments that have been bearing the brunt of the effects of the virus on the economy and are finding it harder to recover.

There are some limits on the ability of monetary policy to support particular parts of the economy. And despite the stronger-than-expected data we have seen so far, I'm less sanguine than the Tealbook about the recovery without further fiscal action. But I also continue to think that we'll see another fiscal policy package either late this year or early next year. In fact, there's some chance of a package that's larger than anticipated, which is an upside risk to my baseline forecast that sees the recovery continuing over the next few years, supported by accommodative monetary policy.

I agree with the sentiment that's been expressed that the pace of the recovery is going to be slow from this point out and slower than we've seen already, because we're entering more of a kind of recovery phase as opposed to a reopening phase. The recent surges in virus cases in the United States and Europe continue to suggest there's significant downside risk to the outlook.

Now, another challenge for monetary policy is disentangling the demand shocks from the supply shocks that have been unleashed by the pandemic. A drop in demand is clearly affecting some parts of the economy, while other parts are experiencing an increase. On the other hand, supply constraints are affecting output levels in some sectors. Some workers have had to pull

back on their labor supply to care for children, and, as the Tealbook points out, automation of work may accelerate, affecting the economy's productive potential.

I agree with President Rosengren, these are longer-run effects that we need to know more about and to analyze. To the extent that supply-side forces weigh on the economy's potential, even if that's only temporarily, they are going to place some limit on what monetary policy can do to support attainment of that potential. I don't mean this to mean that we should pull back on the accommodation that we have in place. I think it's definitely needed. But I also think that fiscal policy needs to be applied as well. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. We're going to take a break now, and we'll come back at a quarter after three East Coast time. The rest of you can do the arithmetic. It'll be a 20-minute break. So thanks very much. See you in 20 minutes.

[Coffee break]

CHAIR POWELL. All right, let's get going. And we'll go back with President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chair. In what is unfortunately becoming too much of a pattern in 2020, I will start off my comments with an update on the latest in a string of hurricanes that impacted the Sixth District this year. There have been nine Gulf storms so far in 2020. With Hurricane Zeta's landfall on October 28, five of those storms made landfall in Louisiana. I'll add that this most recent hurricane led to significant power outages for over 2 million households across the Southeast, and my household was one of them.

The collective toll of the storms has been great. According to the *Claims Journal*, pre-Zeta, storm damages so far in 2020 had totaled \$26 billion, and this number will undoubtedly

rise. Hurricanes Laura and Delta brought devastating housing damage, causing a mass relocation of thousands of residents that will continue for months.

Businesses were also severely affected. One of my New Orleans branch board directors summarized the small business sentiment by saying, “Owners are exhausted. They’re done.” Along similar lines, the string of storms has made this hurricane season one of the costliest ever for Louisiana’s agricultural sector.

Regarding the broader economy, while I am pleased to see that the aggregate indicators continue to signal that the recovery is under way, I continue to believe that the best characterization of the underlying economy is the “less than” symbol. On the upward trajectory of that symbol, a significant swath of the economy either largely escaped the effect of the pandemic or actually benefited from pandemic-induced shifts in demand. On the downward slope of the symbol, there are many households and businesses that have few prospects for recovery as long as the coronavirus remains as a health threat. The challenges for this group are twofold. First, the recovery hasn’t reached them yet. Second, the initial fiscal relief that they received has mostly ended, and the backstop of funds from that support is rapidly being depleted.

Regarding this latter point, while my banking contacts say the deposit growth has been extraordinary, now that fiscal relief programs have expired, it is becoming clear that households are rapidly drawing down those support funds. One credit union contact in the District analyzed accounts at their bank that received stimulus checks in April and May. While deposits rose significantly in May and June, by the end of September, only 10 percent of those stimulus check funds remained.

This is consistent with a recent report from the JPMorgan Chase Institute, which was cited by the staff this morning. This study found that the expiration of federal unemployment

relief support at the end of July was associated with a 14 percent decline in spending by the unemployed in August, roughly back to the pre-pandemic baseline. The study also found that nearly 70 percent of the extra funds from the relief had been drawn down. Taken together, these studies clearly suggest that financial constraints could escalate rapidly in the absence of additional relief funds or a quick resolution of the pandemic.

On the business side, extensive outreach to contacts from across the District, in combination with insights obtained from the Atlanta Fed's Economic Survey Research Center, reveal a cloudiness about the future. Recent data provided in the Atlanta Fed's Survey of Business Uncertainty highlight the fact that firms' expectations of future sales are much more diffuse relative to the pre-COVID period, with a clear movement of expectations toward the tails of the distribution. This diffusion of sales expectations is perhaps a byproduct of heightened uncertainty among firms, which in the October survey remains nearly as high as it was back in April. And this uncertainty is driven not just by those firms on the downward slope of the less-than symbol, but also by firms currently experiencing strong sales. For example, several District contacts noted that despite strong current business activity, they will remain quite cautious moving forward. This caution was driven in part by a recognition of the deep distress of some in their communities.

Indeed, some contacts noted that absent fiscal relief, firms that are already struggling under the weight of the pandemic will falter completely. This is consistent with what President Mester commented on just a moment ago, and this is especially true for smaller firms and nonprofits. This broad business sentiment has put a major drag on cap-ex decisions. The vast majority of District contacts indicate that nearly all strategic investment plans have been shelved, and that only maintenance investment expenditures are being green lighted until the current

uncertainty is resolved. On balance, firms in the Survey of Business Uncertainty anticipate slashing capital expenditures more than 15 percent in light of the highly uncertain landscape.

More broadly, many businesses are reporting that steps they have taken to reorient their activities during the pandemic are likely to remain in place moving forward. As noted in the Tealbook box on “Possible Long-Term Effects of the COVID-19 Recession,” the Atlanta Fed’s Survey of Business Uncertainty showed that firms expect remote work by employees to triple post-COVID relative to pre-COVID levels.

And a contact in the warehousing and distribution industry noted that companies plan to permanently adopt many of the health safety measures implemented in response to the coronavirus—which means that firms will need to find ways to raise prices or cut costs in order to avoid having margins permanently squeezed by the significant additional costs of these measures.

Looking forward, I see growing headwinds to the next stage of the labor market recovery even as business revenues return to pre-crisis levels. District contacts observed that businesses in industries most negatively affected by the pandemic are downsizing their headquarters. Contacts also noted a similar trend among companies that are currently benefiting from strong sales that are paring back at executive levels while continuing to hire at lower levels to meet surging demand.

Finally, the steady stream of comments from business owners telling us that they are focused on cutting costs and finding increased efficiencies in part through innovation strongly suggests that the recovery in output will not be accompanied one-for-one with recovery in employment.

Now, like President Daly, I do think there is resilience in labor markets, and skill rebuilding is possible. But this is best done with institutional support rather than in a more haphazard way. And this is one reason why the Federal Reserve Bank of Atlanta established the Center for Workforce Development and Economic Opportunity, which seeks to promote investment in a workforce development infrastructure that can facilitate these transitions more efficiently. We can play a key role in minimizing the pain of these disruptions moving forward, and I think we should do so.

I'd like to conclude by turning to inflation. Alongside the dramatic real-side economic shock, COVID-19 has been incredibly disruptive to underlying inflation measurements, so much so that we should all have little confidence in the forward trajectory of inflation once the pandemic is over.

The COVID pandemic has led to some absolutely dramatic relative price swings. The overall price change distribution has exhibited an unusually high amount of dispersion and volatility since the onset of COVID. But I want to focus on a few particularly salient relative price changes to highlight my point. First, due to a combination of increased demand resulting from commuters attempting to avoid mass transit options, less confidence over future incomes, and some supply issues in connection with new models, used auto prices as measured in the CPI have surged, rising at a record annualized rate of 75 percent over the past three months. Now, I'm not sure that anyone could argue with a straight face that this is inflation as a monetary policymaker should define it. Yet this single relative price change has pushed up the 12-month growth rate in the core goods price by nearly a full percentage point and added nearly three-tenths to the 12-month trend in core inflation. And we typically quibble over a lot less than that.

Another perhaps more troublesome price change complicating inflation measurement is what's happening with rents. Again, due to the effect of the pandemic, inflation for both pure rent and the implied rent of owner-occupied homes has slowed more than  $\frac{1}{2}$  percentage point since February. Because of the immense weight that rents have in the consumer's market basket, especially in the CPI, and the construction of price changes for rents, which rely on six-month percent changes, it is very likely this particular price change will influence underlying inflation measurement for some time to come. And the staff spoke to this in panel 7 of the outlook earlier today.

Finally, in the eight months since the onset of the pandemic, we have seen some of the swiftest changes in household spending patterns in history. For example, nominal PCE spending on durable and nondurable goods have increased 13 percent and 14 percent, respectively, in the third quarter relative to the same period a year ago. And spending on nominal PCE services has declined 6 percent over the same horizon.

These huge swings in consumer demand have contributed to significant shifts in the prices for these categories, yet we have no clear view of the persistence of these shifts in demands or the response of businesses with regard to pricing and production capacity decisions. These developments since the onset of COVID, in addition to the increased potential for mismeasurement due to the changes in the BLS's method for surveying prices, have gotten me and my staff thinking more deeply about issues related to the measurement and interpretation of underlying inflation dynamics.

Given that these dynamics are central to deriving a view of the appropriate stance of policy, my team is considering developing a tool for monitoring inflation similar in spirit to our GDPNow and wage tracker monitoring tools, which we hope will allow policymakers as well as

the public to see a broader picture of inflation as we continually seek to assess the price stability portion of our dual mandate. We anticipate having this tool ready to share in the near future, and we'll keep the Committee apprised of our progress. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chairman. By and large, our Dallas Fed economists agree with the Tealbook forecast not only for 2020, but for 2021, so I think it's more interesting to comment about how we've been feeling over the past few weeks. I would say the risks to the downside, we feel, are much pronounced in the past couple of weeks.

I'm optimistic about the medium term, but I'm increasingly concerned about what's going to happen in the next six months. There are two main reasons for that, which are I think shared around this group. One is whether fiscal stimulus is going to be extended and the effect that the waiting period has had on particularly vulnerable groups. And two is the COVID resurgence and how it's affecting mobility and engagement.

I'll just comment on the fiscal stimulus front. Obviously, we're hearing every day, and I'm hearing every day, how it's causing some person-to-person small businesses to be very concerned about their ability to survive the next six months. But beyond that, I'm very worried that lower-income households are particularly vulnerable to a failure to extend fiscal relief. And while there's uncertainty about when their savings will run out, I hear feedback very similar to President Bostic's from banks and other contacts that maybe it is already running out now.

Related to that, we particularly note the deterioration over the past several months in labor force participation among those with a high school education or lower, particularly among women, particularly among Black women with children. And in our local communities that we work with in the 11th District, we're widely concerned, and business leaders are increasingly

concerned, about the economic vulnerability of those who have less educational attainment, those who have less access to childcare, less access to broadband, and are going to need to be reskilled in order to reenter the workforce. And we, like President Bostic and many of you, are having extensive conversations on how to beef up skills training in order to get prepared for that.

On the COVID resurgence, I'll just mention, we use a measurement here: a Mobility and Engagement Index at the Dallas Fed. Just to give you a comparison, that index measured zero in February, got as bad as negative 100 in April, and, since April, has consistently rallied with some fits and starts but stalled out at negative 40 around July and August and has really never improved from there. It reads around negative 40 for the state of Texas and it reads around negative 40 right now for the country. What we're starting to notice, though, in the past couple to three weeks, is that index in certain parts of the country is beginning to move lower. So, close to home, El Paso is a good example that has been widely reported to have a severe resurgence. Its Mobility and Engagement Index has gone from negative 40 to about negative 60. Wisconsin as a state has gone from about negative 40 to the negative high 50s. And there are other examples in which we're seeing resurgence lead to a real deterioration of mobility and engagement.

I guess the good news is, we think deterioration of mobility and engagement most severely affects only services consumption, which is about 40 percent of GDP. But I mention this because in our downside case for the economy, it is our estimate that if the rest of the country ultimately migrates down to a negative 60, which we're increasingly seeing in spots on our map that we track, that would mean instead of a contraction of 2½ percent for 2020, it would be a contraction of 4 percent for the year and negative GDP growth in the fourth quarter. And I must say, over the past few weeks as we watch the high-frequency data in mobility and

engagement and we see more and more localities gravitate down, we think that downside scenario is becoming more likely, not less likely.

Let me just comment—in some of our calls with contacts, and I guess I would echo what Loretta Mester said about a tale of two cities, and Raphael Bostic talked about it, there's obviously those firms that are in person-to-person contact industries that I don't need to mention—airlines, hotels, restaurants, movie theaters, entertainment, and some retail—are seeing very difficult times. Business is not picking up.

The exceptions are those that have been able to use technology to facilitate ordering, delivery, and pickup, and they've been able to offset their demand loss, albeit at lower margins. And we also see a striking difference in our conversation between those businesses and those sectors that have leverage and those that do not. We know how difficult it is for those businesses to get bank loans right now.

The flip side is, those businesses that sell durable goods, cater to residential real estate, are in the home improvement business, grocery business, or service businesses—professional services, in particular—who are able to work remotely with their customers are seeing solid business, and their expenses in most cases are down. And many of them have pruned their staff and senior executives. So they're actually seeing very good profitability.

I would say, by and large, though, when we looked at our surveys and the one we just completed among several hundred businesses and talked to larger contacts, there's great pessimism and concern that we'll have a tough fourth quarter and a tough first quarter of next year. But there's a lot of optimism that, in the spring and beyond, business is going to recover. And a number of these businesses, particularly those that have access to the public markets, are actively planning to gear up cap-ex and other expenditures to get ready for that resurgence in the

middle of next year even though they're braced for a rough fourth quarter this year and first quarter next year.

Most CEOs I speak with are looking to increase dramatically their investment in technology and have a heightened awareness that they're going to have to move very aggressively here in order to deal with disruptive competitors and, in their view, a lack of pricing power. Those who have had pricing power in the past six, eight months because of supply outages do not expect them to continue. They expect these supply issues to get resolved, and they're going to have to find ways to lower their costs.

And they're pessimistic about their pricing power. Size and scale, they tell us, have never been more important. This is why merger activity is on the minds of most CEOs I speak with, because they need to increase their size and scale to improve their competitiveness. Loose conditions in financial markets are very beneficial to these considerations.

Most of these companies are actively working on strategies to continue allowing their employees to work remotely beyond the pandemic. But, in addition, they are actively looking to replace people with technologies at the lower end, in terms of their skills, because they want to increasingly be able to add customers after the pandemic and reduce the incremental costs they incur to add customers. And these types of discussions, I'm finding, are widespread.

A couple of comments regarding migration—you've heard me talk over the past five years about migration of people and firms to Texas. It has ramped up dramatically over the past six months to a level that's—it's on a whole 'nother level. And while this is nice for Texas, this trend raises concerns that many high-tech states are simply going to be unable to meet their budget needs by raising taxes without losing more residents and businesses. This reinforces the need for more fiscal relief to state and local governments.

The other trend we're seeing, in terms of migration, which is interesting, is pre-pandemic, at least in our District, the trend was away from smaller towns and rural areas to larger population centers, big cities. We're actually seeing evidence from talking to our contacts, and maybe this is a good thing, that those trends are starting to reverse, particularly aided by the ability to work remotely. And I think it gives hope to some of the smaller towns and cities, at least in our District, that they'll be able to maintain their population better than they were before. So that's a positive thing.

I'll make one last comment regarding the oil and gas sector. I don't really have anything new to say that I haven't said before about the drop in production in the United States from about 12.8 million barrels a day at the start of the year to something less than 10½ million barrels a day by the end of the year. You've heard us talk about the shedding of jobs, bankruptcies, restructurings, greater merger activity, and also the awareness in the industry that size and scale are going to be more critical, in particular to meet the challenges of reducing greenhouse gas emissions, which in the oil and gas business means sequestration, which is a very expensive process that limits greenhouse gas emissions.

The reason I raise this topic, though, is, a lot's been made public about the damage to the country and the loss of jobs from the downsizing to this sector. And, in that regard, we've done a deep dive here at the Dallas Fed, and I'll just tell you what we found. In the extraction part of the business, oil and gas extraction and related machinery, we see that as being about 400,000 direct jobs in the United States. The pipeline and pipeline construction sector is about 200,000 direct jobs. And the remaining occupations relating to refineries, petrochemicals, plastics, and rubber products are about 1.4 million jobs.

Now, those numbers may sound low to you because you're hearing a lot bigger numbers thrown around when this is being discussed. Those are the direct jobs. The indirect jobs relate to trucking, railroad, logistics, et cetera. And when people use bigger numbers, they also include the income that is generated by the sector, such as from dividends and royalties, and how it's invested in other businesses unrelated. So sometimes you'll hear a number mentioned as high as 10 million jobs in the United States from this sector, but I'm telling you, the direct effect is just a small fraction of that. I guess, what's the point? The point is, it's a reminder that the oil and gas sector is highly capital intensive versus necessarily labor intensive. The weakness in the sector does have a significant effect on cap-ex, but that's the primary way we believe it affects GDP in the United States, much more so than through the direct employment and indirect employment effect.

I guess this leads me to believe, while the restructuring in the industry that is well under way is creating pain and certainly affecting people that are being let go, I think it's likely, from an economic point of view for the country, highly manageable. And the cap-ex that is lost is likely to be transitioned to other sectors, including ESG-related sectors, which should mitigate the effect of even the cap-ex negative for the country. So this is something we'll continue to track and watch, but I thought this deep dive was interesting. Thank you, Mr. Chairman.

CHAIR POWELL. President Barkin, please.

MR. BARKIN. Thank you, Mr. Chair. I've been encouraged by the rebound in spending. The residential market has been extremely robust. Consumer durables have been strong. Retail sales have been buoyant. Equipment investment has been solid. And I see continued strong support for spending based on healthy personal balance sheets, which in turn have been fortified by fiscal stimulus and constrained services spending.

I take the Tealbook point that the trillion-plus dollars of excess saving won't come into the economy all at once. But I do believe these savings de-risk the outlook for spending. On the higher end, I expect continued strength in goods and some release of pent-up services demand when the economy fully reopens. On the lower end, I think accumulated savings, deferred payments on loans and rent, and potential stimulus to come will sustain spending. I note the savings rate in the Tealbook never goes below pre-COVID levels. But I do expect some period of dissaving to occur at some point, especially as excess savings are evenly distributed across incomes and those who have lower incomes tend to spend what they have.

The strength in spending has been good for manufacturing. The Richmond Manufacturing Index hit its all-time high this month. That said, as President Mester said earlier, the whipsaw in demand has created supply chain challenges in many places. A few to note are shipping containers, bedsprings, aluminum cans, and lumber. And these shortages are creating near-term cost pressures.

But the biggest shortages, as several people have mentioned, are in labor, particularly in sectors like manufacturing, health care, and technology. This is, of course, strange when unemployment remains elevated. However, labor availability is constrained. Women's labor force participation has dropped, with schools and childcare closed or remote and women likely bearing the brunt of the adjustment costs.

Many employees still have health concerns, and stimulus may have given them the financial wherewithal to delay returning to the workforce. At least for the near term, there's a mismatch between the newly unemployed and the jobs available, in terms of skills and geography. And so long as this crisis is perceived to be temporary, the incentive for moving or retraining will be lower. That's why, for example, the furniture manufacturers in Hickory, North

Carolina, can't meet demand, and why I'm hearing employers talk about the need to raise wages as if unemployment was at year-ago levels.

Looking forward, I'm watching the COVID case rate closely, like everyone else.

Unfortunately, the escalation in the past few weeks suggests, as the Tealbook compellingly shows, that colder weather, which drives people indoors, could be exacerbating the spread of the virus. State governments are surely reluctant to fully shut down the economy again. Even so, the personal contact-intensive parts of the economy will remain demand constrained. And the resulting uncertainty, along with questions about the size and timing of further stimulus, risk damping hiring and investment.

I've heard a new phrase lately: Businesses are using a dashboard, not a plan. What that means in practice is that they're deferring longer-term commitment and trying to pace their spending to how the year develops. That suggests a wider range of outcomes than normal.

Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you. We saw a strong and welcome third-quarter bounceback from the depths of the COVID crisis, with the help of significant fiscal support. Even so, risks are to the downside, and the recovery remains highly uncertain and highly uneven, with certain sectors and groups experiencing substantial hardship. These *K*-shaped disparities risk holding back the recovery.

The third quarter was exceptionally strong, and spending data have come in stronger than had been expected consistently. Supported by low interest rates and pent-up demand, residential construction and home sales have surged above pre-pandemic levels, and business investment in

equipment and intangibles likewise appears to have bounced back, although investment in nonresidential structures has continued to decline.

Consumer spending on goods first exceeded pre-COVID levels in June and increased further in September, although at a slower pace. Staff analysis suggests that purchases during the recovery likely have increased the stock of durables above the level that would have been expected at the end of the year in the absence of the pandemic. In contrast, spending on services is improving only gradually, and indicators like hotel occupancy, TSA passenger screening, and restaurant reservations remain well below pre-pandemic levels. More broadly, the outlook for spending next year looks weaker than it did in September. Durable goods spending is expected to decline toward its pre-COVID trend early next year, and, absent any additional fiscal stimulus, lower-income households are expected to reduce consumption sharply as their savings are exhausted.

Similarly, while the labor market continued to improve in September, the pace of improvement is decelerating at a time when employment is still well below its maximum. While the unemployment rate posted a sizable decline in September, this was smaller than in preceding months and partially driven by a stronger-than-expected drag from virtual schooling on parental labor supply, as President Barkin noted.

Staff analysis shows a 1.8 percentage point increase in the share of parents out of the labor force for caregiving reasons, driven largely by mothers. More broadly, if we include the 4.4 million individuals who have left the labor force since February, the true unemployment rate would be 10.7 percent.

Although the number of workers on temporary layoff has fallen sharply to 4.6 million, the number of permanent job losers has continued to grow and now stands at 3.8 million. The

rotation from temporary to permanent layoff is likely to slow labor market healing as reemployment probabilities in a given month are two to three times higher for temporary job losers than for permanent job losers.

Moreover, COVID-19 is exacerbating existing disparities. For instance, the unemployment rate for Black workers is 12.1 percent, more than 4 percentage points higher than the aggregate. The count of longer-term unemployed rose sharply to 2.4 million in September from 1.6 million in August. Many of the still-unemployed workers who lost their jobs in March or April are reaching the exhaustion of their unemployment insurance benefits. As a result, recent declines in insured unemployment may overstate improvements.

Regarding the other side of our dual mandate, readings on price inflation again surprised to the upside. Durable goods prices, particularly the prices of used cars, rose notably more than expected as inflation in that category has moved above its pre-pandemic trend. Meanwhile, services price inflation remains soft, and prices for the categories most affected by social distancing, such as accommodations and airfare, remain very depressed.

Importantly, we've seen a slowdown of housing services inflation. While elevated unemployment tends to exert downward pressure on housing services inflation, regional data indicate that that weakening has been more pronounced in the west and northeast than in other regions, a pattern that could be consistent with pandemic-related transition away from urban areas. Like President Bostic, I am mindful that the categories in which we have seen the softening could prove more persistent than those in which we've seen unexpected strength.

The most recent readings on longer-term inflation expectations were mixed. While the median expectation from the Michigan consumer survey moved back down to the lower end of

its range, the Blue Chip and primary dealer survey measures were unchanged, and market-based measures moved up closer to pre-pandemic levels.

Regarding the foreign outlook, downside risks have risen with a sharp resurgence in the virus's spread in Europe, and the forecast now includes a contraction in the euro area during the fourth quarter. This contrasts with third-quarter foreign GDP, which showed a sharp rebound. China posted solid GDP growth at 13.1 percent for the third quarter after recovering to its pre-COVID level in the second quarter, and we also saw stronger-than-expected growth for emerging market economies, like Brazil, India, and Mexico, where exports have returned close to pre-pandemic levels. Although euro-area real GDP expanded at an annual rate of over 60 percent in the third quarter, more recent indicators point to a retrenchment. The dramatic rise in case counts has been met with mobility restrictions in France, Germany, and Italy, and these restrictions are likely to exert a significant drag.

Finally, while financing conditions for residential real estate and large corporations with access to capital markets remain generally accommodative, bank lending conditions have tightened further, as we discussed earlier. In particular, with the end of the PPP, a lack of further fiscal support amid surging case counts has resulted in a materially darker outlook for small businesses, with more than half of those responding to the Census Small Business Pulse Survey reporting having no more than two months of cash on hand.

In financial markets, the fragile equilibrium that contacts spoke about last round has been disrupted. The virus resurgence and the imposition of restrictions in Europe, along with uncertainty about the U.S. election and prospects for fiscal support, have driven both realized and implied financial market volatility higher in recent weeks, with the VIX again touching 40 last week and the stock market down, on net, over the intermeeting period.

Risks are to the downside, with the virus spread and the government's response to it at the top of my list. The risks that cold weather will bring even higher case counts and hospitalizations that might necessitate the return of more stringent restrictions is more salient in light of what we have seen last week in Europe. An earlier-than-expected vaccine still is a legitimate upside risk. But, in my view, changes since the September meeting place more weight to the downside on net.

Apart from the course of the virus itself, the most significant downside risk remains the prospect for insufficient fiscal support. The premature withdrawal of fiscal support risks allowing recessionary dynamics to become entrenched, holding back employment and spending, increasing scarring from long unemployment spells, leading more businesses to shutter and ultimately harming productive capacity.

The staff removed a presumption of additional fiscal stimulus from their projections without too much damage to their medium-term outlook, based on the strength of incoming data, a change in assumptions about asset purchases, and a reassessment of household balance sheets. But I share the skepticism voiced by President Bostic and President Kaplan that the stock of savings in low-income households will prove sufficient to smooth consumption without the extension of unemployment benefits, forbearance, and eviction moratoriums.

Meanwhile, the outlook for the small businesses that employ a large fraction of the workforce continue to worsen. And, if services spending remains depressed, many firms who have weathered the storm thus far risk failure. States and localities also may face difficult cutbacks if federal support is not forthcoming.

With the third quarter in the rearview mirror, the easiest part of the recovery also appears to be behind us. Further targeted fiscal support will be needed, alongside monetary

accommodation, to turn this *K*-shaped recovery into a broad-based and strong recovery. I look forward to talking about our part of that response tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. A number of my directors and other contacts report steady improvement in business activity and expect this momentum to persist for a time. Still, some sectors of the economy remain significantly depressed, and most of my contacts continue to be cautious about future improvements. Their collective commentary is consistent with an economy that will be closing resource gaps over the near term but with a good deal of uncertainty over what lies beyond the horizon.

The durable goods sector continues to be the brightest spot. Despite tight inventories, a large automaker continues to expect solid sales. Pricing has been firm, and while the automaker said they haven't run into major supply chain issues, parts suppliers report scrambling to keep up with demand.

Other manufacturers also seem pleased with the progress their companies are making. The CEO of a manufacturing conglomerate expects that industrial equipment sales will be brisk for at least a couple of quarters as their customers replenish depleted inventories.

I talked to two major producers of heavy equipment who reported that sales have been lifted by strong residential construction. As a result of large government support payments, one also expected strong farm income would boost sales of agricultural equipment. His optimism did favor grain over livestock interests. For grain producers, this year might be as good as \$7 corn was for income back in 2013.

In contrast, the harder-hit sectors of the economy continue to struggle, and no turnaround appears in sight. Many small businesses are hurting. The CEO of a regional chamber of

commerce indicated that numerous small firms in underserved communities have already ceased operations. Without pre-pandemic bank funding, many of these businesses face significant barriers to receiving PPP loans. In the meantime, they have limited resources to draw on while waiting for activity to pick up. He anticipates many more small business failures will be coming.

Even my optimistic directors express a high degree of uncertainty about the outlook and raise a number of risks that could threaten some of their gains. Everyone is focused on protecting their bottom line, and I wouldn't be surprised if these efforts led to a wave of corporate restructurings that will reach well beyond the leisure and hospitality industry. Of course, the biggest risk remains the virus.

A large equipment manufacturer lamented the struggles his North Dakota plant was having with high absenteeism after the explosion of COVID cases in the region. His company has been operating under strict COVID protocols for months, which generally have been successful. Indeed, the CEO just returned from a visit to a plant in Texas where he said he'd never felt safer. Even if he may be bragging a little bit, safety is being taken very seriously throughout the factory, and production is humming. The kind of comment that he made was, "This is an area that has been hit pretty hard, and everybody sort of woke up and started doing things even more safely. And there was 100 percent compliance with masks."

This company's experience highlights the remarkable resilience many firms have shown in working through the COVID challenges. But it also is a stark reminder that the challenges are not going away, and firms will have to remain vigilant and continue to expend valuable resources in addressing further outbreaks. And a number of my colleagues have already mentioned that.

Many contacts commented on the need for additional fiscal stimulus. They noted that without further government support, some consumers and small businesses would be severely

affected, putting the economic recovery at risk. That said, some potential stress points have been more moderate than expected, at least to date.

Notably, state and local finances are in better shape today compared with the tsunami-like catastrophe anticipated earlier in the year. In Michigan, revenues have fallen much less than expected, and their fiscal year 2021 budget contains less dramatic spending cuts than they had braced for. Still, this has reduced pessimism—not really optimism, like the sense of relief one feels when the category 5 hurricane veers away and misses hitting you head on, with apologies to President Bostic and the experiences that you've had in your own region. Looking ahead, state officials are worried, especially if they do not get additional aid from the federal government.

Turning to the national outlook, I have been surprised by the strength in the economy in the face of virus outbreaks and the loss of fiscal stimulus. In the end, we left our growth forecast largely intact despite removing our assumption of another fiscal package. The Tealbook also made this judgment.

That said, I do not have a high degree of confidence in growth forecasts beyond the next quarter or two. There are just so many unresolved issues. For example, will businesses and households continue to successfully adapt to the pandemic, or will fatigue lead to complacency? And what would be the health and economic effects of such a relapse? We are flying blind with regard to many such questions. We hope we will know more by next spring.

With regard to inflation, we see it reaching target in 2023 and beginning to overshoot in 2024. I don't expect to find COVID-related relative price changes affecting inflation measures—not persistently, but I look forward to hearing more on the Atlanta Fed tracker efforts in that regard.

I am hopeful that we will achieve my stronger inflation outcome rather than the much more modest path found in the Tealbook. As a policymaker, I favor keeping our eye on getting inflation moving toward 2½ percent in the foreseeable future, not merely inching above 2 at some far distant date. But the Tealbook forecast highlights how the inflation risks are clearly to the downside, and that we likely have a lot of work ahead of us to produce an acceptable outcome. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard, please.

MR. BULLARD. Thank you, Mr. Chair. I have just a few comments on the economy. While I acknowledge continuing downside risk as a baseline, I remain optimistic on the continuing pace of recovery—not quite at the pace of the third quarter, which is plus 30 percent at an annualized rate, but certainly well above the trend pace for the U.S. economy over the coming quarters.

I see labor markets as continuing to improve and inflation expectations generally moving higher in the months ahead as recovery continues to go on. I see monetary policy as well suited to the current environment, and, consequently, I see little need to alter policy substantially over the near term. I think global macroeconomic risk is now, again, centered in Europe, whose recent macroeconomic data and health data have been less robust.

Some of this is coming from my business contacts, who are quite optimistic, I would say. They make a lot of comments that are consistent with the very rapid growth that we saw in the third quarter. They have been pleasantly surprised to the upside during this period. They do acknowledge the K-shape of the recovery. They do acknowledge that certain sectors and certain groups—Black and Hispanic—are hard hit. But, on the other hand, for many businesses, they

think that the risks coming from that are manageable, and so if they are on the upside of the K-shape, they think they are in pretty good shape.

My assessment of the pandemic is that substantial progress has been made in learning how to manage the disease. While downside risk remains, my base case is that the pandemic will continue to come under better control in the months ahead in both the United States and Europe. That means I envision a future with both better health outcomes and better economic outcomes.

I think you can make progress on both dimensions at the same time, which is essentially better management of the new mortality risk that has descended on these economies. The U.S. economy already faces other types of mortality risk, which we are very familiar with and very used to. We have many, for instance, accidental injuries. We have many risk mitigation activities in place to try to contain that mortality risk. This pandemic presents us with a new mortality risk that we are not used to dealing with.

We are getting a lot better at it as time goes on, and the good news is that the types of activities that you have to take on to keep this under control are quite simple at the end of the day: Stay away from other people, wear a mask, work from home, and use personal protective equipment. These are cheap, inexpensive, and easy to use, and they have been employed across the U.S. economy and will continue to be deployed in the days ahead.

I like the metric of fatalities per million per day to keep track of how the pandemic is progressing around the country and around the world. We just saw this in a staff presentation. Accidental injury is 1.5 deaths per million per day, so that gives you a benchmark on these numbers. For Europe, defined as the United Kingdom, France, Germany, Italy, Spain—321 million people—their peak fatalities per million per day were about 10. You can see a

version of that in the chart presented earlier. They got it all the way down to one-half, a 95 percent reduction. Now they're up again and increasing up above the U.S. pace right now. So we'll see how they're able to contain that. But the increase in EU cases and the increase in EU fatalities are not occurring in a vacuum. It is well understood in Europe that they are going to have to get tougher and have to be better about managing the disease.

In the United States we have been running at about 2-plus fatalities per million per day, recently trending up—2.7 the last time I checked. The U.S. peak was about 6½ in the first part of the pandemic. So, again, accidental injury is 1.5 per million per day, third largest cause of death in the United States. A pandemic running at this pace would be the third largest cause of death. So it's pretty substantial, and it's still running at a high rate, but I am pretty confident that we can push that down even while we're waiting for better therapeutics and a possible vaccine.

Asia Pacific is near zero on this scale, a fact that I think we need to reckon with both in the macro community as well as in the epidemiology community. They just don't register on the same scale. They haven't had anywhere near the kinds of cases or anywhere near the kinds of fatalities, and Asia Pacific is a very large area. I am incredulous that they have had stellar management at every turn. I think, instead, there's probably some kind of natural immunity in that part of the world that isn't apparent in North America or Europe. So, from a macroeconomic perspective, it means that Asia Pacific is probably going to be the leader in coming out of this pandemic, the United States will probably be second, and Europe will be third. That would be the ordering that I would be looking at, because of the degree to which the different places can keep the pandemic under control.

To be a classic second wave, in my opinion, you'd have to get the daily fatalities up above the previous peak. That is what happens in a classic pandemic, and in the graphs that you

look at, I think that that's a low probability, and that's why I don't have a second wave in my forecast. That's not my baseline. I understand that there are risks, but that's not my baseline. I don't think that's going to happen, given the management of this and the information on this.

Confirmed cases and hospitalizations are rising again in the United States. The United States has had two peaks in hospitalizations, which are also in a graph shown earlier today. The first one was associated with a big downturn in macroeconomic activity, but the second one, which occurred in July, was not associated with a big downturn in macroeconomic activity, and so I don't think there is any clear and easy correlation between these. Again, the disease management can be executed in a way that is not necessarily contradictory to better macroeconomic and better business performance.

Finally, on the disease, I think it's likely that infections at this point in the crisis are driven by human interaction in situations that are less tightly managed than a business setting or a production environment. We just heard an example from President Evans regarding a very tightly managed production environment, super safe, following protocols exactly. That's kind of what you would expect in a factory setting. They are very used to doing this kind of thing. They are very used to thinking about safety.

I don't think the infections are coming from those kinds of settings. It's more coming from family gatherings, home settings, other kinds of situations that are not tightly managed by anybody except the family themselves or the individuals themselves. So that cannot be mitigated by business disruption but has to come through public education, and that's why I think we're still going to have a run of confirmed cases.

Also, the people that are the most susceptible are certainly well aware that they're the most susceptible. They are taking extra precautions, and for that reason, I think we'll see fewer

fatalities even though we have more infections. In addition, we've got better treatments out there than we used to have, so I think we will not get at least my definition of a second wave, which would be to get up into the 6½ per million per day peak in fatalities that we saw earlier this year.

On the economy, as many have said, there's generally been better-than-expected news. I have been using the Citigroup Economic Surprise Index, which has also shown up in staff presentations. I take it that the forecasting community is putting too much weight on the recovery from the Global Financial Crisis. That was an unusually slow and very lengthy recovery. That is not the norm. And this shock is very different from the shock that caused the Global Financial Crisis.

I think the forecasting community is still adjusting. I think the Tealbook has done a pretty good job, frankly, but the rest of the forecast community is still adjusting and projecting too slow a recovery, given the nature of the shock here. I think this upside surprise will likely continue through the fourth quarter and out into the first half of 2021—however, not in the EU. In the EU, the macroeconomic data have taken a turn for the worse, and so that's why I say the EU is really the risky place right now from a macroeconomic perspective.

So my theme has been today, as it has been in recent meetings, that businesses continue to learn how to produce in a way that protects workers and consumers, and that this process is going to continue. It does have its limits, and so it's going to be slower going as you get to businesses that are harder and harder to manage. But, nevertheless, I think this process is going to lead to fourth-quarter GDP growth in excess of 5 percent.

Some businesses will not or cannot adjust, and they certainly get talked about a lot. Movie theaters are one of the favorite examples here, but there is going to be substitution to other goods or services. Netflix is certainly doing very well in this environment. People are

substituting home theater for conventional theaters. That's one example of the kind of substitution that is occurring and will continue to occur. Even in the hotel and motel industry, if the hotel is close to a beach and you can drive to it, my anecdotal report suggests that that's going to be a very successful situation compared with a hotel that is in a downturn that relies on convention traffic. That is going to be a very bad situation from the hotel's perspective. So I think we're going to have to get more granular in our thinking—even within these categories—about which types of businesses are being hit hard and which ones are not, because for some, even within something like hotels, there's a wide variety of experiences.

On fiscal policy, I agree with the Tealbook that the previous fiscal package is enough for now through the near term. I think this is because of a combination—as I've stressed before, the Congress authorized on the order of 14 percent of GDP to try to combat this pandemic. It now looks like national income will only be down 2 to 3 percent by the time we get to the end of this quarter. You're filling a hole of only 2 to 3 percent with a pile worth 14 percent of GDP. So it seems like there are enough resources, at least for now, to get us through the end of the year and into the first part of next year.

Why did that happen? I think it's a combination that the package was passed at a time when the shock was perceived to perhaps be a lot bigger than it has turned out to be, in macroeconomic terms. It was calibrated for a larger shock than the one that has already occurred. The economy has done better than expected through this period, as everyone is acknowledging here. So that's making the dollars go further from that first package.

I am also expecting a new package in the first quarter. It will be based on the situation at that time, so we'll have to get through the holiday season. Nevertheless, I think it will probably be quite large and bipartisan, so we'll see where we are in the first quarter. I think once we get

that package that will help us get closer to the end of this crisis without undue stress—so that helps—gives me some confidence that we can get all the way through this.

On labor markets, they're still fragile but continue to improve. I think this temporary layoff issue is critical for understanding the dynamics. I would recommend the paper by Hall and Kudlyak that just came out in October 2020 talking about these issues. The temporary layoff category is sky high compared with where it would be in a normal recession—way out of the norm. As has been talked about here earlier, the job finding probabilities are much higher for those on temp layoff, and much of the reduction in the official unemployment rate has come from people simply being recalled.

We do have millions of people still on temporary layoff. They can be recalled, so I'm hopeful that that's what will happen in several months ahead here, and that the official unemployment rate will continue to fall. I have penciled in 6½ percent unemployment for the December jobs report, so you can check me on that. In the first week of January we'll see where we come out.

I continue to see a relatively rapid fall during 2021—although not as rapid as in 2020—and maybe we can get below 5 percent by the end of 2021. So that would be pretty successful for this episode. No one wants to go through a shock like this, but if we could get that to happen, that would be great.

Permanent layoffs, as has been mentioned, have been moving higher. But I would point out that permanent layoffs were much higher during the Global Financial Crisis. We are not at that peak yet. So it is climbing, but I am hoping that the permanent layoffs will hit a peak. It does take longer for those to get back to work, so that's what is going to slow down our progress

on the unemployment rate during 2021. But I still expect it to be more rapid than it was during the Global Financial Crisis.

The post–Global Financial Crisis situation was the recovery from a financial crisis. We know that the evidence on that is that it's very slow. And that was Reinhart and Rogoff, and they turned out to be right about that. This shock is not coming from a financial crisis, so I would expect the recovery to be more rapid and more in line with typical recoveries in 2021 once we get rid of the temporary layoff issue as we go through the end of this year.

I also think there will be a light-at-the-end-of-the-tunnel effect, which is different about the pandemic compared with other types of shocks. You know, the pandemics will come to an end at some point. We will get good therapeutics. We will be able to drive the fatalities per day per million down below the accidental injury benchmark. There is light at the end of the tunnel about managing the pandemic and bringing it to a close. I think that has important macroeconomic effects that will increase investment, and we've heard comments already here today about some effects in that direction. If you're going to build a big plant or make a big investment, you might be thinking about what the world is going to be like in 2022, and you might go ahead with your plans, even today.

I don't think that right now we're quite to the point at which this is a big effect, but as we go into 2021, I think we will see more on this dimension. So I think the baseline challenge ahead may be to adjust policy expectations appropriately during 2021 as the economy continues to improve more rapidly than expected.

Again, I think Wall Street and financial markets generally have something programmed in their mind, which is just to replay the 2010–18 experience, which was super slow, and that's probably not what's going to happen here. And sometime during 2021 we may have to adjust

people's expectations about what's going to happen here. But some of that will be done naturally by the data if what I'm saying comes true here.

So I'm being pretty optimistic here, but I do acknowledge the downside risk that others have acknowledged. I understand we're in a crisis and things can go badly, but this is my base case. So thanks very much.

CHAIR POWELL. Governor Bowman, please.

MS. BOWMAN. Thank you, Mr. Chair. In the weeks since our previous meeting, economic activity has continued to rebound dramatically. There is still quite a bit of ground to make up, and we continue to face sizable uncertainties. But we've seen broad-based gains in consumer spending over the past few months, strengthened by the strong increase in employment. Spending on goods moved up especially rapidly through September, and indicators for October suggest continued momentum.

In my recent conversations with bankers throughout the country, many have reported that demand for homes and purchase mortgages has increased significantly, with many describing increased loan volumes nearly doubling the previous year's total during the summer months. At the national level, September home sales jumped to their highest rate since 2006, as Paul said earlier, with low inventories putting upward pressure on home prices in many areas. Mortgage originations are booming, generating a healthy cash injection to financial intermediaries.

Airport traffic has also picked up noticeably, and motor vehicle sales have recovered strongly. Sales to retail customers have moved well beyond their pre-pandemic levels, and dealers are reporting very tight inventories. Although car sales to individuals have been strong, corporate sales have lagged, with fleet sales to rental car companies still very weak, which can be

explained by the persistent weakness in business and leisure travel due to COVID-19 and related state and local restrictions.

Even with the restrictions, we're seeing overall commercial business activity rebounding much more strongly than many had expected. Business investment rose sharply in the third quarter, and we have seen a substantial increase in goods exports. The rise in exports was particularly noticeable in the agriculture sector, with exports of ag products to China rising sharply in recent months. Overall conditions in this sector are much improved this year, including significantly increased crop yields in some areas and stronger commodity prices. But I would note that the temporary government payments also played a significant role in contributing to the strength in this sector.

More generally, recent conversations with bankers reflect a fairly optimistic outlook about business prospects over the next year, though they remain worried about the services sector. Their upbeat outlook is consistent with the October ISM manufacturing survey data, which was at its highest level in two years and suggested strong growth would continue in the next several months.

The substantial pickup in spending is reflected in the latest labor market figures, with the BLS employment data showing strong job growth through September, and the staff's estimates based on private payroll data indicate further large gains in October. That said, we are still seeing a lag in improvement in some conditions for different subgroups of the population. Since April, the unemployment rate among Blacks has declined 4.6 percentage points, compared with drops of 8.6 for Hispanics, 5.6 for Asians, and 7.2 for whites.

Looking ahead, I expect the recovery to continue, although uncertainty remains elevated and risks are weighted to the downside. Most importantly, the rising COVID-19 case numbers

both here and abroad remain a major public health concern and a major source of uncertainty for the economic outlook.

At the same time, however, we are seeing the effect of the pandemic on economic performance lessen as time goes on. This is partly because the broad business lockdowns and other government restrictions on activities have eased some since the first wave of infections occurred. It partly reflects the fact that more effective treatment protocols have been developed over time, resulting in lower rates of serious cases and fatalities. But I believe the effects are also diminishing because many individuals have reached a point at which they feel they have put their lives on hold for long enough, and they are now just doing the best that they can to carry on in a difficult situation.

This is not to say that individuals are not recognizing the risks that their activities entail. Rather, it's that people are finding that their lifestyles over the past eight months are not a sustainable model for human behavior—or, put another way, that the economic, emotional, and other costs are simply too great. Even if we continue to see rising case loads, it appears increasingly unlikely that we will see a return to the broad-based lockdowns that we saw earlier in the year. If those lockdowns are again broadly imposed, there could be resistance and noncompliance, similar to what we're hearing lately from Europe.

For better or worse, it seems that individuals are less willing to remain isolated and are getting on with their lives, and, with the holidays approaching, I expect we will see further moves in this direction over the next few months. Along with these developments, I expect we will see increased demand for leisure and hospitality services, which, in turn, should bring about a much-needed increase in service-sector jobs. Many service-sector businesses have not yet reopened or they're restricted from opening at anywhere near full capacity.

Moreover, the prospect of further severe restrictions on activity presents a major risk to the ongoing recovery, which, as we know, has some way yet to go. While restrictions on mobility and commerce may be a good approach to controlling the spread of the virus, in my opinion they come at a very high cost. As we saw during the previous financial crisis, periods of unemployment can cause substantial and lasting damage to individuals in terms of their economic, emotional, and even physical well-being. When people are unable to work, problems like crime and drug addiction tend to worsen. A recent health study looked at county-level data and found that a 1 percentage point increase in unemployment was associated with a 3.6 percent rise in the opioid death rate and a 7 percent increase in opioid-related ER visits.

Another source of downside risk relates to the future direction of public policy. Economic performance over the coming year will very likely continue to be influenced by pandemic-related response and mitigation measures. The effects of those decisions on employment in the services sector and the timing and composition of further fiscal support, if any, will shape my outlook for the economy.

As an example, we've seen that many of those who received mortgage forbearance have continued to make monthly payments, and delinquency rates on mortgages and rental housing have not spiked as many had feared. But without return to employment or, in its absence, targeted fiscal assistance, I'm concerned that these conditions will deteriorate when moratoriums on evictions and mortgage forbearance programs lapse. So while I'm optimistic that the economy will continue to improve, we will need to monitor these risks in the weeks and months ahead. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. Following a strong recovery in the third quarter, I see growing signs that momentum in the economy is slowing. Some of this deceleration was inevitable, as the reopening of the economy this spring led to record labor market gains and strong spending on goods. But more recently, there are signs that the economy may be treading water, with the rise in virus cases while the unemployment rate is still uncomfortably high and spending on services is stuck firmly below pre-pandemic levels. To date, this has been a recovery marked by sharp contrasts and uneven experiences.

Reports received from our regional contacts range from those who cite record sales and face challenges finding the employees they need, to those that at the start of the year were viable businesses but now are barely able to survive—teetering on bankruptcy, laying off workers, contemplating closing their doors, or all of the above.

Our regional contacts in the low- and moderate-income community point to growing concerns about demands for basic services. One United Way office noted that calls have doubled this year compared with last, with almost half of those calls requesting assistance on rental payments or utility expenses. The expiration of the eviction moratorium next month will further aggravate the hardship in these lower-income communities.

Contrary to the downbeat reports I've shared about agriculture over the past few years, the District's ag sector is currently experiencing a tailwind from higher crop prices and additional government aid. Since our September meeting, demand from China has increased, as has domestic ethanol production, resulting in prices surpassing pre-COVID levels by some 15 percent, on average, for corn, soybeans, and wheat.

The path of the virus, on the other hand, has not been good, with cases surging particularly in the Midwest. As restrictions return and consumers exercise increased caution, the

recovery is likely to be prolonged, with a growing risk of a general recessionary dynamic taking place. The number of job losses reported as permanent has been climbing steadily even as temporary losses continue to fall back.

The risks of labor market scarring, as highlighted in the Tealbook box on the long-run consequences of the pandemic, are increasing, and the spiking cases in Europe with renewed restrictions could further delay the recovery in U.S. exports. Overall, the economy is unlikely to fully recover without additional fiscal support until the virus no longer interferes with the public's day-to-day decisionmaking.

Some have downplayed the importance of further fiscal support, pointing to the elevated savings rate as a sign that households have accumulated a buffer to maintain consumption even absent further transfers. However, I think this view may be too sanguine. Analysis by my staff suggests that a substantial portion of the higher savings is likely to be retained as a precautionary buffer against further shocks and not spent down in the near term. Certainly, households have learned since March that their incomes are subject to greater risk than they might have previously thought, and it would make sense that they would want to maintain larger liquidity buffers.

All of this leaves the outlook for inflation particularly unsettled right now. While overall inflation is being held down by a few sectors hard hit by a virus-induced collapse in demand, many other sectors have seen inflation step up because of supply disruptions or strong demand. If demand continues to strengthen even as supply bottlenecks remain, prices could move up faster than expected. But I also see some risk that continued high unemployment and the end of the eviction moratorium could lead to a sizable decline in rents and housing inflation, resulting in a substantial drag on inflation. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. First Vice President Feldman, please.

MR. FELDMAN. Thank you, Mr. Chairman. Our bottom line is a pessimistic view consistent with a second wave as the base case, informed in part by our recent experience with the Ninth District also seeing relatively little pressure on inflation. Let me flesh that out a little bit.

In the Ninth District we've seen some continued slight economic growth. But as many people have pointed out, it's been very uneven. Strength in ag, manufacturing, residential construction and real estate—a lot of weaknesses with smaller firms, for which we've seen weak increases in revenue and employment drops.

But, really, the big news here has been the increase in COVID-related deaths and cases, as a number of participants have already noted. North Dakota, South Dakota, and Montana have death rates that are similar to the worst spots in Europe. Wisconsin—this was already mentioned by President Kaplan—and Minnesota have also seen high increases in case rates. We're already starting to see, commensurate with that, decreases in foot traffic and other measures of engagement.

In some sense, that's really sort of the early stages of where we're at relative to Europe, where we've seen a very dramatic increase in cases and getting a new round of lockdowns, as many people have noted. What does the Europeans' experience tell us? Well, first, that we're nowhere near herd immunity. If you look at places like Belgium and Spain that were hit very, very hard before, they're being hit very, very hard again.

Second, to the degree to which our return to "normal economic activity" is associated with the relaxation of wearing masks and social distancing and all of the other things that have been shown to be effective, we're going to see a very large increase in cases and deaths, as

opposed to what we've seen in Asia, where it looks like those mitigants have been maintained, along with contact tracing.

More broadly for the United States, where—again, this sort of informs our view—we've seen growth in the third quarter, but mostly in the summer—we think we're going to see an increase in cases along the lines of what I just said as it gets colder; as there's a lack of discipline associated with masks, social distancing, and the like; and as we may get additional spreading events associated with Christmas and Thanksgiving and other areas in which we might get more trouble than we would expect. We are expecting maybe not lockdowns along the lines of what we've seen before, but some additional government reaction. In addition, regardless of what state and local governments have done, there's a lot of evidence that people are going to distance themselves.

Building on the comments from Governor Brainard, when we look at unemployment and the reduction in the people who have been furloughed, we now see that more folks in the unemployment category are less likely to come back because they're not really on temporary layoff anymore. Many people have pointed out also that the fiscal stimulus is unclear and that the experience in Europe is likely to have some spillover to us.

So all of that makes us think that the Tealbook economic forecast of economic growth is too optimistic, and we see little pressure on inflation. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles, please.

MR. QUARLES. Thank you, Chair. As many and probably most of you have said, notwithstanding a robust recovery to this point, downside risks to the economy in the United States and in Europe have increased since the previous time that we got together. In the United States, somewhat, in Europe, I think materially more so despite having driven cases to very low

levels earlier this year or, depending on the epidemiological theories that one subscribes to, perhaps as a result of having driven cases to very low levels earlier this year, several countries have recently experienced a resurgence in cases and responded by reinstating significant restrictions on economic activity. In the United States, recent announcements would suggest a possible imposition of additional restrictive measures by state and local governments.

And although it's not yet apparent in the data—but, again, as a number of you have noted, whatever the official reaction, more individuals may react strongly to the publicity about high case counts and pull back from social and economic interactions, which could lead to a bigger seasonal swing in economic activity as winter arrives in the north and outdoor options shrink or if people aren't as willing to engage in winter activities and the travel associated with that as they were for summer activities.

And that intensified social distancing, whether mandated or voluntary, would be particularly damaging to small businesses, many of whom remain vulnerable even without a second shock. Survey evidence shows that more than half of small businesses have less than two months of cash on hand, and 20 percent believe that they'll need additional assistance over the course of the next six months. And on top of that, our discussions with banks and surveys by the NFIB and Wells Fargo/Gallup indicate that loans at currently prevailing terms are unlikely to ameliorate the strains on small businesses, especially those that are in already affected sectors. And then, on top of that, the resolution of the fiscal negotiations may drag out for some time.

So, now, those downside risks are in an economy with unemployment still at the elevated level of 7.9 percent—that's the 90th percentile of the postwar monthly distribution. And that's concentrated among multiple particularly affected segments of low-income workers—again, as a number of you have noted. And on top of that, labor force participation remains constrained by

several aspects of the COVID event, so unemployment doesn't give the full picture of the labor market damage.

And yet, even in the face of that damping news, we continue to get positive news about treatments, about vaccines, about better-targeted containment measures, and a better and more widely spread understanding of the stratified public health risks among different sectors of the populace. As a result, the trends in real-time economic indicators through October suggest that large portions of the public remain willing to adjust to the risks of the virus in ways that support the economy. And here I would associate myself with much if not all of Governor Bowman's comments, which, if I had any intestinal fortitude, I would have written myself.

So what are some factors related to that? Weekly unemployment claims data declined to the mid-700,000 range at the end of October. The weekly average of total credit and debit card spending from Fiserv was above last year's levels as of October 25. The average of new orders indexes and regional business surveys that are being conducted by six of the Federal Reserve District Banks rose further in October from already strong levels in September. And although obviously still very depressed, total traveler throughput reported by the TSA averaged about 37 percent of 2019 levels through the last week of October compared with only about 32 percent at the end of September and only about 26 percent over the second half of July.

The composition of the very strong recovery of economic activity in the third quarter also suggests strong momentum for further growth the rest of this year and the next. Equipment and intangible spending was stronger than expected in the third quarter, and that continues to show widespread strength. Projections for subsequent quarters were revised up from the September Tealbook. Durable goods orders were strong in September, especially in the category of

nondefense capital goods excluding aircraft, and that supports continued gains in capital spending for the fourth quarter.

On the household side, consumer spending also was stronger than expected in the third quarter and the savings rate remains well above normal, which suggests continued support for consumer spending. Residential investment contributed importantly to third-quarter growth, with home sales continuing to boom in October, and these investments in homes should also provide continued knock-on purchases of durables and home improvement products. Low interest rates are driving an elevated pace of refinancing of existing mortgages, and that supports future spending. So I would definitely agree with President Daly that there are reasons for optimism apart from a sunny disposition.

Regarding inflation, PCE inflation obviously is still well below our 2 percent target. And recent data show some components moderating, but the risk of a downside tail scenario for prices has diminished amid this very strong third-quarter recovery. Notwithstanding the softer-than-expected reading on PCE inflation last Friday, the staff has revised the inflation forecast higher this year, on net, over the summer.

Wage growth measured by the employment cost index has decelerated from the gains that it was registering during the job market boom of 2017 to '19, but it's been well within the range that we saw in 2011 and 2012, which was the last time that unemployment was as elevated as it is now. Market-based inflation expectations have also returned to their pre-COVID range, and the staff's broader measures of inflation expectations have been stable this year.

Inflation within the services sector, which a number of you have commented on, has been soft, in part because prices in the hardest-hit businesses remain depressed. But this strikes me as an upside risk to inflation going into the second half of next year and into 2022, as the

widespread disruptions to some of those businesses this year may make it difficult for those sectors to expand supply to keep up with the growing demand, especially if the period of social distancing were to resolve more quickly than expected.

Pulling that all together, my current views of the likely path of economic activity align with the staff simulation labeled “Faster Recovery,” which I think balances the upside and downside risks we face, with inflation likely running somewhere between that scenario and the “Inflationary Pressures” scenario.

I do place fairly high odds on a material fiscal package after the smoke clears on the interactive map, and that provides the potential for a “Faster Recovery” scenario. In particular, I’m assuming that if moves by state and local governments to reimpose measures that led to significant economic disruptions become common, then that ultimate fiscal package will be tailored accordingly. As a result, I still see only a small risk of the more adverse scenarios in the Tealbook, but for all the reasons I outlined earlier, stagnation over the next few quarters, as in the “Slower Recovery” scenario, is a possibility, just not the prime possibility. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I briefly considered, after listening to the fascinating discussion, trying to synthesize and weave together all of the ideas and thoughts—I assume I have an hour to speak and try to do that. But I have decided instead just to give my personal views.

I am reminded of the ancient Roman god Janus who had two faces, one facing the past and one facing the future. Looking backward, the economic data over the intermeeting period

were substantially better than expected, and it sounds like they were even better than expected by Governor Quarles. So that's something.

Growth for the year as a whole looks to be around minus 2½ percent, which is far better than we feared just a few months ago, and, of course, it's a significant upgrade from even recent forecasts. But when you look into the future, a different picture emerges, with a much shallower path of recovery and downside risks related to the surge in the spread of COVID and uncertain prospects for fiscal support for the economy.

The news on the pandemic has worsened dramatically both domestically and abroad. In Europe, after a period of relative calm during the summer, we're seeing a sharp resurgence of infections across many countries. Hospitalizations are also rising quickly, rivaling the numbers in spring and straining hospital capacity in many areas. Governments in Europe are responding by imposing or making more stringent restrictions, including through partial national lockdowns. These actions, although necessary and, if anything, overdue, will likely result in some pullback in economic activity, and we're seeing some signs of that already.

New cases and hospitalizations are also rising here in the United States. Several factors, including a large base of active infections, the shift to indoor activities, in which virus transmission appears higher, and the upcoming holidays associated with family gatherings, risk making the current wave appreciably worse than the one in the summer. Although the extent to which rising cases will affect overall economic activity remains highly uncertain—we have had a discussion of that this afternoon—certain communities, particularly communities of color working in low-paying industries, less-educated workers, and women will continue to bear the brunt during this surge, as they have throughout the pandemic.

Meanwhile, widespread availability and distribution of safe and effective vaccines are still at least several months away, and until people feel they can safely engage in activities such as traveling, going out to restaurants, or watching a play in a theater, we cannot expect a full economic recovery. Furthermore, even if we manage to successfully control the virus here, the renewed outbreaks arising in many countries around the world remind us that the pandemic continues to weigh on the global economic outlook and, thus, indirectly back on ours as well.

Given these considerations, additional fiscal support is needed. Thinking about how fiscal policy is going to play out, I really see it as being two different scenarios: One is, a new federal fiscal package remains elusive, and the economy doesn't get the support it needs as we go through this new wave in the coming months; and the other is, a meaningful fiscal package is enacted that helps get households and businesses through this period until safe and effective vaccines and therapeutics become widely available.

The continued recovery also hinges on financial conditions remaining supportive. This downturn is different from those in the past in that currently we are seeing quite favorable financial conditions in capital markets after the initial shock back in March. At the same time, we are seeing signs that banks have tightened lending conditions—so here I'm thinking of the SLOOS. Typically, these two indicators move in tandem during a recession recovery. So the question our staff looked at was, what do these divergent signs from capital markets and from bank lending portend for the economic outlook?

Now, previous research has found a widening of the risk premium on corporate debt is a sign of a future slowing in economic activity. My staff reexamined this issue by looking into the evolution of corporate credit conditions since March and the implications for labor market conditions. They found that the rapid decline in credit spreads since March largely reflects a

drop in the excess bond premium that is the price of risk rather than an increase in risk per se. And I think this is something that's generally found in the literature. It's not really default risk or risk in the economy that matters, in terms of these financial conditions. It's really about the risk premium beyond that, or the price of risk.

They estimate that the improvement in the excess bond premium that we've seen since March, based on historical relationships, would be associated with a 1 percentage point decline in the unemployment rate, or an increase of about 2 million jobs over the subsequent 12 months. They also found that the decline in the excess bond premium since March would imply an even larger positive effect on the left tail of the distribution of labor market outcomes. So not only does it shift the mean of the unemployment rate, but it also narrows the distribution.

The pandemic-related disruptions have been highly unusual, however, and they had to have had their effects on financial conditions. As I mentioned, we have seen corporate bond spreads come way down since March, but lending conditions have tightened considerably, according to the SLOOS. Now, taking that same kind of methodology of a forecasting model with these financial variables, including the SLOOS, my staff found that the tightening in lending conditions offsets about half of the benefit of the decline in the excess bond premium. To be clear here, this doesn't mean that there hasn't been a substantial benefit to the economy from the improvement in capital markets. I think that goes without saying. But it reminds us that the capital markets alone do not provide the whole story when it comes to financial conditions and their effect on the economic outlook.

With regard to inflation, the outlook from my point of view hasn't changed much. Abstracting from the unusual short-run movements in relative prices as a result of the direct effects of the pandemic, I expect core inflation to gradually trend up and eventually moderately

exceed 2 percent in coming years. One question that did come up—President Bostic brought it up, and there were several others who discussed it—is the unusual movements in relative prices during this episode. I totally agree with everybody that this is something we really want to study carefully, but I guess I have a couple warnings about it.

First of all, I think, because of the unusual source of the shock to demand and supply, historical correlations and covariances and, specifically, historical signal-to-noise ratios probably are not that relevant in this situation, because I do think the shocks to housing—if you live in New York or in San Francisco or these other cities, we've seen dramatic drops in rents that are really driven by the pandemic directly.

So you don't want to use the historical slowness of rents to move over time or persistence or inertia of rents and apply that to this circumstance, and, similarly, the relative shock to goods prices may be more persistent than it has been historically. So I am looking forward to seeing the work coming out of the Atlanta Fed and, obviously, around the System on how to really understand what the incoming inflation data are telling us. I think it is going to be a particularly challenging issue, just as it is in trying to understand the real side of the economy as well.

Going back to my opening analogies, the Roman god Janus was also a symbol of doors and gateways. There are many possible doors facing us at this time, and no matter which door the future leads us through, we're going to need to position ourselves to achieve our maximum-employment and price-stability goals, something I'll turn to tomorrow. Thank you.

CHAIR POWELL. Thank you. And thanks to everyone for your comments. My views on the path of the economy haven't changed much, on net, since our September meeting. In addition, this is a meeting at which we're not likely to make policy moves, so I will be perhaps unusually brief, disappointing though that may be to some.

Like many of you, I see several evolving trends with potentially offsetting implications and dominant downside risks. To start on a positive note, the recovery so far has been better than expectations, let alone better than the downside cases that were our very appropriate focus in March and April. And incoming data have continued to surprise to the upside right up to the present despite the expiration of the CARES Act funding and mounting cases of COVID, defying the downside risks—so far, at least.

The CARES Act transfers and forgone spending on services have more than offset lost wages, leaving historically large increases in household savings across the income spectrum. I want to compliment the staff on your analysis of this critical set of issues, which I found extremely helpful. Still, many low-income households face intense financial pressures and may face eviction and worse if moratoriums are allowed to lapse at year-end.

Household savings overall appear large enough to support spending—even by many households in the lowest income quartile—for a time, but not forever. As many have noted, there is clearly a risk that many households will see their resources exhausted by early next year, limiting spending and imposing great human hardship. The healing in the labor market has also exceeded expectations, as many of you noted. The pace of improvement in the official data has slowed, although not so much in the staff's estimates based on the ADP data, as Paul explained in his presentation. Expectations are that Friday will bring another positive report. We'll see.

Inflation has moved up a bit but remains below our 2 percent objective. I continue to see the pandemic as adding, on balance, over time to disinflationary pressures. Of course, in the baseline forecast, we may see core inflation move a bit above 2 percent on a 12-month basis for a time early next year as we lap the very low readings of the acute phase of the pandemic.

Something of that nature would likely prove transitory and, thus, would not be a basis for a policy response.

Of course, despite the strength of incoming data, there are signs of slowing momentum, and many forecasters see slower growth in Q4. There is also just a feeling that, ultimately, the expiration of the CARES Act support and the case spread will eventually have to weigh on activity. In particular, the growing, widespread rise in COVID cases unfortunately has real momentum and carries significant downside risks for the economy. One need only look to Europe to see the speed with which the economic picture has darkened, with many forecasters now seeing the EU economy shrinking in Q4.

And I join others in understanding that widespread lockdowns in the United States seem quite unlikely, but the prospect that many people would choose to withdraw from certain kinds of activities that they have begun to engage in again—restaurants and bars and travel and things like that—is not hard to imagine at all. It’s easy to imagine that that would stop progress.

In addition, the odds of a significant fiscal package before the new Congress is sworn in early next year have fallen. Fiscal policy will depend on the outcome of both the presidential election and control of the Senate. Without knowing these outcomes, it’s not possible to know the size, timing, and contents of any such package or even whether there will actually be a substantial package. I guess I do join others in saying that I think it’s likely we will have a package. It’s not assured that it will be of any particular size. In particular, there’s a significant prospect of divided government, and while I think there would be some fiscal activity there, I doubt it would be of the kind of size that we were thinking of.

In any case, if that does turn out to be the case and we get a larger fiscal package or if the vaccine comes earlier, I would join others in saying that I could see real upside in 2021, and I

think the alternative scenario on a big fiscal package kind of demonstrates what that could look like. So in '21, I think, we may be in for a few slow and perhaps rough months, but I do see an upside as we move past that period.

So where does that leave me? It leaves me with an admittedly uncertain baseline of continued economic growth amid muted inflation, with risks to the downside—in particular, the risks presented by the further spread of the virus and the risk of the premature withdrawal of fiscal support, both of which I believe still are out there.

I'll turn very briefly to tomorrow's policy discussion. It seems likely that the FOMC statement will be short on red ink, so I'll be short in my comments here. I think that our current policy stance is appropriate. If the economy performs about as expected, I would leave the asset purchase program as is for now but would consider updating the forward guidance for purchases, as I mentioned this morning.

With that, I do have a strong preference for proceeding tonight with the discussion of the SEP, and I would like to do so and will turn it over to Governor Clarida, who will provide a few introductory comments before our staff briefing and an opportunity to comment. Rich, the floor is yours.

MR. CLARIDA. Thank you, Chair Powell. I promise to be brief. The communications subcommittee unanimously believes that the two proposals under consideration today will enhance the SEP as a tool to communicate the rationale for, and highlight the risk-management factors relevant to, our monetary policy decisions.

By releasing all SEP materials on decision day, all of us in our postmeeting interviews and speeches can draw on the wealth of SEP information about the risk and uncertainty that we confront, which at present is held back for three weeks until the minutes are released. A

consequence of this delay is that it serves to focus excessive attention on the baseline outlook for the economy and, of course, the dots but obscures to the point of irrelevance the important balance of risk and risk-management considerations we respect in making policy.

The second proposal would introduce historical time-series charts of diffusion indexes for the balance of risk to our macro projections and the level of uncertainty in our outlook. This information is provided in the existing SEP on a meeting-by-meeting basis already, but the historical time-series charts we believe are useful in communicating how those risks have evolved over time in relationship to our policy decisions. In sum, we believe these proposals are worthy of your support at this meeting, and, if approved today, we would recommend that they be implemented with the December SEP.

In closing, some of you have indicated that you would like the subcommittee to continue to consider additional options for refining the SEP in light of our new framework. We agree with you and, to that end, reaffirm that the subcommittee will begin its meetings in January with a clean slate and will be welcoming and soliciting ideas from you for additional SEP enhancements. And I understand, Ellen has a brief presentation on the substance of the proposal, so I'll turn it over to Ellen Meade.

MS. MEADE.<sup>6</sup> Thank you, Governor Clarida. My briefing materials begin on page 78 of your meeting handout.

I'll provide a brief review of the two changes that the subcommittee on communications is recommending for the SEP, which were reviewed in the background memo you received. To summarize, the changes would highlight the uncertainties and risks surrounding the modal projections and better convey the risk-management considerations that monetary policy incorporates. That your communications could be enhanced by taking steps in this direction was something that came up during your framework review.

The first recommended change is the addition of two diffusion indexes constructed from your responses to questions about how you view the uncertainty and

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<sup>6</sup> The materials used by Ms. Meade are appended to this transcript (appendix 6).

risks attending your projections. These indexes, shown on pages 91 and 92, display the balance of responses since the initial SEP in October 2007. Figure 4.D provides the number of participants who indicated they saw the uncertainty in their current projections as “higher” relative to the uncertainty over the past 20 years minus those who judged this uncertainty to be “lower,” divided by the total number of participants. Similarly, figure 4.E subtracts the number of participants who see the risks to their projections as “weighted to the downside” from the number who view it as “weighted to the upside,” divided by the total number of participants. These diffusion indexes are proportional measures that can vary from minus 1 to plus 1. The new figures provide a longer perspective on the evolution of views about uncertainty and risks than what is currently available in the histograms that appear below the fan charts in figures 4.A through 4.C on pages 88 to 90, which compare the current SEP with the previous one.

The subcommittee’s second recommended change is to accelerate the release of the exhibits that currently accompany the meeting minutes so that all SEP materials are released at the same time—that is, on the day of the policy decision. The briefing handout is a mockup of the exhibit package based on the September SEP. A table of medians, central tendencies, ranges, and longer-run values for the projections on page 80, a figure of the macroeconomic variables on page 81, and the dot plot on page 82 are already released at 2 p.m. But the distributions of the economic variables in figures 3.A through 3.E on pages 83 to 87 and, more materially, the information on uncertainty and risks in figures 4.A through 4.C and figure 5 on pages 88 to 90 and 93, respectively, are not released until three weeks later with the minutes.

The following example illustrates how making all SEP materials available on the day of the policy decision could help convey the Committee’s risk-management considerations. For this example, I’ll refer again to figures 4.D and 4.E on pages 91 and 92. You can see in figure 4.D the evolution of your assessments of uncertainty with the onset of the pandemic—a singular increase for all economic variables between December ’19 and June 2020. In addition, figure 4.E shows the shift in risk assessments between December and June to the downside for GDP growth and inflation and to the upside for unemployment. In March, when no SEP was collected, your statement referred to “evolving risks,” and you said in your June statement, “the ongoing public health crisis will weigh heavily on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term.” Taken together with your postmeeting statement, the SEP information could be a useful tool for providing insight into participants’ judgments about uncertainty and risks in the context of the economic and policy outlook and help cast a broader perspective on the modal projections.

Before concluding, I’d like to touch on some logistical details. The mockup packet, which is a template for what could be released in December, restores the fan charts that were dropped in June and September. If you decide to accelerate the release of materials, this mockup would be released sometime during the intermeeting period to prepare the public in advance of the change in December. In addition, to facilitate the release of all SEP exhibits on the day of the policy decision, the deadline

for submitting revisions to your forecasts will be 7 p.m. on the first day of the meeting, as it was in June and September. This is typically a Tuesday. Finally, the write-up of the SEP that is released with the minutes would be discontinued. I'd be happy to take any questions.

CHAIR POWELL. Any questions for Ellen? [No response] Seeing none, let's proceed with our opportunity to comment, beginning with President Daly.

MS. DALY. Okay. With the pressure of the time, I am going to be as quick as I possibly can. So the very first thing I want to say is, thanks to the subcommittee for doing this. I actually think doing something in December is really appropriate and helpful, because it gives people a sense of continued momentum. So I applaud the subcommittee for getting that moved forward.

I just had a couple of thoughts that I wanted to share in advance of the subcommittee going back to work on this in January. The first one is that I really do see the transparency of the SEP, the additional tool of forward guidance, as being very important. And so some modifications or improvements that would be terrific to see are ones that help people see our policy reaction function in advance of being able to learn about it experientially. There's going to be some time before we can actually get the overshoot on inflation. President George mentioned at our September meeting that just extending the horizon could be helpful.

But you could also think about doing the same thing by talking about conditions at liftoff. I have been very encouraged by what market participants in the Desk briefing today by Lorie showed, that they just really shifted, and there's going to be a distribution. Some will say 2.1 percent, some will say 2.5 percent, but the key is, 2 percent no longer would be a ceiling. So that's another option to view it.

The final one is, we could talk about the distribution of the timing at liftoff—we showed a distribution of that in the financial crisis; I know we published that—and then people could back out what that looks like via their own forecast. So whatever we decide to do, I think using

this tool as another method of solidifying expectations of our reaction function in the absence of having the data to do that immediately will just further our forward guidance.

And I think Governor Brainard said this earlier, but many have mentioned it before—the more we do that, and expectations are set, the less we will probably have to do in the end in terms of policy accommodation. So it's an efficient and effective way to do more when we can. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester, please.

MS. MESTER. Thank you, Mr. Chair. I'm looking at the materials, so I recall a speech I gave a few years ago called "Acknowledging Uncertainty" and I had the opportunity in that speech to quote Voltaire, who said, "Uncertainty is an uncomfortable position, but certainty is an absurd one." The way I interpreted that pithy statement is that, while we may prefer to live in a world with certainty, we don't, and to pretend as if we do is absurd, so we're better off acknowledging the uncertainties we face.

So I'm fully supportive of the proposed revisions to the SEP. I think highlighting the uncertainty and the risks in the SEP is important because they do influence our policy decisions, and we should be up front about them. I think the diffusion indexes that were added are really a good way to summarize the information in the SEP on risks and uncertainties and how they change over time. The Cleveland staff actually did an analysis and showed that those diffusion indexes are very highly correlated with a common factor in the participants' responses, so there is even some statistical underpinning of the new indexes.

I agree that the value added from the SEP narrative in the minutes is relatively small, as it's basically a description of the submitted data. Each of us can ensure that the information in

our narrative gets into the FOMC minutes by discussing our narratives at the meeting as part of our outlook, and I think we all probably already do that.

My only suggestion would be to reorder the charts and put those in group 4 before those in group 3, and I think that's because I view the charts in group 4 as really focusing on the risks and uncertainty associated with our modal outlook. They reflect our view of appropriate policy on which we base our forecast. In contrast, the charts in group 3 really focus on the dispersion of views across participants. I think that's very useful information, but it seems less relevant to explaining what's emerged as the consensus view of the Committee of the outlook in policy.

As President Daly said, we're really trying in some of our communications—and in the SEP in particular—not only to stress the dispersion, but to really try to convey what our reaction function is. Let me also end by thanking the communications subcommittee and the staff for the efforts here. And, you know, I always think of these communication enhancements as really being part of the journey that we're continually on, and I appreciate the efforts. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. And thank you to Rich for his leadership on these changes, which I fully support. This year has been instructive in how quickly risks can change, and the new figures will provide better indications of the participants' evolving views on risks. I also support releasing the SEP exhibits on the second day of the meeting, which highlights the important role of assessments of risk and uncertainty in the decisions being made at the FOMC. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin, please.

MR. BARKIN. Thank you, Mr. Chair. While I can live with the proposal we have, I fear it's not going to solve the problem that I perceive we have. The problem I see with the SEP is that it's taken as the view of the Committee rather than the collection of individual projections that it represents. That can be really hard to explain. The dot plot just has a certain primal power that breaks through all of the caveats we might put around it and all of the explanatory data we might add.

Now, I don't think more clarifying detail is going to hurt, but I don't think it addresses this core challenge. We are still going to burden the Chair every so often with a disconnect that he has to explain. I'd instead prefer to take that misperception on directly by not releasing the SEP on the day of the meeting and, instead, releasing it with the minutes, while allowing the Chair to refer to it in his press conference if and only if it's helpful to support our agreed-upon statement. It would then become one part of the discussion about the minutes, about competing views on the Committee, rather than described as a separate Committee outcome. I'm sure you've thought of this, but I'd love to put it back into your January debate. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Bowman, please.

MR. CLARIDA. You're on mute.

MS. BOWMAN. Am I on now?

CHAIR POWELL. You're good.

MS. BOWMAN. Okay. Great, thanks. Thank you, Chair Powell, and thank you to Governor Clarida and to the subcommittee on communications for your work. I support the subcommittee's recommended changes to the SEP. I welcome the greater transparency in the

proposed changes, which I agree is consistent with the feedback that we received from the participants of our *Fed Listens* events.

Releasing our risks and uncertainty assessments earlier will help provide more context to our funds rate projections. Fed watchers and financial market participants often read too much into the dot plot, and they're likely not sufficiently taking into account the uncertainty, as President Mester said, that surrounds our views on the appropriate path of the federal funds rate.

I do hope that the proposed changes will make the dot plot less of a focus for those who follow our monetary policy decisions. But, like President Barkin, I would note that releasing it on the same day as our meeting may serve to distract from the Chair's message in ways that may be unfortunate for some meetings. In addition, at least at the beginning, I think the simultaneous release of the dot plot and our risks and uncertainty assessments may draw even greater interest among those trying to dissect our policy views. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. I continue to see the SEP as serving an important role for us in communicating with the public. So, to that end, I support the changes that are proposed here. As the subcommittee on communications has done with this, I would support additional efforts to more closely align the SEP with our policy goals and strategies in the new consensus statement in two specific areas: the outlook for inflation and balance sheet policy. And as Governor Clarida plans to do that after the first of the year, I am not going to elaborate further and will yield my time back to the Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Yes. As a final brief comment, and as a member of the subcommittee, I want to thank Richard Clarida for his leadership. But I also want to recognize and thank Ellen

Meade for having the thankless task—but doing it extremely well—of orchestrating this subcommittee and also orchestrating a lot of our outreach to everyone on this call so we got good feedback.

I am hopeful that aligning the release of all of these SEP materials with the FOMC statement will draw more attention to the level of uncertainty and balance of risks surrounding FOMC participants' forecasts. This is particularly important during periods of elevated uncertainty like the one we're currently facing. Although I don't want to be unrealistic about it, I hope it will lead some media outlets to qualify statements regarding FOMC participants' forecasts by their level of uncertainty. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. And, of course, I do support this, and I think anything we can do to try to embrace risk management and turn as much attention away from the modal case and the dot plot, we should do, and I plan on working hard at it. I fully appreciate the challenges, though, that President Barkin and others have articulated. In a world in which we have a dot plot, this will be a measure to emphasize risk management, and we'll do the best we can.

The last item of the day is a briefing on the policy alternatives. Trevor, over to you.

MR. REEVE.<sup>7</sup> Thank you, Mr. Chair. I'll be referring to the exhibit on page 97 of your briefing materials packet.

The forward guidance you issued in September, which implemented elements of your revised Statement on Longer-Run Goals and Monetary Policy Strategy, appears to have been well received. As Lorie noted, market participants' expectations about the evolution of the federal funds rate seem well aligned with your intentions. The upper-left panel shows responses to the question in the Desk's surveys that asked what rate of 12-month inflation respondents expect to prevail when you first raise the target range for the federal funds rate. Consistent with your guidance, and in a sizable shift since July, almost all respondents expect inflation to be at or above 2 percent at the time of liftoff. With regard to President Evans's question this morning, in this chart, the respondents who expect inflation to be 2 percent at the time

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<sup>7</sup> The materials used by Mr. Reeve are appended to this transcript (appendix 7).

of liftoff are grouped in the 2 to 2½ percent bin; there are only three respondents in the bin below 2 percent. Regarding the timing of liftoff, the middle panel plots market- and survey-based measures of the expected path of the federal funds rate. The median respondent to the Desk’s surveys, the black  $x$ ’s, sees it most likely that the federal funds rate will remain at its current level beyond the end of 2023. The average of respondents’ mean expectations, the yellow diamonds, begins to move up gradually in late 2022, indicating some modest increase in the odds of liftoff over that period. The blue line depicts a straight read of OIS quotes and suggests that market participants expect the federal funds rate to remain near the effective lower bound through the end of 2023. That said, OIS quotes likely embed risk premiums, and the green and purple lines present different model-based corrections to the OIS-based path that account for term premiums. These models suggest somewhat earlier rate increases, although a great deal of uncertainty attends these estimates, particularly when rates are at the effective lower bound.

Your setting of, and communications about, the federal funds rate, along with other policy actions, have contributed to the generally accommodative state of financial conditions. The red line in the upper-right panel shows the average reading of publicly available financial conditions indexes. These indexes, which are largely based on financial market prices, have retraced most of their tightening since March and stand at levels that are as accommodative as before the pandemic. As discussed in the Tealbook, however—as many of you mentioned—there is evidence that financing conditions are less accommodative and in some cases still tightening for households and firms that are reliant on bank-based financing. Moreover, should the recent move up in the VIX, the blue line, prove persistent, it could portend a deterioration in financial conditions.

A cornerstone of the accommodative financial conditions that have supported the recovery has been the low and relatively stable level of longer-term interest rates. It is notable that forward rates well beyond the expected departure from the effective lower bound, including the five-year, five-year-forward rate, the black line in the lower-left panel, have fluctuated relatively modestly following their plunge earlier this year. Over the past three months, these forward rates have trended up somewhat, but their current levels nevertheless remain near those seen as recently as mid-June. Moreover, the realized volatility of this forward rate, the red line, has continued to trend down to the low levels seen before the pandemic. One might have expected these forward rates to have increased by even more, or to have exhibited greater volatility, in response to some of the strikingly large positive data surprises of the past few months.

The FOMC’s commitment to use its full range of tools to support the economy, including asset purchases, has likely had a damping effect on the upward pressure on longer-term yields that positive data surprises might have induced. That said, as discussed in a box in the Tealbook, other factors may also be attenuating fluctuations in longer-term yields. In particular, because of the unprecedented nature of the pandemic-induced recession, the signal about the medium-term outlook provided by recent data releases may be weaker than usual. This could be true, for example, if

market participants interpreted the recent spate of positive news on the labor market not so much as a substantial improvement in the medium-term outlook, but more of a pulling forward of improvements that were expected to materialize within a few quarters anyway.

The lower-middle chart provides an illustration of this effect. In the scatter plot, the horizontal axis depicts revisions to the one-quarter-ahead unemployment rate from the Blue Chip survey—a measure of how surprising incoming data have been with regard to the near-term outlook. The vertical axis depicts the contemporaneous revision to the four-quarter-ahead unemployment rate—a measure of the change in the medium-term outlook. The blue squares show the data, which are quarterly, from 1990 through the first quarter of this year. They fit quite tightly around the regression line with an approximately unitary slope, implying that incoming data surprises have tended to pass through, one-for-one, to changes in the year-ahead forecast. The red triangle, which shows the data point for the third quarter of this year, is a clear outlier. Despite the downward revision to the near-term unemployment rate of 3 percentage points between the June and September surveys, the year-ahead forecast was revised down less than 1 percentage point. This muted revision to the medium-term outlook might plausibly lead to a modest reaction of longer-term yields as well. Indeed, event studies of data releases have shown much smaller movements of interest rates in response to data surprises than implied by historical relationships. The bottom line is that our understanding of the causes of both the relatively modest movements in longer-term forward rates, as well as the low volatility of their day-to-day movements, is incomplete, with factors beyond monetary policy likely playing a role.

Notwithstanding our limited understanding of the recent stability of longer-term rates, for their part, respondents to the Desk’s surveys seem to expect the stability to continue. The lower-right panel shows results from a survey question that asks respondents to assign probabilities to bins in which the level of the 10-year Treasury yield may lie at the end of 2021. As indicated by the red bars, relatively little mass is attached to levels of longer-term rates at the pre-pandemic level around 2 percent or higher, which is similar to results from the last time this question was asked in April, the dashed line.

Regarding your decisions at this meeting, with expectations of the federal funds rate well aligned with your intentions over the next few years and overall financial conditions remaining accommodative, there does not appear to be a need to alter your monetary policy stance or communications at this time. Accordingly, all three alternative policy statements are very little changed from your September statement. Alternative B makes modest changes to the characterization of recent data, reiterates your forward guidance, and continues asset purchases at the current pace. Maintaining your policy communications at this meeting may also be prudent in light of near-term uncertainties, including those associated with the election, fiscal policy, and the pandemic. At some point, as many of you pointed out in your discussion this morning, the Committee may want to further clarify its intentions for balance sheet policy, as doing so could help solidify expectations that longer-term rates will remain

low and that financial conditions will remain accommodative as the economy evolves.

Thank you, Chair Powell. This concludes my prepared remarks. Pages 99 to 104 of the briefing materials present the September statement and the draft alternatives and draft implementation note. I would be happy to take questions.

CHAIR POWELL. Thank you, Trevor. Any questions for Trevor? [No response]

Okay. Seeing none—did somebody say something? No, okay. Thanks very much. That brings today's festivities to an end, and I look forward to seeing everyone tomorrow morning at 9:00 a.m. sharp. Thanks. Have a good night, everybody. Thank you.

[Meeting recessed]

## November 5 Session

CHAIR POWELL. Okay. Good morning, everyone. I believe this morning we will start with an update on markets from Lorie.

MS. LOGAN. Great, good morning. And thank you, Chair Powell. Yesterday, even as the election results came in less decisively than many had been expecting, equities rallied strongly and fixed-income yields declined. Markets were orderly, and implied volatility declined even amid the uncertainty.

As the prospects for a unified Democratic Senate and presidency waned, markets responded by pricing out expectations of both a large fiscal package and higher taxes. Treasury yields fell as much as 14 basis points on the day, alongside the declining odds of a large fiscal package. Some contacts also noted that lower fiscal stimulus would also weigh on growth and could ultimately lead to a more accommodative monetary policy stance.

Equities rallied strongly, with the S&P up more than 2 percent and the Nasdaq up 5 percent on the day, supported by growing expectation that tax increases and regulatory changes that might have been enacted under a unified Democratic government would now be difficult to implement. Shares of companies that would be most affected by higher taxes—such as technology, communications, and health care—outperformed, while cyclical sectors most sensitive to the growth outlook underperformed. Shares were also supported by lower Treasury yields, and contacts noted that companies with better longer-term earnings prospects, like technology, benefited in particular.

With the rise in U.S. equities and other risk assets, emerging markets also outperformed, and emerging market equities and currencies were up a little more than 1 percent.

After these shifts, markets functioned smoothly even as the uncertain election outcome that some had worried most about seemed to be unfolding. The VIX declined significantly on the day—I believe it was the largest daily decline since the spring—although it remains at elevated levels that prevailed over much of October. Although COVID-19 was not the major point of focus yesterday, with worrisome numbers continuing to come out of Europe and the United States, market participants still note significant uncertainties ahead.

Finally, market participants note that monetary policy will be in even stronger focus in coming months, particularly if chances for a significant fiscal package decline, although we still didn't hear about any expected changes from the meeting coming out this morning. Thanks. I'd be happy to take any questions.

CHAIR POWELL. Thank you, Lorie. Questions for Lorie? [No response] Okay.

Seeing none, let's go to our go-round, and we'll begin with Governor Clarida, please.

MR. CLARIDA. Thank you, Chair Powell. I support alternative B as written. The language introduced in our September statement is consequential not only in terms of the information it provides about our reaction function, but also because it links our forward guidance directly to our newly ratified consensus statement.

Now, because we've adopted state-based guidance regarding the macro conditions required for liftoff, the shelf life of this language is not something that I anticipate that we will need to revisit at each meeting. I would note that the most recent Survey of Market Participants—and, I would say, I'm a big fan of these surveys that are done by the New York Fed—provides evidence that our guidance and adoption of our new framework have already shifted the distribution of market participant expectations. In particular, with regard to the rates of inflation and unemployment at liftoff, they show that the distribution for unemployment has shifted lower and the distribution for inflation has shifted higher since July.

This is relevant, because an academic critique of lower-for-longer and threshold policies at the ELB is that they're not time consistent and they're not credible. In other words, the critique is, markets won't believe central banks when they promise not to lift off until they get to their inflation objective. But it does appear that our guidance so far is credible, at least based on these surveys. But I suspect in the future it may be tested if economic recovery—the rise in inflation and fall in unemployment—is faster than we project today. I would also note that the Reserve Bank of Australia, at its meeting this week, adopted guidance on the conditions for liftoff that is quite similar to our September language.

Alternative B retains the language from September about our asset purchase program, and I support this decision. As we discussed yesterday, at some point it may make sense to replace the “coming months” language with state-based language. But that discussion is not for today. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Harker, please.

MR. HARKER. Thank you, Mr. Chair. I support alternative B as written, but I still have a few concerns. Clearly, now is not the time, in my mind, to make major changes to the language, in view of all of the uncertainty that currently exists with respect to fiscal policy and just general uncertainty. So I do believe that prudence and a “steady as she goes” approach are warranted in such a situation. That said, I do continue to have some reservations about the language, and I would like to express a few ideas that we can perhaps consider at future meetings.

So with the level of uncertainty in the current environment, maximum employment is a particularly nebulous concept. It makes little sense to base policy on it, and it certainly should not be given equal weight to our inflation objective.

While not envisioned in my modal forecast, it is possible that inflation could accelerate noticeably above our target, with unemployment still quite high. We’re in uncharted economic waters, and while that scenario is unlikely, I don’t think I can necessarily rule it out completely. If that occurs, the language in paragraph 4 indicates that policy is likely to remain accommodative unless we drastically lower our estimate of maximum employment. But it is also somewhat ambiguous and could—and I emphasize “could”—put us in an unfortunate position. If we decided in that situation to raise rates, we’d have to say that a high unemployment rate was consistent with maximum employment. Or if we judge that we are well

below maximum employment, we would have to abandon our inflation target. Neither of those situations would be very attractive. And while I understand that the language in paragraph 5 provides the reasons for us to take such action—that is, it gives us an out—I think some language in paragraph 4 that speaks to the issue would be useful.

So I prefer the position proposed by President Kashkari that we remain accommodative until our inflation objective is in jeopardy. This view is supported by recent research on the behavior of unemployment in recoveries by Hall and Kudlyak. They find that during recoveries, the log of unemployment decreases at a fairly constant rate that is similar across recoveries. This finding, along with a lack of any observed inflationary pressures, is inconsistent with the notion of a single natural rate of unemployment and implies that the natural rate steadily declines during an expansion as we observed pre-COVID.

The Hall and Kudlyak result is also consistent with the notion that maximum employment is the level of employment that leads to rising inflation. What that level is likely depends on the length of the recovery, something that is extremely difficult to predict. Therefore, removing the reference to maximum employment clarifies our forward guidance and, I think, better reflects the economic realities that will most affect our policy stance.

Thus, I am comfortable with the inflation language in paragraph 4 but believe the addition of a concern for maximum employment is problematic. Now, ideally, I would like to drop reference to it from the paragraph, but I do realize that may be, and probably is, a bridge too far due to the need to clearly refer to our dual mandate in this paragraph. So I'm not opposed to having something in there.

Alternatively, I would suggest we add clarification to the sentence that brings in maximum employment as a policy objective—for example, adding “until labor market

conditions have reached levels consistent with the Committee’s assessment of maximum employment, which is likely necessary for inflation to have risen to 2 percent and be on track to moderately exceed 2 percent for some time.” Putting this kind of phrasing in would better elucidate the Phillips curve theory that is underpinning the policy prescription.

So, absent any of the above suggestions, I would, as I stated in our previous meeting, prefer the statement used the conjunction “or,” which would better reflect the reality that if inflation were to move measurably above our target, we would tighten policy. That seems to me what we would in fact do, especially if inflation were accelerating, and I think it represents a responsible policy decision. Again, these suggestions are meant for another day. For today, I support alternative B as written. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren, please.

MR. ROSENGREN. Thank you, Mr. Chair. I support alternative B. Policy remains highly accommodative, short-term rates are close to zero, and we continue to purchase significant quantities of financial assets. We, therefore, should take more time to assess the likely fiscal policy actions in the next two quarters as well as the progression of the pandemic.

If the pandemic more significantly affects the economy in the near term, which I view as quite likely, we should consider additional stimulus. My personal preference would be to make some of our 13(3) facilities more attractive for borrowers. Unlike our other more conventional policy tools, these programs more directly lower the cost of funds for entities most affected by the pandemic: firms that likely are on the margin of making decisions about additional layoffs that could affect their workers and labor markets more generally. There’s also substantial room to make credit more affordable with these programs. Of course, this requires the concurrence of the Treasury Department, so we cannot do this unilaterally.

As a second-best alternative, we could increase our holdings of long-duration securities. While this would be positive for the economy, the magnitude of the effect is likely to be limited, in view of how low Treasury and agency MBS rates already are. Nonetheless, I would be in favor of a more substantial tilt to purchasing more long-duration securities should the economy deteriorate further. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chair. I support the policy action and statement in alternative B.

As I survey the current landscape of the economy, like many of my colleagues, I am increasingly seeing signs that we are transitioning from a health-driven downturn to one that is driven by virus-related policies and behaviors, combined with more traditional economic factors. The longer that a significant number of households and businesses remain on the downward slope of the divergent recovery path—or, to use Atlanta Fed vernacular, the bottom part of the less-than symbol—the more likely that financial distress will become a defining characteristic. If this comes to pass, the potential that a cascade of negative forces will flow through the economy is great, and this has ominous implications, particularly for the banking and financial systems. This reality suggests it is appropriate to keep the federal funds rate at its current level and be prepared to act if necessary.

That said, as I mentioned during yesterday's discussion on asset purchases, I am starting to seriously question the efficacy of our continuing to purchase Treasury bonds and mortgage-backed securities. A high cost of capital is not what is holding back economic growth today—the progression of the virus is. Thus, in my view, these purchases are not accomplishing much for us right now. Further, our growing position in these markets could shape how these markets

operate, with consequences that I am not sure that we, or at least I, fully grasp yet. This combination makes me a bit nervous, and I think it would serve the Committee well to continue talking about the mechanisms through which we believe the asset purchase programs are operating so that we can be on the same page about how we get the most bang for our buck.

If and when we continue these discussions, I think we should also spend some time trying to understand the diverse set of effects these purchases have on the broader economy. Let me give one example. Recent research by my staff, along with the staff of the Boston Fed, shows that racial differences in refinancing responses to interest rate declines generate large differences in interest rate burdens. In particular, white borrowers are much more likely to exploit mortgage rate reductions and refinance their loans compared with Black and Hispanic borrowers.

The researchers then analyzed FOMC asset purchases following the financial crisis and discovered that an unintended consequence of those actions is that by driving down mortgage rates, monetary policy exacerbated racial inequality. Unconventional policy targeting agency MBS markets only made this worse. For example, this paper shows that the Fed's initial LSAP, QE1, had a disproportionately large effect on white borrowers, as they increased refinancing by more than a factor of 5 in the six months after the announcement of the program compared with only a twofold increase in minority refinances.

To be clear, policies that drive down mortgage rates are not harmful to minority borrowers. But the paper clearly shows that they could have been more beneficial. As policymakers, in order to promote a more inclusive as well as a more stimulative response to our policy actions, we could have considered complementary policies to make minority borrowers more aware of possible refinance opportunities, like targeted outreach programs to minority communities, financial counseling, and more streamlined refinance programs that would make it

easier and less costly to lower mortgage payments for this group. Moving forward, as we continue to assess and refine our asset purchase program, I hope the Committee considers the potential effects as broadly as possible as well as complementary strategies so we get the full benefit from their deployment.

Let me close by expressing my agreement with the Chair's comment yesterday regarding public communication. In today's turbulent times, I have repeatedly been told by my boards and many others how grateful people are for how the FOMC and the Federal Reserve System have acquitted themselves and how our actions have increased the stature and credibility of the U.S. central bank as an institution. Public commentary that potentially undermines confidence in the efficacy of our tools and the power of the Committee to embark on policies that can address prevailing economic conditions runs the risk of compromising the stature and credibility we have worked so hard for. I encourage the Committee to stay far from such commentary, and I certainly will. 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 alternative B statement as written. The recovery has been stronger than expected, which is quite positive and reflects the resilience of the economy. But there's considerable variation across sectors, and the levels of output and employment are still far below their pre-pandemic levels. Inflation has ticked up, but it continues to run below our goal.

The recovery is likely to be slower from here on as the pandemic continues to weigh on the economy. Some sectors, which have been able to muddle through to this point, will find it challenging to continue to do so. For example, more universities and colleges, especially those

dependent on state and local funding, are instituting furloughs and salary cuts and are warning that more are yet to come.

The resurgence of COVID-19 cases in the United States and Europe adds considerable uncertainty to the forecast of continued recovery and poses a significant downside risk. Another downside risk is the lack of further fiscal stimulus; fiscal stimulus would lend needed support to the households, firms, and state and local governments that have borne the brunt of the effects of the virus on the economy and are finding it harder to recover. Of course, fiscal policy also poses an upside risk, as there is a possibility that a larger-than-expected package is passed later this year or early next year. I believe that our current highly accommodative policy is appropriate in these circumstances and is consistent with our revised monetary policy strategy.

As we discussed yesterday, our statement language about asset purchases, which refers to our plans “over coming months,” is getting stale, and we should be prepared as early as our next meeting to align this language with our policy intention and to convey that this tool is being used not only to support smooth market function, but also to support the recovery and attainment of our longer-run goals of price stability and maximum employment.

I look forward to discussing at future meetings what our approach to LSAPs will be in the event the outlook improves sooner than expected and in the event the outlook significantly deteriorates. Because of the uncertainty surrounding the outlook, I think it’s prudent to have plans in place for either possible scenario. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin, please.

MR. BARKIN. Thank you, Mr. Chair. With unemployment elevated, inflation low, and our policy guidance fresh, I support alternative B. I see no need to change direction. We should continue to do our best to support the recovery.

Looking forward, I want to spend a couple of minutes on risk management. Over my short time on the Committee, I've seen us use that lens to raise rates to preempt inflation and to lower rates in a time of elevated tariff uncertainty. In our latest statement, we provided strong forward guidance while acknowledging in paragraph 5 that the stance of policy could change if risks were to emerge. I thought I might reflect on how I see considering some of these potential risks.

Today, as I've already said, the risks to the economy remain strongly on the downside, and the benefits of our fully accommodative stance are clear so long as that is the case. But things can change. An obvious risk is a sustained, more-than-moderate increase in inflation. Were that to occur, we would act. Perhaps more likely is a repeat of the previous cycle in which employment fully recovers but inflation stays lower than target. In a world of anchored expectations, market power and price transparency create headwinds for inflation, and these forces, if anything, may be intensifying. Our current guidance keeps our pedal to the metal until inflation finally rises. That may take a long time.

And what if an extended period of near-zero rates doesn't increase inflation to target? Could that cement a longer-term environment with low rates and low expected inflation? Surely, our experiences during the previous recovery, as well as those in Europe and Japan, at least raise this possibility. And I do think there are very real costs that arise from prolonged time at the lower bound, even in the event that the policy is ultimately successful.

We've talked multiple times about the risks of asset bubbles and excess leverage, which, of course, we saw in the Global Financial Crisis. I read with interest our April 2016 transcript, which makes clear the primacy, but inadequacy, of macroprudential policy, at least as currently structured. Unlike how it's sometimes characterized, I don't see the financial stability question

as whether we should raise rates to prick a bubble. Rather, I ask how long we should be comfortable with near-zero rates, in light of the risk that we inadvertently create problems we don't anticipate.

If these are the risks, then what are our alternatives? We can maintain accommodation as we near our goals, but raise rates gradually, reducing risk and even giving us some policy space if we need it. This path looks like Tealbook rule ADAIT–2020. I recognize such a choice could slow our path to target inflation, so we may want to analyze its offsetting potential to reduce the inflation and employment costs of more adverse scenarios. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans, please.

MR. EVANS. Thank you, Mr. Chair. The setting for monetary policy seems appropriate for now, and I support alternative B.

The Committee took the key step of issuing strong output-based forward guidance at our September meeting. The most important task in front of us is to follow through on this commitment in a manner consistent with our strategic framework. A steadfast commitment to achieving our dual-mandate goals is particularly important for supporting the economy during these highly uncertain times. I hope the Tealbook real-side projection is realized and we eliminate employment shortfalls by 2022. But the Tealbook's modest inflation path is a stark reminder of how far we have to go to achieve inflation that averages 2 percent over time.

Indeed, under the Tealbook forecast, average inflation starting from early 2020 will fail to reach the 2 percent mark even by the end of 2023. This is too slow. Our credibility depends on achieving our inflation objective much sooner. As I mentioned yesterday, to do so, our eyes should be on getting inflation moving up with momentum toward 2½ percent, not just inching a bit above 2 percent at some far-distant date.

We clearly have a lot of work ahead of us, and we cannot be shy about aggressively using all of our tools to achieve our policy goals in a timely fashion. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan, please.

MR. KAPLAN. Thank you, Mr. Chairman. I agree with alternative B as written. I believe our current policy stance for the time being is appropriate.

While we're in the teeth of this pandemic, I think we need to stay the course on our 13(3) programs. I would also be supportive, if necessary, of enhancements to the 13(3) programs—obviously, with the consent of the Treasury—and I would be supportive for the time being of maintaining the current pace of asset purchases. And if we get in a position in which we think we need to provide more accommodation, I would far prefer examining extending maturities rather than increasing the size or pace of our asset purchases.

I'm hopeful, though, that eventually—sometime, ideally next year, and maybe with an effective vaccine—we'll get to the stage at which we begin to have better visibility regarding an economy that looks to be weathering the pandemic. I think when we get to that stage, I would expect we would begin to discuss allowing 13(3) programs to lapse and we'd begin to actively consider a plan for tapering our asset purchase programs.

I'm sure at that point and in the years ahead we will have some of the risk-management debates, which I welcome, that President Barkin just talked about. I would also say—and it was really prompted by President Bostic's comments—I think our communications and outreach, or C&O, efforts during this period, and I mean now, are increasing in importance and are very critical to our communities. I'm very grateful and glad that we beefed up our C&O programs throughout the System, because I think they do have a key role to play, particularly with various

at-risk populations, and I think that'll be an important emphasis during this period. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Bullard, please.

MR. BULLARD. Thank you, Mr. Chair. I'm going to start with a few comments on the SEP. I didn't want to prolong the discussion yesterday, but I did have a few comments.

I certainly support the changes that are proposed at this meeting, but I want to take this opportunity to agree with President Barkin that we need to address head-on the fundamental issue with the SEP, which is that the FOMC, in effect, makes two different policy statements at SEP meetings. These two policy statements are sometimes in conflict. One policy statement is carefully calibrated. It is the written policy statement that we all debate and wordsmith as we go along, but the other is not. The other is a compilation of data that is not coordinated among the FOMC participants. And sometimes these are in conflict as seen in some famous examples over the past seven or eight years. This puts the Chair in a very difficult position in some cases—essentially, on the firing line at the press conference trying to explain why the Committee said one thing in one statement and said another thing in another statement.

So I really think this is very fundamental, and we need to get control over this. Otherwise, we're just going to continue to have episodic conflicts. Arguably, we have one right now. We said in August that we were going to do flexible average inflation targeting, and then we came out in September with an SEP that said, well, inflation is not going to be above target anytime in the forecast horizon. So this caused a lot of questions, and that's fine. We can explain and talk about that. But I think this is a very difficult thing.

I would remind the Committee that when we first adopted the SEP, I think it was, in my opinion, adopted without enough careful consideration of what we were doing, and we just kind

of went ahead with it and said, “Well, we’ll give it a try and see how it works.” But the spirit of that was that there would be revisions that would come later if we had any problems, and those revisions have never come because there are different views on the Committee and it’s been a difficult situation.

So I do think it is time to reassess the SEP, and I have some other questions about it. I would say, you could ask the question: How important are quarterly forecasts from this Committee in an age of GDPNow, when forecasts are being updated on a daily basis, with that morning’s information coming in? And I think GDPNow is a great innovation. There are many other forecasters that are updating on a daily basis. That makes complete sense in a world of fast information and models that you can click on a button and get your new forecast based on the new information. So the SEP is essentially stale right after it comes out, because new information has come in that would cause adjustments to that forecast. And most of what we do in our public speeches is, we try to give hints about how we would adjust our own outlook based on how the data, a jobs report or something like that, have been coming in over the past couple of weeks.

And I would also stress that forecasts—there’s a problem with the SEP, as it goes out several years and into the long run. I actually do not submit a long-run forecast, because such forecasts do not contain very much information. There’s a long literature on this. You get out more than a year, and, basically, a forecast isn’t telling you anything. So I think you’re conveying a false sense of security with these dots out there several years. Shocks are going to overwhelm that, and we know that from the literature. So what exactly do we think we’re trying to do with the SEP?

I think another comment that has been made around the table over the years on this is that it would be much better to communicate a policy rule, even approximately—we can't have a mathematical rule. And we have tried to do that with flexible average inflation targeting, so maybe we're in better shape today. What you really want to describe is how you're going to react to incoming information, not try to predict what the incoming information is actually going to be, because that's very difficult. So forecasting is not, probably, what we want to do. We want to have a map between the various states of the world and how we would behave in those various states. I think we're closer to that than we were a decade ago, but we're not there yet.

So I just want to make the case, as I've made off and on over time here, that it's very much ripe for a rethink of the SEP. It does cause us problems, it does cause the Chair problems, and it probably could be done better if we took a step back and tried to think about what we're trying to do here.

On asset purchases, I thought it was a very good discussion yesterday, and I learned a lot—a lot of good comments. I'm likely to be supportive of modest changes to forward guidance on asset purchases in December, as discussed yesterday. However, I would stress that this must be carefully done. The taper tantrum was a very serious event and did cause a major global disruption at the time. So I think we want to—we are in a crisis here. We do not want to rock the boat. And if we could get away with doing nothing, I'd probably support doing nothing. We may have to make modest changes, but I'd just remind people that the tantrum caused, as I mentioned yesterday—the chart I have in my head is of a 100 basis point increase in real yields that was very persistent globally. I mean, that is a big shock, and we don't want to get into that as we're trying to wend our way through the crisis here.

I do think, as I hinted yesterday, that there's a potential conflict ahead in 2021—not today. I very much think we're in a good position today. But going ahead, we're telling a story that the pandemic is going to wind down somehow in 2021—therapeutics come on board and vaccines come on board. I emphasize that the business community has learned how to cope with the disease. Households that are most at risk learn how to protect themselves. So these things are all pointing to a wind-down in 2021. It doesn't seem like it today. It seems like this thing is going to go on forever. But you know that it's not going to go on forever. It's going to wind down.

And our description of what's going to happen is very long term. Our description is that there are problems for the next five years or seven years—something like that. And that description is coming from too much weight on the GFC aftermath experience. That was an extremely slow recovery. People are looking at that, and they're mapping that over to this shock and saying that that same very slow pace is going to—and it's going to take five to seven years. I don't think that's what's going to happen here. This pandemic will wind down at some point. Unemployment will come down, growth will be above potential, and you'll be in a very different situation than the one we're describing.

So I think we should be contemplating what we are going to say in 2021 if we get that kind of baseline—really, I would say, baseline scenario: Vaccines start to come on, therapeutics are around, quite a bit of output has been recovered, unemployment is down quite a ways, and then we're still telling a story of, "Oh, it's going to take another five years." I'm not sure that's going to be tenable, and I think that's potentially something we have to think about in 2021.

On policy for today, I support alt-B as written. I thought the Chair had good judgment a long time ago, in the summer, to stay away from trying to make any policy move at this meeting.

And, obviously, we've got all kinds of election uncertainty, which was maybe kind of predictable.

I like President Kaplan's phrase "teeth of the pandemic." You don't want to make any changes at this kind of juncture. And this might also apply to December, so I have a little bit of trepidation about even doing something in December.

The policy response to this crisis has been excellent on the fiscal side and on the monetary side—one of the best I've seen in my career. I think it was calibrated to a larger shock, a macroeconomic disturbance, than the one that has actually occurred. We borrowed plenty at the federal level. We immediately, here at the FOMC, went to the effective lower bound. We got the liquidity programs going very rapidly—an outstanding response across the board. And that's putting us in a very good position to get past this pandemic in the next six to nine months. So I think we're in great shape for today on policy. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George, please.

MS. GEORGE. Thank you, Mr. Chairman. I support alternative B as written. The current stance of policy is appropriate, in my view, as we monitor the state of the economy, the prospects for fiscal policy, and the course of the virus. With accommodative financial conditions in place and continued sharp movements in the economic data, it could be appropriate to remain on hold for some time. Certainly, it's too soon to talk about withdrawing accommodation with the pandemic still in full swing. But likewise, judging the need for further accommodation seems premature today.

As we discussed yesterday, it will be important to clarify our intentions for balance sheet policy. I look forward to our upcoming deliberations on how to offer that guidance for asset

purchases that contributes to the achievement of our objectives without unnecessarily complicating future policy choices by tying our hands. Thank you.

CHAIR POWELL. Thank you. Governor Bowman, please.

MS. BOWMAN. Thank you, Chair Powell. I also support alternative B. With the incoming data on economic activity again surprising to the upside, I continue to be encouraged by the resilience of the U.S. economy, and I remain optimistic about the outlook.

While conditions have significantly improved, employment and economic activity are still short of their pre-pandemic levels, and I continue to see the economic risks of further measures that could be taken to address the pandemic as substantial. Therefore, I support maintaining an accommodative policy stance at this meeting, which is consistent with the forward rate guidance added to our policy statement at the September meeting. I'd also like to note that I'm very pleased to see the expansion of the Main Street Lending Program's accessibility, and I'll be interested to see how this change affects the usage in the coming months.

But, as I noted yesterday, I think in the coming meetings, we will need to start clarifying our intentions regarding our asset purchases. Based on the pace of the recovery so far and various indications of essentially normal market functioning, it seems likely that in coming meetings it will be appropriate to begin signaling a move toward a gradual slowing in the pace of our asset purchases. But I agree with what the Chair said yesterday—that is at some point in the first half of 2021.

I recognize that financial conditions can be very sensitive to communications about our asset purchase plans, and I'd just like to restate that I'm not advocating for an immediate change.

But our asset purchases have both benefits and costs, and we should weigh them carefully as we consider the future course of the balance sheet in upcoming meetings. Thank you, Chair Powell.

CHAIR POWELL. Thank you. Governor Quarles, please.

MR. QUARLES. Thank you, Chair. I, too, support alternative B as written. We've experienced a faster-than-expected recovery. My current expectations regarding output, employment, and inflation remain rather more upbeat than the staff's baseline. But, of course, the recovery to date and my continued optimism reflect in part the significant pass-through of monetary policy and the other actions that the Fed has taken to support the real economy. And, as I mentioned yesterday, downside risks from the COVID event are larger than they've been over the past several months, and the 7.9 percent unemployment rate is still well above where we know that this economy can get. So the economy continues to benefit from support—the forward guidance that we agreed to in September and the current pace and composition of asset purchases remain appropriate.

I've reflected somewhat further on our discussion yesterday on asset purchases in light of our statement. The current statement language appears to have generated market expectations about the pace and duration of asset purchases that are roughly in line with current economic conditions. And because of the intense focus on our statement, making a change in the language carries risks of unintentionally upsetting that equilibrium at a time when conditions are quite uncertain. I'm also of the mind that the "market functioning" language and the current composition of purchases have more time to run, as the Chair said yesterday. And at least some of the key uncertainties right now—fiscal policy and the evolution of the COVID event—are likely to be clearer after the turn of the year.

So I'd be comfortable using what Governor Clarida called a status quo bias and taking some additional time to be sure that we're implementing the right changes in that communication and doing so at an appropriate time. And then when the time comes to remove the focus on market functioning, I am, like many of you—although I didn't discuss this yesterday—attracted to exploring the strategy of lengthening the average duration of purchases or doing a maturity extension program while reducing the pace of purchases commensurately to achieve similar levels of accommodation. That approach would have the benefit of preserving our balance sheet capacity for use in a greater emergency; it reduces the strain on banks associated with higher bank reserves or the financial stability considerations that go with the overnight reverse repo program.

Looking a little longer term, I appreciated the breadth of the alternative scenarios included in the Tealbook this time around. But even in light of inflation stubbornly persisting at modestly below our 2 percent goal during the past decade and the flatness of the Phillips curve in the data and in our models, I still was struck, in that range of scenarios, by the quiescence of inflation even after the expansion had taken hold across all of the scenarios. Although understandable in the baseline scenario, again, inflation is persisting below 2 percent in the “Faster Recovery” scenario and in the scenario with an additional \$2 trillion of fiscal stimulus. And in that latter scenario, unemployment falls to 2.8 percent in 2022 and 2023, which would be the lowest since the first year of the Eisenhower Administration. But inflation doesn't reach 2 percent until 2023—and then only barely.

So if I applied the current forward guidance to the letter, the federal funds rate would stay at the effective lower bound over that whole period. I would be quite surprised if inflation remained as low as projected in such a historically strong economy. I would simply note that.

I also looked at the “Inflationary Pressures” scenario and wondered how much that would change if we were adding significant fiscal support at the same time as those pressures emerged. But none of those questions about the medium- or longer-term inflation dynamics in a good state of the world change my comfort with monetary policy remaining highly accommodative for the foreseeable future. Thank you, Chair.

CHAIR POWELL. Thank you. First Vice President Feldman, please.

MR. FELDMAN. Thank you, Mr. Chair. And I just want to thank you, on behalf of Neel and myself, for your accommodation in my participation and the support from the FOMC Secretariat in doing that.

We support alternative B as written. We support the upcoming near-term discussion of changing the language on the balance sheet. That seems like that's the right time.

In terms of the path of policy, as mentioned yesterday, we are worried about a significant downturn associated with the increase in COVID, potentially combined with a lack of appropriate fiscal stimulus, and think we should not be planning just for a return to normal but, instead, should be thinking about contingencies associated with a more pessimistic outcome. And that would build on our discussion yesterday of balance sheet options that we would be using in that case. We also agree strongly with the notion of extending all of the programs under way under 13(3) and others.

And, more generally, even without that downturn, we think there needs to be appropriate accommodation, given the labor market conditions and the fact that we're not yet on the path to our inflation target. Thank you.

CHAIR POWELL. Thank you. President Daly, please.

MS. DALY. Thank you, Mr. Chair. I support alternative B as written. I see the release of our long-run framework—combined with the September forward guidance, which was quite strong—as really signaling to people that we are going to do what it takes to be accommodative until we’re fully on path to achieve our dual-mandate goals.

I agree with your characterization yesterday that policy is in a good place. I’m a little worried that that might shift on us if we don’t change the language of “over coming months” on the asset purchases. As I said yesterday, I think markets can be fickle. They’re in a good place now, but I’d hate for them to get surprised on the—go in one direction if there’s good news or a different direction if there’s bad news and move away from our own views. So I would, as President Mester said, welcome the changes in December, but, obviously, it’s a Committee decision.

The discussion yesterday on asset purchases and also on the economy made me sort of pause and want to say a few words about future policy. And here I want to focus on three things: employment, inflation, and inequality. Our discussion yesterday made me think about the fact that we know how to manage a crisis. We’ve done extraordinarily well on that front, I think, along with the fiscal authorities. That’s not where I have any concern. Where we tend to be less practiced—or, if practiced, we are less familiar and less willing—is in this period we’re facing today.

So if the modal outcome for the virus goes forward and we have continued steady growth, as many of us think, next year, then we’re going to face the situation of unemployment coming down only gradually, inflation moving up only gradually, and us feeling impatient that we might have used all of our tools and we can’t really do more. So I want to just focus on what we’ve learned from the past 30 years. I agree with President Bullard that we shouldn’t just look

to the GFC experience and the previous recession and say, “That’s what we should extrapolate from.”

So let’s go back to the 1990s, which was really the first labor market recovery that was, well, called the jobless recovery. And it was one in which the historical *V*-shaped recovery of employment just didn’t occur, and it was more protracted. It was the FOMC at that time that kept rates lower for a little longer and waited for inflation to come back up. And we saw, really, millions of Americans who were at the lower part of the wage and education distribution be able to come in and work. It was then dubbed the Roaring Nineties.

So that was an example that I think we can apply today. We can simply take out the Great Recession and use the 1990s and the 2000s and see that, although employment progress is slow and people do say there are structural differences—people can’t come back into the labor market—a robust economy really works. And, importantly—and many of us have mentioned this—it starts to close gaps that are long standing between Black Americans and white Americans, Hispanic Americans and white Americans, and those with less education and those with more. So we are not a sufficient condition—in no way. We have to have the help of fiscal authorities and others. But we are a necessary condition, and I would hate for us to lose our resolve because we got worried that we couldn’t do anything.

Let me turn to inflation. On inflation, we came into the pandemic with inflation below our target. And then we committed as a group to have average inflation of 2 percent—that’s where we have the new framework. If we had trouble getting there in a strong economy, we’ll have to be harder working in a weak economy. I’m very encouraged, however, by what I’ve seen in market reactions. The inflation expectations that Trevor showed yesterday—that’s an incredibly positive piece of evidence that, essentially, on the release of our framework, we saw

those expectations come up at the same time that the European nations' are coming down. So I don't think we're going to be in a Japanese situation or even a European one if we keep our resolve, keep our accommodation, and say that those are our targets. It's why I think the SEP, our forward guidance, and other things have been so critical, along with our communications.

Now let me, finally, talk about inequality. You know, President Bostic brought this up, but many of us have been talking about this. I've actually been, for the past two months, meeting with people who worry a lot about whether our policies have these unintended consequences of boosting inequality and really asking them, "Come, and let's talk about it." And what I've learned in those conversations with a range of people, many of whom you don't know, is that really what they're asking for, in my judgment, is that we not stop doing our policies, because those are making everyone better off, but that we combine our policies not only with the outreach that President Kaplan and President Bostic just mentioned and all of us are doing, but also with the outreach that says, "The interest rate is low, so you should take this opportunity to think about mortgage refinancing," or "Boy, the labor market is improving—where is our workforce development?" We can use our voice, and we can use programs. But it really is not that we shouldn't do anything for fear of producing inequality, because then the absolute income of these individuals would be lower. And I think we should focus on getting absolute incomes up and then working with outreach to close relative gaps.

I'll conclude everything by saying that I reread last night, just because I occasionally do—I'd recommend it; it's a really nice read—the piece by Romer and Romer on how the most dangerous idea in the Federal Reserve is that monetary policy isn't effective. And it was really an important piece, because it goes back and documents in history when we've made our largest

mistakes—when academics, researchers, and policymakers look back, they always say that we were too timid or we thought we ran out of gas.

So I want to just completely second what Chair Powell said yesterday, that we are a powerful institution. That even if it's only signal value that we announce our facilities and the spreads narrow, that we say we have more tools and people feel confident, and they put Jay in *New York* magazine and say he's a good public servant—I mean, these are good days for us, and, importantly, we can use these things to be more powerful. So with that, I'll conclude and say, thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard, please.

MS. BRAINARD. Thank you, Mr. Chair. I see the economic data since the September meeting as slightly stronger than expected. Despite this, the resurgence in virus spread, the disappointment on fiscal support, and the European second wave, in my mind, pose important downside risks.

While the strong third-quarter GDP “print” was welcome, the recovery remains highly uncertain and highly uneven, with certain sectors and groups experiencing substantial hardship. In September, I was worried fiscal policymakers could take the wrong message from the strength of the recovery and withdraw critical support. We’ve seen a stalemate since that time. Further delays and shortfalls are likely to intensify the headwinds from income losses among cash-constrained households, layoffs at cash-strapped small businesses, belt tightening among state and local authorities facing revenue losses, and the associated scarring and recessionary dynamics. These headwinds will slow our return to 2 percent average inflation, and they will be felt more severely by low- and moderate-income households, highlighting the gap between current labor market conditions and our broad and inclusive definition of maximum employment.

Even as the data continue to come in better than expectations, the levels of both employment and inflation remain far short of our goals. The forward guidance we adopted in September is appropriate, in view of the severity of the risks facing American households and businesses. It will be difficult to move average inflation to its target, given today's low neutral rate, low underlying inflation, and low sensitivity of inflation to slack. Indeed, as Governor Quarles noted, even under the upside risk scenarios of "Additional Fiscal Support" and "Faster Recovery," inflation doesn't even reach 2 percent, let alone sustainably move above it, until 2023 or 2024.

A key benefit of outcome-based forward guidance of the sort we put in place is that the pace of the recovery will dictate the path of policy. Should a faster recovery materialize, which I hope it will, our reaction function has already been articulated, and our policy will be anticipated.

I was encouraged to see evidence in the Desk survey that our forward guidance is having the desired effect on expectations regarding the policy rate. The median response regarding the most likely time of liftoff is now in the first half of 2024, later than in July, despite the fact that the data since that time have generally been better than markets had expected.

So why did the liftoff move later despite the improved outlook? The survey suggests that our switch to a flexible average inflation-targeting strategy and its implementation through our September outcome-based forward guidance have shifted expectations consistent with our reaction function. Perhaps the clearest indication is the increase in respondents who believe the most likely value of headline 12-month PCE inflation at liftoff will be greater than 2¼ percent, which increased from 30 percent in July to more than 50 percent in the latest survey. Similarly, as was noted, five-year, five-year-forward inflation compensation has moved up since we

announced our new framework, which is a sharp contrast with jurisdictions such as the euro area that have not yet made commensurate changes.

Makeup strategies require commitment on the part of policymakers in order to be credible and effective. Like Governor Clarida, I read the shift in market expectations as providing some indication we passed the first test of our credibility with the September outcome-based forward guidance implementing the new consensus statement. Our guidance on asset purchases will be viewed as the next important test of our credibility in implementing the new consensus framework.

Our discussion yesterday explored the important considerations that we are all weighing. I thought it was very helpful. We should be careful not to come across as equivocal or we will risk losing the credibility we have earned by our strong resolve to date, which could necessitate even greater actions to make up for lost ground later, as noted by Presidents Evans and Daly.

A few careful modifications can meet this test within a unified framework governing both the policy rate and asset purchases and linked to our goals while maintaining necessary flexibility and using our balance sheet more efficiently by shifting toward longer maturities, as noted by President Kaplan and Governor Quarles. This guidance would tie the public's expectations of purchases, including when they would taper and conclude, qualitatively to economic outcomes.

By pledging to provide accommodation until shortfalls from maximum employment have been eliminated and average inflation of 2 percent has been achieved, we can ensure that inflation expectations become solidly anchored at 2 percent, and that the recovery reaches those who have been disproportionately harmed, leading to a broad-based and strong recovery. Our guidance on asset purchases will help secure these outcomes by helping to keep borrowing costs

low for households and businesses along the yield curve. Like President Daly, I was struck by the Chair’s words yesterday, and I just want to paraphrase what I thought he captured well: We’re strongly committed to using our powerful tools until the job is well and truly done.

This committed support from monetary policy, if combined with additional targeted fiscal support, can turn the *K*-shaped recovery into a broad-based and inclusive recovery. So I support alternative B at this meeting. Thank you.

CHAIR POWELL. Thank you. Vice Chair Williams, please.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. In yesterday’s discussion and this morning’s discussion, I’ve heard the terms “natural optimism,” “better than expected,” and “feeling good about that.” I had an epiphany last night really because of the comments by Governor Quarles and President Daly—I finally have the answer to a question people have asked me for the past two years, and that is, which sports team am I going to support in the Second District? And given how good it feels to think that things are going to get better, I have decided once and for all to choose the New York Jets to be my team, as you always feel that things are going to get better because they can’t get much worse, to paraphrase a Beatles song. I see that Governor Clarida supports this.

In terms of the policy, I support alternative B as written. The broad contours of the economic outlook have not fundamentally changed since our September meeting. We continue to face a protracted recovery, measured in years and characterized by an extraordinarily high degree of uncertainty. Accordingly, it will remain appropriate to maintain a highly accommodative monetary policy stance for quite some time as we seek to eliminate shortfalls from maximum employment and achieve inflation that runs moderately above the 2 percent longer-run goal for some time.

I am encouraged, like others, that our new policy framework and forward guidance on the funds rate are already helping align market expectations with our own. I know a few people have already said that, so the minutes will have to go from “a few” said this to “several,” I think. Since July, market participants’ perceptions of our reaction function have shifted noticeably, as Governor Brainard just described, with the median response of the Desk survey to the rate of inflation prevailing at liftoff rising from 2.1 percent to 2.3 percent since July. This expectation stands in stark contrast to the survey results back in 2015, when the median response from the survey was for core inflation to be around 1½ percent at liftoff. So it’s a pretty dramatic change in how people understand our framework.

I’d like to comment a little bit on financial stability risks for market volatility in the context of the highly uncertain outlook regarding the pandemic, fiscal policy, et cetera. You know, the good news is, we already have in place numerous active and effective programs to provide broad market liquidity, both domestically and internationally. These include our SOMA asset purchases, daily repo swap lines, the FIMA repo facility, the discount window, and, of course, the 13(3) programs. The past eight months teach us that the scale and the certainty of this liquidity have powerful effects on market confidence and functioning during highly uncertain times. And we can quickly adjust or expand these existing operations if needed.

In this regard, the scheduled expiration of several key 13(3) facilities at the end of the year puts this good equilibrium at risk at a still fragile moment for the global economy and the financial system. Market participants are focused on this expiration date, and there will be a significant benefit if it were clear that these facilities will be quickly restarted if needed or, even better yet, that the expiration date will be postponed into the future, when the situation is less parlous. So I support the Chair’s comments on that.

Finally, I'd like to make a couple of remarks in response to some of the discussion. And we're dealing with truly unusual, extraordinary circumstances. Of course, there are a lot of unanswered issues that we have to grapple with, and I just want to congratulate the Board staff and others for really doing great analysis—bringing together micro and macro evidence and bringing together high-frequency, time-series, and cross-sectional analysis—to help us sort through the issues.

I think, in particular, the example of what's going on with the saving rate across various groups was very informative. It doesn't necessarily, perhaps, give everybody the convincing answers to all of the questions, but it definitely gets a great conversation going. And I know that our economists were very engaged in this kind of work. As we go forward, looking for more opportunities to share not only the analysis of Board economists through the Tealbook and other briefings, but also the research that's going on in the System, whether in special topics briefings or other ways, I think that would be really helpful, with all of the critical, important questions that we'll be thinking about.

That served us very well following the financial crisis—some really outstanding research, as President Daly mentioned yesterday, that helped us separate various hypotheses based on the evidence and based on what we can glean from the data and the analysis. So I encourage us all to not only continue on that path of supporting that research, but also make sure it's shared with the Committee.

And, lastly, I wasn't going to talk about the SEP, but President Bullard is forcing my hand a bit. I understand the desire to revisit that—I'm a big proponent of continual improvement. But it's easy to find the times when you don't like the dot plot. I think, President Bullard, you're really referring primarily to the dot plot. But there are reasons I think it's

actually helped us enormously, especially when we're at the lower bound. I mean, the fact that we go only to 2023 means that we can't give the full picture of inflation overshooting.

But in terms of these comments about, "Well, are we just saying that it's going to be a replay of the financial crisis?" Well, no. If you look at the SEP, we have the unemployment rate coming down relatively quickly, I think reflecting the view that this is a different situation—this time is different. We also can show at least our views of what it means. The previous SEP was not—the meeting didn't have rate increases for the next few years. So I think it actually has served us well in the situations in which it matters the most. It's uncomfortable at times, I understand—every Chair has mentioned that. But at times when I think it has the greatest effect, I think it does play a valuable role.

And in terms of the comment about, "Do we really know why we're doing it or what the goal is?" Fortunately, Glenn Rudebusch and I wrote a paper on this in 2008, "Revealing the Secrets of the Temple: The Value of Publishing Central Bank Interest Rate Projections." And it really is about the reaction function. It's about helping people understand: As the evolution of the economy changes, how does our policy change? It's not just about a point in time.

So I do encourage the subcommittee to continue to think about how to improve the economic projections and the dot plot. But I don't want us to lose sight of what we're trying to accomplish, and want to really focus on how we can make it even more effective in the future. So with that, thank you.

CHAIR POWELL. Thanks, everyone, for your comments—solid support for alt-B as written, with some interesting ideas. So with that, let's move to the FOMC votes. Matt, could you make it clear what the FOMC will vote on and then call the roll?

MR. LUECKE. Thank you, Mr. Chair. The vote will be on the monetary policy statement and directive to the Desk corresponding to alternative B as they appear in Trevor's briefing materials. I'll call the roll.

Chair Powell	Yes
Vice Chair Williams	Yes
Governor Bowman	Yes
Governor Brainard	Yes
Governor Clarida	Yes
President Daly	Yes
President Harker	Yes
President Kaplan	Yes
President Mester	Yes
Governor Quarles	Yes

MR. LUECKE. Thank you.

CHAIR POWELL. 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 Trevor'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 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 October 30, 2020, memo to the Board?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Thank you. Our final agenda item is to confirm that our next meeting will be Tuesday and Wednesday, December 15 and 16, 2020. Thank you, all, very much. It's been a great meeting. It's good to see everyone, and thanks again. Take care. Be well.

PARTICIPANTS. [Chorus of goodbyes]

END OF MEETING