

**Meeting of the Federal Open Market Committee on
September 25–26, 2018**

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, September 25, 2018, at 2:00 p.m. and continued on Wednesday, September 26, 2018, at 9:00 a.m.

PRESENT:

Jerome H. Powell, Chairman
John C. Williams, Vice Chairman
Thomas I. Barkin
Raphael W. Bostic
Lael Brainard
Richard H. Clarida
Loretta J. Mester
Randal K. Quarles

James Bullard, Charles L. Evans, Esther L. George, Eric Rosengren, and Michael Strine,
Alternate Members of the Federal Open Market Committee

Patrick Harker, Robert S. Kaplan, and Neel Kashkari, Presidents of the Federal Reserve
Banks of Philadelphia, Dallas, and Minneapolis, respectively

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

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

David Altig, Kartik B. Athreya, Thomas A. Connors, Mary C. Daly, David E. Lebow, Trevor
A. Reeve, William Wascher, and Beth Anne Wilson, Associate Economists

Simon Potter, Manager, System Open Market Account

Lorie K. Logan, Deputy Manager, System Open Market Account

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

Matthew J. Eichner,¹ Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Andreas Lehnert, Director, Division of Financial Stability, Board of Governors

Jennifer L. Burns, Deputy Director, Division of Supervision and Regulation, Board of Governors; Rochelle M. Edge, Deputy Director, Division of Monetary Affairs, Board of Governors; Michael T. Kiley, Deputy Director, Division of Financial Stability, Board of Governors

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

Antulio N. Bomfim, Special Adviser to the Chairman, Office of Board Members, Board of Governors

Joseph W. Gruber and John M. Roberts, Special Advisers to the Board, Office of Board Members, Board of Governors

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

Eric M. Engen, Joshua Gallin, and Michael G. Palumbo, Senior Associate Directors, Division of Research and Statistics, Board of Governors; Christopher J. Erceg, Senior Associate Director, Division of International Finance, Board of Governors

Ellen E. Meade, Edward Nelson, and Joyce K. Zickler,² Senior Advisers, Division of Monetary Affairs, Board of Governors; Jeremy B. Rudd, Senior Adviser, Division of Research and Statistics, Board of Governors

David López-Salido, Associate Director, Division of Monetary Affairs, Board of Governors; Stacey Tevlin, Associate Director, Division of Research and Statistics, Board of Governors

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

Penelope A. Beattie,³ Assistant to the Secretary, Office of the Secretary, Board of Governors

Jeffrey Huther, Section Chief, Division of Monetary Affairs, Board of Governors

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

Benjamin K. Johannsen, Senior Economist, Division of Monetary Affairs, Board of Governors

¹ Attended through the discussion of developments in financial markets and open market operations.

² Attended opening remarks for Tuesday session only.

³ Attended Tuesday session only.

Achilles Sangster II, Information Management Analyst, Division of Monetary Affairs, Board of Governors

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

Michael Dotsey and Geoffrey Tootell, Executive Vice Presidents, Federal Reserve Banks of Philadelphia and Boston, respectively

Edward S. Knotek II, Spencer Krane, and Mark L.J. Wright, Senior Vice Presidents, Federal Reserve Banks of Cleveland, Chicago, and Minneapolis, respectively

Jonathan P. McCarthy and Jonathan L. Willis, Vice Presidents, Federal Reserve Banks of New York and Kansas City, respectively

William Dupor, Assistant Vice President, Federal Reserve Bank of St. Louis

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

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September 25 Session

CHAIRMAN POWELL. Good afternoon, everybody. Let's get started. As usual, today's meeting will be conducted as a joint meeting of the FOMC and the Board, and I'll need a motion from a Board member to close the meeting.

MR. CLARIDA. So moved.

CHAIRMAN POWELL. Second?

MS. BRAINARD. Second.

CHAIRMAN POWELL. Without objection, so ordered. We have an unusually large number of transitions to celebrate here today, so I'll just jump right in.

First, I'd like to welcome Rich Clarida, who, as all of you know, has been confirmed as Vice Chairman of the Board. Rich brings with him an impressive resume that includes many contributions to the literature on macroeconomics and monetary policy, important roles at both the U.S. Treasury and the Council of Economic Advisers, and also a great deal of practical experience on financial matters accumulated in his work in the financial sector. Rich, I know I speak for everyone here in saying that we're delighted to have you as a member of the Board and the FOMC, and we very much look forward to working with you. [Applause]

Next I'd like to congratulate Mary Daly on her appointment as the new president of the Federal Reserve Bank of San Francisco, effective October 1. Mary's had a long and distinguished career in the Federal Reserve System and is highly respected for her research on labor market dynamics and other topics as well as for her many other contributions, including her work as a champion of diversity. Congratulations. We all look forward to welcoming you to this table as a member of the Committee at our next meeting. [Applause]

The arrival of Mary at the table at the next meeting means that Mark Gould, who has been serving as acting president, can soon go back to doing just one very large job. Thank you, Mark, for stepping into this role on top of your broad San Francisco and Federal Reserve System responsibilities and for representing the San Francisco Fed so ably at these past few FOMC meetings. We'll miss your thoughtful remarks at FOMC meetings, of course, but we look forward to the benefits to the Federal Reserve System that will continue to flow from your many talents and great leadership. Thank you, Mark. [Applause]

Finally, I would like to acknowledge Joyce Zickler. [Applause] It's hard to know where to begin, but Joyce will be retiring at the end of this month following a 43-year career on the Board's staff—a period that spans seven Federal Reserve Chairs, beginning with Arthur Burns.

Joyce joined the Division of Research and Statistics in September 1975, at a time when the Board was seeking to expand the analysis and forecasting of labor market and inflation developments. She quickly became involved in projects for Chairman Burns. I'm told that that could be something of a mixed blessing, in view of his reputation for fierce questioning, but Joyce emerged largely unscathed from that experience.

Joyce has taken on a very broad range of duties over her distinguished career. Among these, Joyce participated for a time in the Board's annual evaluation of the Federal Reserve Bank research functions, a process that I'm sure brings back warm memories for our Reserve Bank colleagues. In 2010, Joyce joined the Monetary Affairs Division, in which she has regularly participated in the drafting of the minutes of the FOMC meetings and the preparation of meeting transcripts. This summer, Joyce has been working on the Board's Oral History Project and has been invaluable in that effort, readily recalling events of 35 or 40 years ago as if they were just yesterday. I wish we all had that talent.

Throughout her career, Joyce has taken a special interest in training and mentoring many generations of the Board's staff. Joyce, you've been a wonderful colleague, and we'll miss your drive and intelligence and completely unselfish devotion to the mission of the Federal Reserve. We wish you all the best in the years to come. Thank you. [Sustained applause]

And now let's turn to our formal agenda and to Simon for the Desk report.

MR. POTTER.¹ Thank you, Mr. Chairman. As shown in the top-left panel of your first exhibit, moves in U.S. equity and rates markets continued trends seen over much of this year. U.S. Treasury yields rose, the broad trade-weighted dollar appreciated, and the S&P 500 index increased. The move higher in prices of U.S. equities—which market participants have attributed to the robust U.S. economic outlook, rising corporate earnings, and elevated stock buybacks—stood out against broad declines in risk assets across foreign markets.

This underperformance in the rest of the world has been a trend observed since the start of the second quarter. In particular, emerging markets have come under significant pressure, and several of these economies saw further sharp declines in the value of their currencies and prices of local financial assets early in the intermeeting period, as illustrated in the top-right panel. The MSCI Emerging Markets ex China Equity Index, in dark blue, and the JP Morgan Emerging Market FX Index, in light blue, declined by 3 percent and 5 percent, respectively, over the intermeeting period. Financial market pressures were most acute in countries that have external and internal imbalances, high inflation, and perceived problems of policy credibility—in particular, Turkey and Argentina.

Other than a few days on which Turkish asset prices declined sharply, however, there were only modest spillovers into developed markets over the period. European banks were one exception, with the Euro Stoxx bank index, shown in red, declining by as much as 11 percent over the period, though these moves have partially retraced. These spillovers coincided with news reports naming several European banks as having a high exposure to Turkey, reflecting ownership stakes in local banks. Political developments in Italy that received attention in the spring and earlier in the summer have also weighed down prices of European bank shares. Financial markets remain sensitive to developments in Italy and the ongoing budget negotiations there, but these were not viewed as a significant driver of global markets over this period.

With regard to the recent weakness in emerging markets, the Desk's September policy surveys included a special question on the drivers of the recent volatility. Respondents broadly cited the appreciation of the dollar and ongoing U.S. policy normalization, as well as rising U.S.–China trade tensions, as important drivers. Their responses also highlighted country-specific developments that sharpened

¹ The materials used by Mr. Potter are appended to this transcript (appendix 1).

investor focus on long-standing vulnerabilities in certain countries, like Turkey. Importantly, most respondents did not express a high level of concern regarding broader contagion.

Analysis of the Desk's policy survey results has also been helpful in highlighting sources of uncertainty over the period ahead. The middle-left panel shows the results of a natural language processing program run on the responses for the emerging market volatility question. Conditional on the selected word or words appearing more than five times in the responses, the panel shows the proportion of times that those words appear in the same sentence as words expressing uncertainty. In a manner similar to our more subjective reading of the responses, references to "China," "trade," and "tariff" had the highest association with expressions of uncertainty. Joe will discuss these issues some more in the IF briefing.

More generally, trade developments as they pertain to China continued to be a major point of focus for market participants. Earlier in the period, comments by U.S. Administration officials led to increased market discussion of potential U.S. intervention in foreign exchange markets. The ongoing focus on trade also continued to place Chinese assets in the spotlight. Specifically, a perception of rising trade tensions between the U.S. and Chinese governments and signs of slowing real growth in China were cited as continuing to drive declines in the Shanghai Composite, as shown by the dark blue line in the middle-right panel. Over the period, the Shanghai Composite fell by as much as 8 percent before recovering to end lower by roughly 3 percent.

The renminbi, in contrast, was more stable, as Chinese policymakers were perceived as taking steps to stem further depreciation. Paralleling some actions taken previously, policymakers reintroduced reserve requirements on FX forward purchases as well as a so-called countercyclical adjustment factor in the daily dollar–RMB fixing mechanism. Remarks by senior officials were also seen as signaling support for the stability of the currency. In addition, the Chinese authorities may have intervened on a small scale in currency markets to stabilize the renminbi.

Market participants also took comfort from signals that Chinese policymakers will introduce additional stimulus to offset the effect of the U.S. tariffs and real effects of the crackdown on the shadow banking sector. Indeed, expectations for further policy stimulus, as well as the recent tariff outcome and escalation reportedly being less severe than some feared, were cited as contributing to a rebound in the Shanghai Composite and prices of risk assets more generally last week.

While market participants have been focused on the threat of slowing growth abroad, U.S. data over the intermeeting period continued to show strength. The bottom-left panel shows a simple decomposition of daily changes in U.S. Treasury yields over the period, attributing the daily change to the most important driver cited on that day, according to the Desk's market intelligence. Yields declined, on net, on days when emerging market developments were cited as the main driver, shown in dark blue, but rose by even more on days when domestic data were cited, shown in

light blue. This left 2- and 10-year yields higher, on net, and the 10-year breakeven rate of inflation little changed.

Policy expectations edged up over the intermeeting period, as shown in the bottom-right panel. All respondents to the Desk's policy surveys expect a hike at this meeting, and all but three expect a subsequent hike at the December meeting. Market pricing is consistent with the survey responses: A 25 basis point hike at this meeting is fully priced in, with an additional 20 basis points of tightening priced in between the September meeting and the end of the year. Looking further out, survey respondents' modal forecasts moved toward the June SEP "dots," consistent with recent economic strength. For the SEP, survey respondents generally anticipate that the median SEP dots will remain unchanged, and that the median dot in 2021 will be at the same level as in 2020.

As shown in the top-left panel of your next exhibit, LIBOR–OIS spreads narrowed notably over the intermeeting period. Market participants have cited, though with somewhat low conviction, recent trends in the CP/CD market as factors weighing on LIBOR submissions. These include higher investor demand due to positive real rates and subdued growth in issuance, as well as the terming-out of issuance. Neither the widening in LIBOR–OIS spreads earlier this year nor the subsequent narrowing in the third quarter reflects perceived changes in bank credit risk.

Recall that in the first quarter, many contacts had believed that the large and unexpected increase in bill issuance pushed up LIBOR and thus widened the spread between LIBOR and OIS. The recent narrowing in LIBOR and OIS, which has been much more rapid than had been implied by forward rates, as indicated by the pink diamonds, helps resolve some of the uncertainty about the relationship between LIBOR and Treasury bill issuance. In particular, it suggests that the flow—rather than the stock—effect of an increase in the supply of Treasury bills may be more important for LIBOR, as the three-month LIBOR–OIS spread has continued to narrow, while the stock of Treasury bills outstanding has reached new highs but at a slower pace than in March. The recent narrowing also suggests that impacts stemming from the repatriation of foreign earnings by U.S. multinational corporations, by reducing demand for CP/CD, had a larger effect in the first quarter. The channels through which repatriation would affect U.S. money markets are varied, however, and flows are hard to measure.

Treasury bill supply, in addition to coupon issuance, remains important through its effect on broader money market rates. Indeed, as shown in the top-right panel, the dispersion between Treasury bill yields, GC repo, federal funds, and Eurodollar rates has tightened within the upper portion of the target range since March. This is due in part to the combined effect of the technical adjustment to the interest-on-reserves rate in June and the higher level of Treasury bills outstanding, along with high primary dealer inventories that have put upward pressure on rates.

Consistent with the broad availability of higher-yielding alternatives, overnight RRP take-up remained low and stable, averaging \$2.7 billion over the intermeeting period. Notably, as shown in the middle-left panel, participation reached a record low of \$10 million on September 5, with a sole participant bidding in the operation.

As shown in the middle-right panel, the spread of both the effective federal funds rate and overnight bank funding rate over interest on reserves narrowed to 3 basis points over the intermeeting period. The dynamics driving the increase in unsecured borrowing rates within the range are consistent with the factors discussed previously with the Committee, relating to demand by non-IOR arbitrage borrowers as well as investment decisions by Federal Home Loan Banks. Banks borrowing due to nonarbitrage motivations—to manage their regulatory ratios, such as LCR, or to avoid daylight overdrafts—appear to have driven the recent increases. With the decline in arbitrage activity, unsecured volumes have fallen.

The bottom-left panel shows how the distribution of trades in the federal funds market has evolved over the past few weeks. Based on previous experiences, as indicated by the close proximity of the black line to the volume of trading 2 basis points below the rate of interest on reserves, we think it's likely that the effective rate will start to "print" consistently at 2 basis points below IOR over the next intermeeting period. Indeed, Monday's "print," not shown, was at 1.93 percent. Further, if one looks at the pattern of trades in late August, there were a number of days when the median was close to "printing" either 4 basis points below or 2 basis points below interest on reserves. We also expect to see similar patterns again, which may produce some local volatility in the effective rate. This local volatility is more likely to occur with low volumes, as was discussed in the memo to research directors by Afonso and others.

Last week there was a large drop in reserves as the Treasury increased its cash holdings at the Federal Reserve following the third-quarter tax receipt day. The level of reserves last week was the lowest for a number of years apart from quarter-ends and close to some private-sector estimates of at what point reserve scarcity might appear. Based on a wide range of indicators, there was no evidence of reserve scarcity. Further, preliminary results of a new Federal Reserve survey specifically designed to obtain a high-quality estimate of at what point aggregate reserve scarcity might occur reinforce the staff baseline view that reserve scarcity is some way off. However, while aggregate reserve scarcity is not imminent, we are expecting some periods over the next few quarters, as reserves decline, when their distribution across the banking system produces trading dynamics that will lead some outside analysts to pronounce that reserve scarcity has been reached, as happened in June. The staff will produce a memo on the new survey and money market dynamics ahead of the November FOMC meeting.

Declines in reserve balances over the past year have been driven by the ongoing decline in SOMA holdings. As shown in the bottom-right panel, the most recent Desk surveys corroborate market commentary of a relatively benign effect of the reduction in holdings on Treasury yields and MBS spreads thus far. Indeed,

comparing the matched sample of survey respondents in the June survey with the most recent, the expected impact on 10-year Treasury yields and 30-year MBS OAS during the two-year period following implementation of the change to reinvestment policy has declined. Starting next month, the redemption caps will move to their maximum values. At this point, reinvestment of Treasury securities will nearly exclusively occur in the middle month of each quarter, and under the baseline we expect no more reinvestment of MBS principal payments. Of course, in view of the uncertainty regarding MBS prepayments, it is possible that some months will see small reinvestment amounts.

I'll conclude with a few operational updates. First, the staff continues work on enhancing the data for the production of the OBFR. Following the final notice on the reporting change to capture overnight wholesale borrowing activity, which moved from offshore to onshore branches, data collection will begin on October 1. There will be a review of the new data and an evaluation of how their inclusion will affect the OBFR before its expected addition in mid-to-late 2019. Additionally, over the intermeeting period a number of private and public institutions issued a small amount of debt linked to the Secured Overnight Financing Rate, SOFR. Although issuance tied to SOFR has been small, market contacts view this activity as consistent with the ongoing gradual adoption of SOFR. Further, open interest in SOFR futures and derivatives continues to grow modestly.

Second, the Desk has completed its annual review of the management of foreign exchange reserves held in the SOMA and ESF portfolios. The review of the purposes and objectives of the reserves, as well as the analysis of liquidity needs and risk parameter settings, resulted in very few changes to the target portfolios from the previous period as described in a memo that Lorie and I sent to the Committee. The Desk will seek instructions from the Foreign Currency Subcommittee that incorporate the recommended parameters by the end of the month and begin to rebalance to the new target asset allocation for the euro portfolio over the course of October. Please let us or the subcommittee members know if you have any questions or concerns.

Third, the Desk executed a small-value purchase operation of \$100 million in Treasury bills in August. Consistent with conducting the full range of operations of such securities, the Desk plans to execute a small-value bill sale, roll over bill securities, and let a portion mature in the future.

As usual, the appendix contains a list of all of the small-value exercises conducted over the intermeeting period, including a test TDF operation, along with a list of upcoming exercises. Thank you, Mr. Chairman. We would be happy to address any questions.

CHAIRMAN POWELL. Thanks. Questions for Simon or Lorie? President Kaplan.

MR. KAPLAN. I just have one, and maybe this is on panel 5. You didn't mention the ECB. I was just wondering what your judgment was, or the Desk's impressions were, of what

was announced by the ECB. What impact did that have on 10-year Treasury yields—if any material impact?

MR. POTTER. I think the most significant announcements were in July, when, basically, President Draghi indicated that they wouldn't be changing their overnight rate through the summer of 2019. There's been some market discussion of what "through the summer" means, but that basically meant—until yesterday and today, which we didn't include—not that much discussion of future ECB policy. They have a number of issues facing them. It seems very likely they will stop adding to their balance sheet through asset purchases.

MR. KAPLAN. Right.

MR. POTTER. How they design the reinvestments on those asset purchases is something of interest. But I think most of that effect stemming from the July meeting was in the previous report that we gave you.

MR. KAPLAN. Okay.

MR. POTTER. It will be interesting to see over the next few days, as there's a little bit of confusion on some comments President Draghi made, if that has some effect.

MR. KAPLAN. There was a lot of market scuttlebutt in August, but you're saying—your judgment is, not much material effect.

MR. POTTER. I think that most people took President Draghi as having got a pretty good consensus through the summer of 2019. A very important issue in the coming months is that the executive board of the ECB is going to change in a very dramatic way. A lot of market focus is on who will be the new president of the ECB.

MR. KAPLAN. Okay. Thank you.

CHAIRMAN POWELL. Further questions? If not, we now need a vote to ratify the domestic open market operations conducted since the July–August meeting. Do I have a motion to approve?

MR. CLARIDA. So moved.

CHAIRMAN POWELL. All those in favor? [Chorus of ayes] Thanks very much. So now we will turn to the review of the economic and financial situation, including the summary of economic projections. David Wilcox, would you like to start us off?

MR. WILCOX.² Thank you, Mr. Chair. I'll be referring to the packet titled "Material for Briefing on the U.S. Outlook." I've taken it upon myself this afternoon to avert the potential incipient catastrophe of an early adjournment, so you'll find that my remarks run a little longer than usual. [Laughter] I'm going to review briefly the current economic situation and then give you my interpretation of the yield-curve inversion that features in the staff baseline projection.

As shown by the black line in your first panel, we continue to estimate that real output is 2¼ percent above its potential level in the current quarter. As shown by the blue line, and not entirely by coincidence, our preferred model on this issue implies a broadly similar view. These assessments of resource utilization have not been much affected by the indicators that have become available since the July meeting, including the BEA's comprehensive revision of the national income accounts.

We now anticipate that real GDP growth will average a little more than 3 percent this year, well above our estimate of potential output growth. As shown in panel 2, we continue to see real output rising another 2½ percent in 2019—again, fast enough to imply a further tightening in resource utilization.

Regarding the news that has become available since the Tealbook forecast closed 12 days ago, the retail sales data were a good bit stronger than we expected, while housing starts and permits were somewhat weaker. As Joe Gruber will discuss in greater detail, the additional tariffs that took effect yesterday imply a little further drag on domestic activity. And Hurricane Florence made landfall. On net, this information caused us to mark up our second-half forecast slightly but left our medium-term outlook essentially unrevised. The bullets in panel 3 give some detail about how we think Florence will affect specific indicators in the next few months.

The chart at the back of your packet, which I would refer you to, contains some extremely cool data that we developed here using a facility that has been set up with us by a company called First Data Corporation. The chart shows how Florence has

² The materials used by Mr. Wilcox are appended to this transcript (appendix 2).

affected national-level retail sales relative to normal since a week before Florence made landfall, and it compares Florence with other recent hurricanes. The data underlying these estimates represent about 20 percent of all electronic card transactions nationwide. These data bolster our expectation that, while the human toll arising from Florence has been considerable, the hit to consumer spending will be transitory and relatively small.

Returning to panel 2, over the next couple of years, the gradual tightening of the stance of monetary policy that our policy rule prescribes, together with the emergence of some supply constraints, acts to slow the growth of output, eventually bringing it in line with potential growth in 2020 and dropping it below the pace of potential in 2021.

Meanwhile, the labor market has continued to strengthen about in line with our expectations. The red line in panel 4 shows the BLS's estimate of monthly private payroll gains through August, while the black line shows an alternative estimate based on data that we receive from ADP. A pooled estimate that combines BLS and ADP information—shown as the blue line—puts the increase in private payroll employment in August at 210,000, consistent with a further tightening in labor market conditions. In addition, ADP data for the first three weeks of September point to another solid private payroll gain this month. On the household side, the overall unemployment rate was 3.9 percent in August—down $\frac{1}{2}$ percentage point from a year ago and about $\frac{3}{4}$ percentage point below our estimate of its natural rate.

As you can see in panel 5, the continued improvement in labor market conditions has been broadly shared across races and ethnicities, with each group's unemployment rate currently at or below the levels that were reached at the end of the previous expansion. That said, little to no progress has been made in shifting the relative alignment of these unemployment rates, and we have no reason to doubt that when the economy next weakens, the gaps between unemployment rates for these groups will widen again.

As shown by the black line in panel 6, we have the aggregate unemployment rate reaching a low of 3.2 percent in 2020 before gradually moving up to 3.4 percent by the end of 2021. In the out-years of the projection, this path of the unemployment rate is a couple of tenths lower than the one we wrote down in July. One-tenth of that downward revision reflects our having taken down our estimate of the natural rate by another tenth, to 4.6 percent. The other tenth reflects the fact that we took the occasion of the comprehensive NIPA revision to do some other housekeeping on the supply side of the projection as well. As has been the case in recent Tealbooks, our unemployment rate would be even lower if we had not assumed that the tight labor market will also put upward pressure on the labor force participation rate.

Regarding inflation, as shown by the red line in panel 7 on your next page, PCE prices excluding food and energy rose 2 percent over the next 12 months ending in July, $\frac{1}{2}$ percentage point faster than a year ago. Of course, inflation can be quite volatile, even on a 12-month change basis, so it's worth asking how durable this

pickup is likely to be. To shed light on that question, panel 7 also plots two additional measures of underlying PCE price inflation. Specifically, the orange line gives the Federal Reserve Bank of Dallas trimmed mean measure, while the blue line gives an estimate using a factor model that decomposes PCE price inflation into a common component—which is plotted here—and an idiosyncratic component.

A pair of memos that you received recently—one by Matteo Luciani and Riccardo Trezzi of the Board's staff, the other by Evan Koenig of the Federal Reserve Bank of Dallas—compared the usefulness of the index excluding food and energy prices and the trimmed mean index. Currently, there is little need to choose between the two, as both indexes—as well as the model-based common component—point to an upward shift in the distribution of PCE price changes over the past year.

Based on our translation of the CPI and PPI data, we estimate that total PCE prices, the black line in panel 8, rose 2.2 percent over the 12 months ending in August, and that core prices, the red line, rose 1.9 percent. Core inflation is anticipated to remain just under 2 percent through the end of this year. Total PCE inflation is expected to move down closer to core as large energy price increases at the end of last year fall out of the 12-month window.

Panels 9 and 10 summarize the medium-term inflation outlook that we showed in the Tealbook. As shown in panel 9, core inflation is projected to creep along mostly just above 2 percent, reflecting tight resource utilization and a slight further uptick in trend inflation. And as shown in panel 10, total PCE price inflation has a similarly flat profile. Compared with what we built into the Tealbook forecast 12 days ago, the additional tariffs that were implemented yesterday will add a tenth to inflation in 2019.

Panel 11 shows the four measures of labor compensation growth that we follow regularly. We continue to read these data as suggesting that hourly compensation growth is inching up, though it's impossible to be sure, considering how differently these various series can behave and how erratic they can be from year to year. We put the most weight on the ECI—the black line—partly because it's less noisy than the other available measures. That measure now stands at just under 3 percent on a 12-month change basis, up from about 2½ percent a year ago. As I've noted before, we don't have much trouble explaining the recent evolution of the ECI, in conditions of an increasingly tight labor market, relatively well-anchored inflation expectations, and continued lackluster trend productivity gains.

Let us turn now to the yield curve. As you know, for some time a feature of our projection has been that we have the yield curve inverting. For example, in the current Tealbook forecast, the federal funds rate, shown as the black line in panel 12, moves above the 10-year Treasury yield, the red line, in early 2020. Many different interpretations of that phenomenon have been given. For the remainder of my remarks, I'd like to give you my interpretation of the inversion we show in the baseline forecast and give as well some reasons why it might not work out that way.

Some bullets on your next page summarize the main points. The basic story begins with our baseline judgment that the unemployment rate is currently below its natural rate. In the framework that we use to put the baseline forecast together, the unemployment rate eventually needs to return to its natural rate. In that framework, if U were to remain below U^* forever, then inflation would eventually move above the Committee's 2 percent objective and would never return to your objective. In other words, on our baseline assumptions, it will not be possible to run a "hot" economy forever without also experiencing inflation above your 2 percent objective. The policy rule that we use in putting together the baseline forecast cools the labor market back to its sustainable position by moving the funds rate for the next several years well above where it will need to be in the longer run. This is one key ingredient in generating the inverted yield curve. I would note, by the way, that even under the baseline monetary policy, which is more aggressive than the one implicit in your SEP median, the process of returning U to U^* is quite drawn out. It takes about 8 to 10 years for the labor market to be returned to a sustainable condition.

The other key ingredient in generating an inverted yield curve is a term premium that is quite low by historical standards. The low term premium means that the short-term rate doesn't need to move all that far above its long-run forward-moving average for the yield curve to invert. During the 8 to 10 years in which U is rising back up to U^* , real GDP growth runs—essentially by definition—slower than potential growth. Furthermore, we have potential growth remaining pretty low by historical standards.

Combined, these two factors imply that actual real GDP growth in our baseline outlook is positive but quite low, not all that far from zero, during the period of re-equilibration. During that period, the economy will be especially vulnerable to negative shocks. In our baseline forecast, we do not anticipate that negative shocks will occur over the next decade. But, as history plays out, of course, such shocks will occur. And in the context of already slow growth of actual real GDP, only a relatively modest set of adverse shocks could be sufficient to tip the economy into recession.

The bottom line is that in the baseline forecast, the inverted yield curve is not an independent driver of an imminent recession. In our framework, it results almost mechanically from the combination of our assumption that U is currently below U^* , and that it will not be able to remain there over the long term. If that's the baseline story, what are some alternatives? Why might the yield curve not invert?

One possibility is that the natural rate of unemployment could be lower than we currently think. In that case, U might not have to rise as far—or might not have to rise at all—in order to get up to U^* . You—meaning, in this case, "you" [laughter]—might have less work to do in terms of returning the economy to a sustainable position.

A second possibility is that trend inflation might not converge to your 2 percent objective as we've assumed it does in the baseline, or it might move up even more slowly than we have assumed. In this alternative view, inflation expectations might

be anchored but, inconveniently enough, possibly not at a level consistent with your 2 percent objective. In that case, the economy might need to run a little to the “hot” side of sustainable, at least for a time, in order to maintain inflation at 2 percent.

A third possibility is that you may choose to implement a monetary policy that’s even more patient than the inertial Taylor (1999) rule. However, I would note that if you go that route, you will need to be very patient. Even in the optimal control exercise reported in Tealbook A that assigns zero cost to the unemployment rate being below the natural rate, the funds rate moves slightly above the 10-year Treasury rate about five years from now.

A fourth possibility is that aggregate demand could be much more interest-elastic than we have assumed in the baseline. In other words, you might get much more “bang for the basis point” of tightening than we have assumed in the baseline.

All told, although the baseline framework hangs together logically, there is no shortage of ways it could prove inaccurate in ways that will matter for this issue. My main “takeaway” messages are the following. In our baseline framework, the inverted yield curve is not an independent causal factor that triggers the next recession. It does reflect an effort by the policymaker in our baseline assumption to bring the unemployment rate back up to its sustainable rate as part of that policymaker’s pursuit of the dual-mandate objectives, and it is associated with a heightened risk of recession during a period of subpar real GDP growth.

As Damjan Pfajfar showed in his pre-FOMC briefing to the Board last week, the probability that the economy will be in recession sometime during the next four quarters is quite low, according to the models he inspected—well below the unconditional probability of about 15 percent. Once the unemployment rate has begun rising back toward its sustainable level, the probability of recession will move above its unconditional level—and by quite a lot, according to some models.

The historical record suggests that the proverbial “soft landing from below” will be difficult to achieve. However, in the smooth, shock-free world of our baseline projection, it is possible. And if the key assumptions implicit in the baseline outlook are accurate, you will probably have to give it a shot if you want to limit the size and duration of the overshoot of your 2 percent inflation objective. Joe will now continue our presentation.

MR. GRUBER.³ Thanks, David. I’ll be referring to the “Material for Briefing on the International Outlook” slide deck. Disappointing data have led us to revise down our outlook for foreign growth in 2018, providing further confirmation, following earlier markdowns, that the momentum coming from a strong 2017 was less persistent than we had been anticipating at the start of the year. That said, overall foreign growth remains solid, about in line with its potential—the black diamonds in the right panel—and our estimate of the aggregate output gap abroad is about closed.

³ The materials used by Mr. Gruber are appended to this transcript (appendix 3).

Of course, even this respectable performance might be viewed somewhat disappointingly against the backdrop of a booming U.S. economy. At the same time, risks to the foreign outlook have risen, including financial stresses in the emerging markets and increased trade tensions—two topics I will return to later in my briefing.

As shown on the upper-left panel of your next slide, core inflation continues to run on the soft side in the euro area and Japan, notwithstanding energy-induced bumps to headline inflation, as shown on the right. The spot price of Brent crude oil has climbed almost \$8 per barrel since your previous meeting, in part due to the fact that Iranian production has turned down in anticipation of strict U.S. sanctions set to begin in early November. Guided by the experience of an earlier round of sanctions, expectations are for further production declines ahead.

As shown on the next page, with inflation subdued, monetary policy in the advanced foreign economies is expected to remain accommodative. This, combined with a staff forecast of U.S. tightening that exceeds market expectations, underlines our forecast of dollar appreciation over the projection period. The jumping-off point for our dollar forecast is also higher, primarily against emerging market currencies, with financial stresses weighing notably on a few currencies in particular.

Broad indicators of EME stress, shown in your next slide on the left, have reached their highest levels since late 2015 and early 2016, when concerns about China temporarily roiled global markets. So far, as shown on the right, this latest outbreak of financial stress has been largely confined to those countries—such as Argentina and Turkey—with the most pronounced domestic vulnerabilities, including a heavy reliance on external financing and high inflation rates. Accordingly, the imprint on our overall forecast has been modest. However, there is certainly a risk, against a backdrop of rising U.S. interest rates and a higher dollar, that these stresses could become more pronounced or widespread, especially when interacted with rising trade tensions.

As indicated on your next slide, following the implementation yesterday of a 10 percent tariff on approximately \$180 billion worth of imports from China, tariff increases since the beginning of the year now affect 13 percent of U.S. non-oil merchandise imports, with an average tariff increase of about 15 percentage points. Although foreign retaliation in response to earlier rounds of U.S. tariffs roughly matched our actions, China's response on Monday was more limited, in part because China has more or less run out of U.S. exports to tax.

As indicated on the next page, we expect the recent tariffs and retaliation to depress both U.S. exports and imports, shown by the gap between the solid and dashed lines, but exports a little less so, reflecting China's less-than-full retaliation. Overall, comparing the blue bars in the right-hand panel with the black dots, the tariffs have had an almost imperceptible positive effect on our forecast of net exports. They do little to offset the sizable drag on growth we expect next year, as the higher dollar weighs on exports and boosts imports.

As discussed on your next slide, we have incorporated the effects of the implemented tariffs into our outlook for both inflation and activity, though, at this point, the adjustments are quite small. The cumulative effect of the tariffs implemented so far this year is expected to boost the price of imports by about 2 percent over the next couple of quarters. This in turn will add about 0.2 percent to the level of core PCE prices by the end of 2019. Higher prices then lower consumption and investment, resulting in a small negative drag of only about 0.1 percent on the level of U.S. GDP. The tariffs have also led us to lower our growth forecast for China, although the effects of the tariffs are partially offset by the more stimulative policy.

Of course, these estimates are highly uncertain. Because, for now, the bulk of the tariffs have been directed only at China, the effects could be even smaller if U.S. firms were able to redirect trade, without much cost, toward countries currently unaffected. On the other hand, were further and more widespread trade barriers to be erected, this could have more substantial effects, including depressing productivity growth by reducing the incentive for U.S. firms to innovate and compete. This scenario is explored in the Risks and Uncertainty section of the Tealbook.

Outside the rather small impact of the already implemented tariffs, it is also possible that the considerable uncertainty regarding future U.S. trade policy could be weighing, or will start to weigh, on growth. As shown on your next slide, trade policy uncertainty, as measured by an index of newspaper coverage, has spiked far above anything seen in recent history. With NAFTA negotiations still under way, an unclear path regarding the resolution of tit-for-tat tariffs with China, and a broader, more generalized concern about the fate of the postwar multilateral trading system, there remains plenty to be uncertain about. In theory, this elevated uncertainty could be weighing on investment, as firms wait for resolution before embarking on costly and potentially multiyear capital expenditures. However, as was discussed in a September 14 memo to the FOMC, any negative effects of elevated uncertainty on investment and activity are not readily apparent in the data. For example, business fixed investment was strong in the first half of the year, even surpassing the pace of growth that might be expected on the basis of both the strength of output and tax cut-induced declines in the user cost of capital.

Your next slide examines disaggregated industry-level data ranked by trade exposure. Looking at the relationship between recent employment growth and the importance of trade, it is hard to discern much reaction to trade policy uncertainty. This is true generally, as shown in the left panels, across industries ranked by percent of imported inputs, in the top panel, or by exports, in the bottom, with not much of a relationship in either case. Looking at the right, we don't see much of a relationship even for those industries most dependent on trade with China. Of course, the data in these panels all predate yesterday's tariffs, and it is possible that stronger relationships could develop over time.

As discussed on your next slide, it could be that the negative effects of trade uncertainty are being masked by other factors, including recent cuts to corporate tax

rates or the overall strength of the economy. In the presence of obscuring factors, a reasonable approach would be to estimate the effects of trade uncertainty using historical relationships. However, as the current situation is largely unprecedented in the modern era, there is little history to go on, and this approach results in poorly estimated coefficients. The panel depicts the estimated response of investment to a trade policy shock as measured by the newspaper index shown earlier and included in a vector autoregression with other control variables. As you can see, the confidence bands are wide.

In the memo, we investigated a number of alternative approaches to overcome the lack of historical precedent and derive estimated trade policy effects. One approach, discussed on your last slide, draws on the work of Board economists Dario Caldara and Matteo Iacoviello. They look at firm-level measures of trade policy uncertainty, with two examples shown in the panel, constructed on the basis of textual analysis of quarterly earnings calls. The firm-level measures show notable variation across time, providing a basis for estimating the responsiveness of firm-level investment to such uncertainty. By aggregating the firm-level responses, albeit with some fairly heroic assumptions, they estimate that the current increase in trade policy uncertainty could be reducing investment by up to 2 percent, with a corresponding reduction in real GDP of about $\frac{1}{4}$ percent. However, the plausible range of estimates is wide, and the true effects could be either negligible or considerably larger, especially if tensions were to intensify, cover a larger segment of trade, or persist. At this point, we have not incorporated any effects of trade policy uncertainty into our baseline forecast, but we will continue to monitor closely for potential effects. And now I will hand off to Jeff.

MR. HUTHER.⁴ Thank you. I will be referring to the packet labeled “Material for Briefing on Summary of Economic Projections.” Your median projections for the key economic variables are little changed from June. Most of you marked up your projections for near-term real GDP growth, with many of you attributing these changes to the effects of fiscal stimulus, accommodative financial conditions, or business optimism. In contrast, about half of you now forecast a higher unemployment rate for the fourth quarter of 2018 than before, and no one lowered their unemployment rate for 2018. As before, most of you anticipate the unemployment rate bottoming out in 2019 or 2020, and nearly all of you see PCE inflation mildly overshooting your longer-run objective at some point. The additional year of projections added this round shows that many of you expect real GDP growth to fall below its longer-run rate in 2021, with a corresponding modest rise in the unemployment rate.

Exhibit 1 summarizes your economic projections, which, as you know, are conditional on your individual assessments of appropriate monetary policy. Having upgraded your forecasts of real GDP in the near term, all of you project growth to slow over the projection horizon. Although the 2021 median growth rate matches the longer-run median, at the individual level, nine of you project 2021 growth to fall

⁴ The materials used by Mr. Huther are appended to this transcript (appendix 4).

below your assessments of the longer-run rate. Some of you pointed to fading fiscal stimulus, reduced monetary policy accommodation, or a stronger dollar as reasons for slower growth. As the second panel shows, your median unemployment rate projection is 3.7 percent at the end of this year, 3.5 percent over the next two years, and rising a touch in 2021, but it's still well below your longer-run estimates. Your projections of inflation in the lower panels are little changed from June and are at or near the target rate throughout the projection period. Many of you expressed the view that inflation expectations remain well anchored.

Exhibit 2 reports your assessments of the appropriate level of the federal funds rate. The median expected level of the funds rate is 2.4 percent for the end of this year, 3.1 for 2019, and 3.4 for both 2020 and 2021. Note that from 2020 to 2021, six of you project a decrease in the funds rate, although the longer-run median level is now 0.1 percentage point higher. Those of you increasing your projections of the longer-run funds rate cited increases in model-based estimates of longer-run interest rates and strong economic data since June.

The red diamonds and green squares in exhibit 2 show the funds rate prescriptions derived from plugging your projections for inflation, unemployment, and the longer-run funds rate into the non-inertial and inertial Taylor rules, respectively. As was the case in June, the rates prescribed by the non-inertial Taylor rule are notably higher than your projections, reach a peak earlier, and then taper more slowly toward longer-run values. By construction, the prescribed paths under the inertial Taylor rule start out much closer to your projected levels, but the gap widens steadily over the projection period. Most of you noted that your paths of the funds rate are lower than the Tealbook baseline; the explanations you offered for this difference included lower inflationary pressures and fading fiscal stimulus.

The panels of exhibit 3 show your perceptions of the uncertainty and risks associated with your projections. Most of you continue to see the uncertainty associated with your projections, the left panels, as broadly similar to the average levels over the past 20 years. Risks to the outlook, shown to the right, are generally viewed as balanced, although a few more of you now see risks to inflation as weighted to the upside. In your comments, some of you pointed to upside risks associated with fiscal policy, with these participants noting that expansionary pressures could be greater than projected. On the downside risks, most of you expressed concerns about the effects of trade and fiscal policies. In addition, many of you mentioned potential stresses related to developments abroad or the effects of a stronger dollar. Thank you. That concludes my prepared remarks. We would be happy to answer to your questions.

CHAIRMAN POWELL. Thanks. Questions for David, Joe, and Jeff? President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. David, you talked about how you lowered the natural rate of unemployment estimate, and it's been coming down. It's been coming down for me, too, over the past three years. I'm just wondering, is there any way to go back and learn from those errors? Are we getting better at estimating the natural rate, or is it just—we can't get better, it is what it is, and we just have to look at what's happening and update our forecasts? I think, for inflation, you've gone back and decomposed misses and said, "Well, now we understand why the miss occurred." Are we learning anything from these natural rate adjustments? And this isn't meant as a criticism.

MR. WASCHER. So I don't think we're getting any better at estimating the natural rate. As noted in the Tealbook, in past episodes when the economy was strong, we tended to lower the natural rate faster than was warranted. We ended up revising it back up after the fact. So, this time, we were being cautious about revising it down. But as data have continued to come out and the unemployment rate has moved lower with not a whole lot of sign of inflation, we've moved it down a little bit. We made another slight reduction this time.

It's really judgment, I think. There's a wide range of uncertainty associated with any estimate of the natural rate, and we felt this better balanced the risks. But with the Phillips curve so flat, it's pretty hard to be very convinced about any particular number that we've written down.

MR. KASHKARI. Thank you.

CHAIRMAN POWELL. Other questions? President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. So this is for David Wilcox. On your narrative about the yield curve—I just wanted to push on this a little bit—the narrative is that recessions are caused by shocks. And if you look at the inversion evidence over the postwar era,

it's pretty strong that recessions have followed inversions. So is what you're saying that those shocks just happened to occur right after the inversions during the postwar era? And if that's the case, what are the chances that that would have occurred sort of randomly? Because you're saying you want to have a theory in which yield-curve inversions are not causal but are kind of associated, nevertheless, with recessions. That's the way I understood your narrative.

MR. WILCOX. Yes. So several of the post–World War II recessions were associated with deliberate moves by the Federal Open Market Committee to tighten monetary policy in order to bring inflation down, and that factor just isn't present today. So those episodes, I think, are not particularly informative for future prospects.

MR. BULLARD. Wasn't that the same story—they were going to slow the growth rate of the economy, raise the unemployment rate, in order to reduce inflationary pressure in the economy?

MR. WILCOX. I would say it a little differently. I mean, just go back to what is, in my mind, perhaps the clearest case study of all, the Volcker disinflation and the pair of recessions in the early 1980s. I think there was a pretty clear determination on the part of Chairman Volcker and his colleagues at the time that inflation had gotten so far out of hand that even potentially quite serious recession costs would need to be incurred in order to bring inflation down, and that that was a price that would have to be accepted.

Now, I think the situation today, obviously, could hardly be more different from the one that was confronting Volcker and his colleagues in 1979 when inflation was running many, many percentage points higher than it is today. And your concern, as I have heard it, over the past many meetings, over five years or so, has been inflation that has, up until now, been running notably, annoyingly below your objective. Now you've come up close to attaining your inflation

objective. So, really, the issue that you're wrestling with is what the position of real activity is relative to its sustainable position.

MR. BULLARD. Okay. So let me see if I can restate that. The previous Committees have taken recession risk, because they had an inflation problem and they wanted to balance the inflation risk against the recession risk, whereas today we don't have as much of an inflation problem and may want to take less recession risk.

MR. WILCOX. Except I'd put it a little differently. I wouldn't say that they took recession risk. I mean, this is the line of thinking that gave rise to David Romer and Christina Romer identifying specific episodes as moments when the Committee made a deliberate policy choice to flip in their approach to managing aggregate demand and to tighten policy even at the cost of incurring a recession.

MR. BULLARD. Are you putting the post-1985 recessions in this same category?

MR. WILCOX. No.

MR. BULLARD. Okay. So those also had yield-curve inversions.

MR. WILCOX. Correct.

MR. BULLARD. So those were just shocks that occurred after the yield-curve inversion.

MR. WILCOX. Yes. And those, I think, are informative for thinking about this. Now, we're down at that point to a sample size of two, which is pretty small even by usual macroeconomic standards. [Laughter] Three.

MR. BULLARD. Three.

MR. WILCOX. So the narrative that I tried to tell was one in which the policymaker in our baseline projection slows actual growth below that of potential. Potential growth itself is quite slow by historical standards.

Another ingredient—since my text was already long—that I think is at play is that I do think our macro models don't fully capture the dynamics that take over when recessionary dynamics are in play. I think there is some kind of a nonlinearity that our nice, smooth linear models with Gaussian shocks don't do a good job of capturing when the economy is operating at a slow rate of growth. It's almost essentially a matter of just arithmetic that a relatively mild adverse shock, I think, will put the economy at risk of tipping into a situation in which those nonlinear recessionary dynamics can take over. I don't think that changes the basic sort of calculus or problem that you all would confront if the baseline were to prove accurate. I did try to indicate multiple different ways in which the baseline projection could prove inaccurate.

CHAIRMAN POWELL. Thanks. President Evans.

MR. EVANS. Thank you, Mr. Chairman. David, you talked so much after that, I'm feeling less comfortable about the question I'm about to ask. But, at any rate [laughter], I was attracted to a comment that I heard you make about the yield-curve inversions: the increased risk of a shock taking us into a recession and the fact that most of those were earlier experiences when inflation was above the Committee's target.

Now, I'm attracted to that, because I tend to think that the issue about whether we can achieve a soft landing in part is because we previously had to do a couple of things, and one of them was to get inflation down to a lower inflation objective and then deal with the cycle. With that in mind, you used the Taylor (1999) inertial rule, and I fully support using those rules the way that you do, but do any of those same issues come into play? Because a good part of the estimation there is during a period when the FOMC presumably was responding more strongly to the output gap in an attempt to bring down inflation. Would adjusting the intercept term be enough to take onboard the fact that the inflation objective experience was better?

MR. WILCOX. So we don't have a 2 percent intercept as in the original formulation. I am asking for a lifeline, Thomas.

MR. LAUBACH. In the simple rules that we are simulating, we are using the 0.5 percent longer-run assumption.

MR. WILCOX. Yes, that's right. Thank you. So in the staff projection, our r^* —our assumed level of the real neutral interest rate—is ½ percent, and so that's what is used in that Taylor (1999) inertial rule that we use to derive the policy rate path.

MR. EVANS. But with a flatter Phillips curve, and with more weight on the output gap, you're trying to push down inflation a bit more. I just wonder if we'd made more progress, if maybe that's a little strong, and if you'd considered that.

MR. WILCOX. I don't know the answer to that.

CHAIRMAN POWELL. Thanks. Further questions? President Bullard.

MR. BULLARD. One more question. I know we've talked about this before in the Summary of Economic Projections, but why are we putting the Taylor rule on this picture? Remind me.

MR. LAUBACH. If I may say, upon popular demand. [Laughter] No, I think it's simply—

MR. BULLARD. I want to see what the Committee is saying and where the Committee dots are. I don't really want to see somebody else's rule or something.

MR. WILCOX. We can obscure it. That would be fine. It does illustrate one particular point, which is, if you take your right-hand-side variables and feed them, in a static way, into either a non-inertial or an inertial version of that rule, out comes a funds rate trajectory that's higher. So a piece of information that you can read off that chart is that the reaction function that

you have implicit in your SEP submissions is more accommodative than Taylor (1999), inertial or non-inertial. Now, if you don't find that useful, that's fine. We'll hand out special glasses that will [laughter] not show that particular color of ink.

MR. BULLARD. That was useful.

MR. QUARLES. I'd vote for it.

MR. WILCOX. You want the glasses? [Laughter]

MS. BRAINARD. Maybe it would be more interesting for you to try to give us a rule that fits the median and let us take a look and see if we are coherent or not.

MR. WILCOX. It would be helpful if you'd give *us* a rule— [Laughter]

CHAIRMAN POWELL. We can do it at the same time, we can exchange them.

MR. WILCOX. At 12 paces.

MR. LAUBACH. Joking aside, I mean, of course, there has been various staff work over the years on trying to infer individual participant reaction functions on the basis of the SEP numbers. I would always caution, again, that this is working with very few observations. So, for example, if on this particular occasion we wanted to fit the rule to the medians, we have four observations. The Taylor rule has about as many parameters. So you can play around with this in many different ways and rationalize it. I'd be a little cautious about whether that was really shedding much light—whether we are really able to uncover either your median or individual reaction functions.

CHAIRMAN POWELL. Great. Further questions? [No response] Hearing none, why don't we begin with our economic go-round, starting with President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I had expected my conversations with businesses over the intermeeting period to be quite focused on the tariff war between China and

the United States. But, although most businesses were quite negative about the increase in tariffs both as a policy and on how it might affect their own businesses, tariffs were not the primary concern.

Their primary concern was the tightness in the labor market that they viewed as limiting both them and their suppliers, which were running operations with more job vacancies than they were comfortable with. One reason for their absence of concern over tariffs was expressed by a manufacturer in the Greater Boston area. He highlighted that, because of the tariffs, his firm now has more leeway to raise prices. Previously, he had been concerned that he could not pass on higher labor costs, and, as a result, his margins were being squeezed. However, he was now receiving little resistance to passing on price increases that were covering both the very visible rise in the cost of steel and aluminum and also some of the costs of paying higher salaries.

These types of stories highlighted one of the unintended consequences of the tariffs—that suppliers may now feel they have more price flexibility—posing an upside risk to the inflation forecast. In light of the lack of comparable tariff situations in recent data, I agree with the strong caveats expressed in the Tealbook about the heightened uncertainty surrounding our ability to estimate the economic effect.

However, I view this as more of a war on global supply chains than just a tariff dispute. By requiring tariffs on a wide variety of Chinese exports, the ability to depend on China as a significant source in the global supply chain has become much more uncertain. Retailers I have talked with have indicated that they have limited ability to substitute for Chinese goods in the short run—with implications for Christmas sales, should the tariffs persist—but they are already seeking ways in which to diversify supply chains in order to include alternatives to Chinese exports.

Almost regardless of the tariff outcome, these retailers have emphasized that they will no longer feel comfortable single-sourcing products despite possible cost advantages. They will much more consciously seek to have a broader set of countries from which to source their products. As these diversification strategies and other supply adjustments are likely to play out over an extended period, the movement to less-optimal supply chains is likely to imply a modest upward bias to our inflation forecast over the next several years. In a tight labor market, these staggered pricing changes have the potential to become more solidly incorporated into the inflation expectations of consumers.

The tariffs also have the potential to make fourth-quarter sales for Christmas less certain. If consumers begin to see shortages of some items and price increases on other items, they may very well defer some Christmas shopping. If consumers perceive tariffs as a temporary tax increase, they may choose to defer some purchases until the tariff dispute is resolved. In this case, this would not affect underlying demand for consumer goods, but it may well shift the timing of purchases and, thus, make it more difficult to read the signal in Q4 of this year's GDP and Q1 of next year's real GDP.

Given the difficulties in seasonal adjustments we have seen for the quarters straddling year-end, this could complicate our interpretation of year-end data. Similarly, we may see some firms defer investment spending should those investment outlays require significant components that are currently being tariffed, with the expectation of making the investment once the tariffs are removed.

It is fortunate that the tariff disputes have not left a bigger mark on financial markets to date. One might argue that some of the movement in the 10-year Treasury rate, which has increased since the previous FOMC meeting, is consistent with firms' greater ability to pass on

price increases. However, I would have expected the tariff announcements, the stress in many emerging markets, the possibility of a more significant slowdown in China, and a well-anticipated rate increase to have left a greater imprint on financial markets. Instead, these disruptions have been accompanied by new highs in the U.S. stock market. However, if some of these events start more clearly affecting economic data in coming months, I would think there is a possibility of more reaction in financial markets over time.

Despite the uncertainty with tariffs, I continue to see a relatively strong economy resulting in further tightening of labor markets. However, I do not see quite as much momentum in the economy as is assumed in the Tealbook. As a result, my forecast of the unemployment rate does not fall as far as the unemployment rate forecast in the Tealbook. As labor markets tighten, I expect the upward trend in wages to continue, with some further modest increase in inflation.

I assume that we will continue to increase interest rates gradually, with one increase per quarter through 2019. This gradual interest rate path reduces the risk that we slow down the economy too much, as might occur with a steeper interest rate path, or result in an inflation rate modestly higher than in the Tealbook. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. The economy in the Fourth District continues to expand at a moderate pace. The September reading of the Cleveland Fed staff's diffusion index, which measures the difference in the percentage of business contacts reporting better versus worse conditions, was 30, essentially unchanged from July. Firms remain optimistic, with about 40 percent expecting conditions to improve in the next several months.

Construction, both residential and nonresidential, is the one sector in which activity has softened this month from recent high levels. A few contacts attributed this softening in part to price increases, especially in the case of higher-end homes. Contacts view the slowdown as temporary and foresee moderate real GDP growth.

District labor market conditions remain strong. Year-over-year growth in payrolls moved up to 1.4 percent in July. And over the past three months, job growth has been at its highest pace since early 2016 and is well above the Cleveland staff's estimate of the District's longer-run trend.

The District's unemployment rate was 4.4 percent in July, near its lowest level since the early 2000s and more than ½ percentage point below the Cleveland staff's current estimate of the District's natural rate of unemployment. Now more than half of the District contacts are reporting their demand for workers is outstripping available supply, and these reports come from a variety of industries, across skill levels, and from across the District.

The Cleveland staff conducted a special survey to determine how firms were handling the shortages. More than half of the respondents said they were planning to raise wages, and, of these, more than half said they planned to raise wages by at least 5 percent. Only a few firms are changing benefits to attract workers, but many are offering more flexible work schedules and arrangements. In addition, several firms are easing or eliminating drug screenings for jobs for which they see minimal risk.

Inflation pressures in the District continue to rise. The Cleveland staff's diffusion index of nonlabor input costs has been rising since the middle of last year. Reports of rising input costs were widespread among manufacturers and builders, with almost 80 percent of manufacturers and 70 percent of builders reporting increases in recent weeks.

Many cited the tariffs on steel, aluminum, and lumber as the primary cause but also noted that stronger demand for these inputs was causing cost increases. The Cleveland bank staff's diffusion index of prices received is near a multiyear high, with almost half of contacts reporting raising their own prices in the past two months. And, as President Rosengren also reported, firm contacts have said that the tariffs have given them an opportunity to raise their own prices.

With regard to the national economy, my outlook is little changed since our previous meeting, but I have edged up my real GDP growth projection and edged down my unemployment rate forecast since my June SEP submission. Incoming data are consistent with strong underlying economic fundamentals. Personal income continues to rise as the labor market continues to strengthen. Household balance sheets are sound. In fact, the recent data revisions raise the level of disposable income and the saving rate from what was previously thought. I expect an expansionary fiscal policy to add to real GDP growth over the next couple of years.

Financial conditions remain accommodative despite the gradual path of rate increases the Committee has put in place. As indicated in the Tealbook, lending terms and standards have eased in many markets, mitigating some of the effects of higher interest rates, although higher mortgage rates, as well as rising house prices, have led to a slowdown in housing-sector activity this year.

Now, some slowdown in the pace of real GDP growth in the third quarter was expected, following the significant pickup in growth in the second quarter. But both consumption and business investment remain strong. Indeed, despite uncertainty about trade and tariff policies, consumers and businesses are quite optimistic. This suggests there is more underlying momentum in the economy than I had thought. So I'm projecting growth will be above trend

over the 2018 to 2020 period, a tad over 3 percent this year, and gradually declining to my estimate of the trend pace, of 2 percent, in 2021.

Labor markets continue to tighten. Payroll gains have averaged over 200,000 jobs per month this year, up from about 180,000 jobs per month last year and well above most estimates of trend growth. The unemployment rate has been below 4 percent since April. Across a range of measures, there is less slack in the labor market than at the peak of the previous expansion. Anecdotal reports of wage increases are widespread, and the aggregate measures of wages have accelerated this year.

In my SEP submission, above-trend real GDP growth would be associated with further tightening in the labor market, with the unemployment rate near 3½ percent over the next three years and well below my 4½ percent estimate of its longer-run level. I expect some further appreciation in wages, but not to levels seen in previous expansions, unless we see a pickup in the low productivity growth we've experienced over this expansion.

The inflation news remains positive. The rates of both headline and core PCE inflation are at our longer-run goal of 2 percent. Now, although inflation readings will vary from month to month, I expect by year-end to be able to say that inflation is sustainably at our 2 percent goal. Inflation expectations are well anchored near target. The five-year, five-year-forward expectation, as measured by the Cleveland Fed model, has been steady at 2.2 percent for the past five months, and other survey measures of longer-run inflation expectations remain stable.

With the economy strong, long-run inflation expectations well anchored, and appropriate monetary policy, I am projecting that over the forecast horizon inflation will remain near 2 percent, modulated by the usual monthly variations in the data. I view the risks to my forecast conditioned on appropriate monetary policy as broadly balanced. We're at a point in the

business cycle when increased attention to financial stability risk is warranted, because the economy continues to grow above trend while financial conditions remain quite accommodative.

Asset valuations and equity are elevated above historical norms, even accounting for the low level of interest rates and lower tax rates, and corporate bond spreads are relatively low. Commercial real estate valuations continue to be “lofty,” and leveraged lending is growing. Indeed, the value of institutional leveraged loans has risen 20 percent over the past year and now exceeds the total value of the high-yield bond market. Asset quality metrics for bank-reported leveraged loans have not deteriorated, but underwriting standards are loosening.

Nonbanks—into which we have less insight—play a larger role in the market. Estimates indicate that CLOs now buy about half of new leveraged loans, and a recent appeals court ruling exempted CLOs from Dodd-Frank risk-retention rules; this ruling may encourage more issuance.

In addition, financial stresses are increasing in some emerging market economies. So far, these appear to be confined mainly to Argentina and Turkey, reflecting their macroeconomic vulnerabilities related to low levels of reserves, large current account deficits, and reliance on external funding. However, should there be contagion to other emerging market economies, it could eventually feed back to the U.S. economy through financial market channels and trade linkages. Also, continued divergence between growth and the policy rate paths in the United States and those abroad could put further upward pressure on the dollar—something that poses a downside risk to U.S. real GDP growth and inflation.

The economic outcomes in my projections are conditional on appropriate policy. And based on my outlook and assessment of risk, my policy rate path includes further federal funds rate increases this year and next, with the policy rate holding at a level somewhat above my longer-run estimate of 3 percent before starting to decline in 2021. In my view, this path will

sustain the expansion, prudently balancing the risk to the outlook for both parts of our dual mandate, and help control rising risks of financial imbalances.

The median policy rate path in the set of simple monetary policy rules posted on the Cleveland Fed website has the funds rate rising to about 3½ percent in the fourth quarter of next year, just a tad shallower than my appropriate path. Now, I note that the policy rate path in the Tealbook is quite a bit steeper than my path and the median path in the SEP, but the economic outcomes in these forecasts are similar. Of course, there are uncertainties regarding the appropriate policy rate path, and the difference between these paths is within the 70 percent confidence band based on historical forecast areas.

Still, it got me thinking—and I fear to tread here, but I’m going to anyway—about the possible differences between our reaction functions. So I asked Ed Knotek, who is sitting over there, to estimate what types of policy rules would fit the median SEP numbers. In particular, suppose the SEP participants were using an inertial Taylor-type rule as in the Tealbook, with an r^* -intercept term, an inertial coefficient, and the inflation gap and unemployment gap as arguments on the right-hand side. What would the coefficients in that rule have to look like for it to fit the SEP data?

So Ed’s estimates indicate that if we impose longer-run SEP values for r^* and U^* , then the rule would be a bit less inertial than the Tealbook baseline rule. But the main difference stems from the weights on the unemployment gap and the inflation gap. The SEP rule puts little weight on the unemployment gap and a high weight on the inflation gap. In other words, the median Committee participant is less inclined than the Tealbook’s baseline to react to the undershoot of unemployment. As the Tealbook’s rule is a fairly reasonable description of past policy behavior, this analysis suggests that the Committee is planning to react differently to

incoming data than we have in the past. I think this is worth understanding and at least presents a caution to us.

Of course, there are ways to reconcile the behavior and the paths. Our estimate of U^* could be lowered, thereby narrowing the unemployment gap. If the SEP path remained the same, then the rule estimated with the new data would look more like the Tealbook's, or our r^* could be raised, which, all else being equal, would raise the SEP path, bringing it closer to the Tealbook's.

We know that estimates of the longer-run normal level of the funds rate are subject to considerable uncertainty. Indeed, the recent NIPA revisions, though relatively small, revised up the r^* estimate obtained from the Laubach-Williams model from about 0 percent to nearly 1 percent. In other words, based on this estimate, a neutral policy has been more accommodative than we have thought. This may help explain some of the strength in the economy, and it also lends support for further rate increases, which we will discuss tomorrow. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I'm very happy to be third today, because I sensed some themes similar to those identified by those who went before, although not the insightful analysis that President Mester just gave on the reaction functions.

Reports received from my directors and other contacts were similar to those in the previous round. Activity is robust, and businesses are optimistic about their near-term prospects. An exception, of course, is their continued consternation over trade policy. A couple of large manufacturers complained that the steel and other tariffs already in place are costing them a lot of money. They expect the fallout to only worsen in 2019 unless there is a breakthrough in trade negotiations.

I also continue to hear some firms saying that they have put plans for major new investments on hold until there is more certainty about trade policy. Still, no one is saying they are canceling projects that were already under way or reducing other spending.

The most interesting comments I heard this round were about the different ways companies are responding to tight labor markets. A large temporary employment firm told us that with relatively high churn rates in the United States, it continues to be possible to find workers, and that more of their clients are willing to pay up to do so.

I heard about a different experience at a recent outreach event I participated in at Fort Wayne, Indiana. I visited an e-commerce musical equipment retailer. They have studio equipment, guitars. You can find them online very easily. The company described some innovative benefits and workplace amenities they use to attract workers from all parts of the country. That's the interesting part. Nearly half of their 1,400 employees are transplants from outside their Indiana/Michigan/Ohio regional labor market.

Another story: A major equipment manufacturer told me they have started a concerted effort to train their lower-skilled workers to move up the internal job ladder. Though this takes time, they see it as a lower-cost way to fill skilled positions than bidding for experienced, trained workers, and they can identify the best workers in those jobs already. Other firms, however, are delaying projects or turning away business. A major electric utility noted that they are slowing construction work on the East Coast because of labor shortages. And we continue to hear a number of reports about shortages of truck drivers despite substantial increases in wages.

In another sign of tightening labor markets, one of my directors, who is a retired union leader, noted that workers appear emboldened to make wage and work rule demands that would not have been possible a short time ago.

Regarding the national outlook, clearly, the economy has considerable momentum, and we're looking for GDP growth in the second half of 2018 to run at about 3¼ percent. As we move through the forecast period, we project that tighter monetary policy and waning fiscal stimulus will steadily reduce growth to about 1½ percent by 2021. This is roughly ½ percentage point below what we think potential output growth will be at that time.

We expect unemployment to drop to just under 3½ percent by the end of next year and then slowly edge up to 3.7 percent by the end of the projection period. This is about ½ percentage point below our estimate of its natural rate. A modestly restrictive monetary policy should close the remaining gap within two to three years beyond the forecast horizon.

With regard to inflation, I feel more comfortable about the outlook than I did for the June SEP. The post-benchmark revision data show year-over-year core inflation running steadily near target since March and a number of our statistical indicator models are now coalescing near 2 percent. But some downside risks remain. Notably, I still think we have a ways to go before we can be confident that inflation expectations have firmed symmetrically around 2 percent.

As we look forward, our projected path of resource utilization should boost inflation by 0.1 or 0.2 percentage points, even with a flat Phillips curve, and a gradual path of rate increases should help firm inflation expectations. Our projection has core PCE inflation rising to 2.2 percent in 2020 and remaining at that level in 2021. This is up 0.1 percentage points or so from our June SEP submission. There is no reason to be concerned about such a modest overshooting of our inflation target. Indeed, it may be needed to move inflation expectations symmetrically and sustainably around 2 percent.

In sum, I think the gradual, data-dependent path that monetary policy is on right now is appropriate. This should generate the soft landing we are looking for, and that shows through in my economic forecast. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Acting President Gould.

MR. GOULD. Thank you, Mr. Chairman. Once again, it's an honor to be here, and it's a particular treat to be here with our incoming president, Mary Daly.

The national economy remains in excellent shape, and we're certainly seeing this strength in the 12th District economy. Consumers have been spending at such a brisk clip that my contacts in the shipping industry are having trouble keeping up with the growth in online sales. And, despite any bad press you may hear about tech companies these days, I can assure you that Silicon Valley is doing just fine. One contact tells me that the overall environment for venture capital activity there is the healthiest he's seen at any time in a 37-year career.

These conditions are reflected in my SEP contribution, with a projected expansion of real GDP that will further outstrip the economy's potential. Our estimate of the natural rate of unemployment is unchanged at 4.6 percent, and we expect the observed rate to bottom out at about 3.4 percent next year. Our estimate of trend growth is also unchanged for now, at 1.7 percent, with actual growth slated to far exceed that this year and remain above trend next year. Finally, our projection includes a slight inflation overshoot over the next year or two, in line with continued tightening in labor markets.

A few factors can temper this strong expansion; they mostly revolve around the international outlook. The prospect of an escalating trade war is creating uncertainty, causing some West Coast businesses to proactively formulate costly contingency plans and, in a few

cases, delay expansion decisions. For now, though, direct effects on the District economy have been quite limited.

More generally, I view the overall risks to real GDP growth and inflation as being largely balanced. New analyses by my staff illustrate this balance in the case of inflation. They find that the recent upward movement in core PCE inflation has largely been driven by products whose prices don't move with the business cycle. By contrast, the contribution of cyclically responsive categories has been steady. So their analysis attributes the recent inflation pickup mostly to idiosyncratic factors. This raises a downside risk that the pickup will be reversed.

On the upside, we could see a greater response of the cyclically sensitive components to further labor market tightening. Along those lines, some of my contacts have started noticing a reawakening of long-dormant pricing power, echoing comments made by President Rosengren. For instance, a manufacturer of outdoor consumer products recently commented on a newfound ability to pass increases in material costs on to retail prices. On balance, the weight of the evidence indicates that inflation could still move in either direction, though, relative to our target.

Finally, one change in my SEP is an increase in the estimated neutral funds rate for nominal R^* . This revision takes into account a few factors likely pushing it upward—for instance, the higher federal deficit and lower corporate taxes. It also acknowledges recent trends in the data, as reflected in the updated estimates drawn from a wide range of models. We bumped the San Francisco Fed's estimated neutral rate up from 2.5 percent to 2.75 percent. This remains toward the lower end of the range of existing estimates, implying significant headroom between it and the current funds rate. Accordingly, my SEP includes two more funds rate increases this year and further gradual increases in 2019. Thank you.

CHAIRMAN POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. The national economy has evolved roughly as we expected since our previous meeting. We still see GDP growth well above estimates of trend. The labor market continues its strength. Inflation has been at our target, and inflation expectations have been stable.

I think confidence matters for continued momentum in the real economy in the period ahead. Both business and consumer sentiment seem strong, consistent with low unemployment, growth in consumption, buoyant markets, and expansionary fiscal policy. We see this reflected both in national numbers and our Fifth District surveys. Over the past four months, for example, our manufacturing survey composite index hit its highest values in its 25-year history.

It has been a tough month for our District, however, as Hurricane Florence has killed millions of farm animals and upended the lives and destroyed the property of thousands of people. Our hearts go out to them. The area most affected was not that densely populated, but it will still take some time for rural North Carolina, in particular, to get back on its feet.

We continue to dig into the trade question, and it looks like it may well be settling toward a focus on China. I would agree with the staff that the limited tariffs actually imposed to date have not had much effect on the overall economy. Nevertheless, they have meaningfully affected the particular industries in which tariffs have been imposed. I sat with a group of farmers who complained that the trade talks were playing a game with their livelihoods at a time when strong agricultural yields had already forced prices down. One consequence that we might see is food prices contributing to a near-term underrun of overall inflation, relative to core inflation.

Uncertainty about the permanence of eventual tariffs is still limiting supply chain reconfiguration, but we do see firms moving when they face competitors with a supply chain that

is less damaged by tariffs. This will hurt China. This has happened, for example, with a furniture retailer and a plumbing distributor in our District. Each has moved its supply to Vietnam to stay competitive with firms that already manufacture there.

More broadly, uncertainty, I believe, may be limiting our upside. Considering the health of the economy, I would expect businesses to be investing more than they tell me they are. When you probe for the reasons for their seeming underinvestment, they point to the tariff discussions, as President Evans said, and the effect on their confidence in the future environment.

Finally, I get the impression received from contacts that current trade policy talks have already affected the perceived reliability of the United States as a global supplier. This reputation has been important in sustaining our strong trade relationships over time, but there are signs that that dynamic is starting to reverse. A major poultry company that is not meaningfully tariffed told me they see nontariff countries moving supply to diversify away from overconcentration with the United States, as we no longer seem as reliable as we once did. A defense contractor told me the same thing. Any such invisible diversification is absolutely something that we need to keep an eye on.

When I joined the Committee in January, there was some debate about whether inflation still needed a push by keeping rates lower for longer. I'm comfortable saying, as others have said, that inflation has firmed and expectations are stable. Now the main question for us is, how close is the economy to overheating?

As the Chairman said at the Jackson Hole symposium, in a world of anchored inflation expectations, we may well see overheating in different ways. We often discuss financial excesses. For example, our Board of Directors has pushed us on the topic of commercial real

estate. But I'd also like to emphasize that we should be looking hard at supply constraints, and I'm starting to see signs that supply constraints are increasing among contacts in our District.

Close to home, my research staff tells me driver shortages are causing school bus delays in multiple districts. Service in Richmond restaurants is on a notable decline. Even I've noticed that. [Laughter] We're seeing concerns about employee availability as a drag on investment. A steel contact told us a plant wasn't built because of those concerns. The plumbing distributor I mentioned earlier said suppliers are not bringing jobs back to the United States because they can't see building a plant if they can't become confident they can hire workers. For employers who don't believe they can raise prices enough to offset increased wages, we're starting to see them choose to forgo business. A construction firm told us it is turning down work, and two defense contractors are imposing delays on their customers. Trucking shortages are everywhere. A Maryland crab meat processor and a set of soybean farmers report production shortages because they can't get seasonal immigrant workers, and a chicken plant actually reduced the number of shifts because of inability to find workers.

Now, I don't think I'm ready to call the overheating question quite yet. As I said earlier, despite all these indications of unusually high resource utilization, our contacts report that capital expenditure plans for next year are only moderate to conservative, and we continue to see strong employment growth, perhaps as people come in from the sidelines.

But I will say I'm watching supply constraints closely, and, now that quits are back to 2000 levels and nominal wage growth has ticked up, I'm watching compensation as well. Just ahead of us is the annual merit increase period, and, like others have said, I'm hearing talk of larger-than-normal across-the-board increases. So 2019 could be interesting. Thank you.

CHAIRMAN POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. The U.S. economy is growing at a healthy pace, around 3 percent on a year-over-year basis. This pace is considered robust today. But in historical U.S. data, it would be considered average.

District contacts largely confirm that they also saw healthy growth rates in their businesses during the intermeeting period, although perhaps slightly off pace earlier this year. Trade issues continue to be a focal point of conversation. Labor markets continue to perform well. One concern is that interest-sensitive residential investment is set to be a drag on growth this year, and this bears careful monitoring.

While both the national economy and the Eighth District economy seem generally robust, the Committee's monetary policy strategy for the coming period continues to be a cause for concern, from my perspective. A look at the graphs on page 3 of Tealbook A indicates why. For real GDP, industrial production, the unemployment rate, and consumer prices, the Tealbook baseline is similar to projections made by private-sector forecasters. But when it comes to short-term interest rates, the Tealbook forecast is approximately 100 basis points higher than the Blue Chip median and well outside even the Blue Chip 10 highest forecasts at the end of 2019.

The private-sector forecasters seem to believe that we can get the same outcomes for real activity and inflation with a much shallower path of the policy rate over the next 15 months. The Tealbook baseline, as well as perhaps much of the SEP, is based on the inertial version of the Taylor (1999) policy rule. While this policy rule may have served us as a good benchmark in the past, I do not think it is serving us well today, as it seems to have been designed for an economy that's very different from the one operating today.

Fortunately, the Tealbook also provides alternatives to the inertial Taylor (1999) rule that can make more sense of today's macroeconomic environment. I think the Committee should

begin to put considerably more weight on these alternatives very soon, because, in my view, the consequences of following versions of the inertial Taylor (1999) rule will be unnecessarily increasing recession risk in an environment with very little inflation pressure.

Let me briefly describe the two alternatives that I find compelling in the “Monetary Policy Strategies” section of Tealbook A. One is a flexible price-level targeting rule. Price-level targeting is known to be an optimal monetary policy strategy in some versions of New Keynesian macroeconomic models—the workhorse model in the research literature. Such a rule would endeavor to maintain the Committee’s 2 percent inflation target, on average, over a period of several years. Because the Committee has missed the target on the low side since 2011, the flexible price-level targeting rule calls for inflation slightly in excess of the 2 percent target for several years.

The Tealbook simulation gives us some idea of the quantitative magnitudes involved in such a strategy. The results on page 102 of Tealbook A are striking. The policy rate would essentially be unchanged from its current level during 2019 and 2020, and yet inflation would average only about $2\frac{1}{4}$ percent—in my opinion, within measurement error of the Committee’s 2 percent target. This could be a very successful strategy, should the Committee adopt it.

For those worried about an outbreak of inflation to the upside in such a scenario, the Committee can continue closely monitoring TIPS-based expected inflation measures, adjusted from a CPI to a PCE basis. Those measures currently suggest that the Committee will not achieve the inflation target on a PCE basis over the next five years. But should inflation expectations move up, the Committee could adjust appropriately.

Another aspect of the Committee’s current monetary policy strategy is that while PCE inflation is now about at target, the unemployment rate is below estimates of the natural rate, as

discussed by David Wilcox in his earlier presentation. The current strategy, at least inside our models, aims to reduce inflationary pressure by increasing the unemployment rate back up to the estimated natural rate. I am doubtful that, with today's flat Phillips curve, it is really necessary or desirable to attempt to raise the unemployment rate by 90 basis points.

The Tealbook optimal control simulation with asymmetric loss seems to bear out some of my intuition on this subject. In this exercise, the loss function for the optimal control calculation puts positive weight on unemployment above the natural rate but no weight on unemployment below the natural rate. In other words, we do not like unemployment being high—but when unemployment is low, everyone is happy. Some of this feeds into the comments by President Mester and the Ed Knotek SEP policy rule, which puts less weight on the unemployment gap.

Another way to say this is that strict inflation targeting is a better policy today than it would be in an environment with high unemployment. I think this sort of objective is a better description of what this Committee is trying to achieve. Page 104 of the Tealbook describes the outcomes under this scenario. The policy rate stays relatively flat, inflation remains at the 2 percent target, and unemployment remains low.

It seems to me that this sort of simulation—which is, after all, using our own model of the economy—has profound implications for how the Committee should, as it proceeds, approach monetary policy strategy. I encourage the Committee to consider these findings in coming deliberations. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. So why don't we take a break now for coffee? And we'll reconvene at four o'clock, according to this clock right here. [Laughter] Ignore that other clock. Thank you.

[Coffee break]

CHAIRMAN POWELL. Okay. Let's get going again. Governor Brainard.

MS. BRAINARD. Thank you, Mr. Chair. I found President Mester's reveal on the policy rule implicit in the FOMC path particularly interesting. In our Board discussions, I, too, have been wrestling with the persistently large gap between the SEP and Tealbook baseline policy rate paths and the sharp contrast with the quite similar paths of our unemployment growth and inflation projections. President Mester's insight that the Committee appears to be putting a lot more weight on keeping inflation at target than on the undershoot of the unemployment rate seems intuitively very appealing, and it also connects nicely to David's earlier explanation of the yield-curve inversion in the Tealbook baseline due to policy working a lot harder to get unemployment back up to the natural rate.

Like many of you, I expect the economy to continue exhibiting strength into next year, based on its considerable underlying momentum as well as the sizable deficit-financed fiscal support in the pipeline and easy domestic financial conditions. That said, there are meaningful risks on both sides of the economy's most likely path.

The staff currently forecasts that, following very strong growth in the second quarter, real GDP will increase 3 percent at an annual rate in the second half of this year, with consumption and business fixed investment expected to post solid gains.

The strength of domestic demand is manifest in the labor market. We've seen payroll gains so far this year at about 200,000 per month, well above estimates of the pace necessary to absorb new entrants. The share of the prime-age population that is working has risen nearly 1 percentage point over the past year and now stands above 79 percent, suggesting the tight labor market is providing employment opportunities to more Americans, including among racial and demographic groups who traditionally have experienced labor market outcomes below the

national average. Even with those gains, the share of the prime-age population that's employed is still below its previous cyclical peak, suggesting there may be room for some further gains.

In another positive development, the year-on-year increase in average hourly earnings reached its highest level since the depth of the financial crisis, and the employment cost index has shown a similar acceleration. Even with this factor present, nominal wage growth remains moderate by historical standards. Although there's anecdotal evidence of worker shortages in some sectors and regions, there's no evidence yet of rapid acceleration in aggregate wage indicators.

Recent data on inflation have likewise been encouraging, providing little signal of an outbreak to the upside, on the one hand, and some reassurance that underlying trend information may be moving closer to 2 percent, on the other. These developments give me some confidence we'll see underlying trend inflation move back up to 2 percent over time. After various measures of underlying trend inflation came in below our 2 percent objective over several years, it's important that we sustainably achieve inflation around 2 percent, to prevent an erosion of the underlying trend rate the next time the economy faces a downturn and the federal funds rate hits its lower limit.

I'm saddened to note that some communities have seen devastating losses associated with Hurricane Florence, with many lives lost and countless others badly disrupted. Despite the magnitude of the destruction, however, the staff estimates that the imprint on overall real GDP this quarter will be fairly modest, in part because of the timing of the storm.

More broadly, the fiscal stimulus in the pipeline on top of strong underlying growth momentum should continue to provide a considerable boost. According to CBO and Joint Committee on Taxation estimates, deficit-financed stimulus is projected to amount to nearly a

full percentage point of GDP this year, over 2 percentage points next year, and 1½ percentage points the following year. That is a heck of a lot of stimulus, especially at this point in an expansion.

These considerable tailwinds are occurring at a time of very accommodative financial conditions, which further bolster the outlook. Since we began the tightening cycle, financial conditions have remained highly accommodative, according to most of the major indexes. Since our previous meeting, equity prices are up about 4 percent, diverging from movements in the opposite direction in some other major economies. That boost has been offset by a modest increase in the 10-year Treasury yield and a 1 percent appreciation in the broad dollar, leaving financial conditions little changed, on net, during the intermeeting period.

With fiscal and financial tailwinds reinforcing the strong underlying domestic momentum in the economy, we can expect further tightening in resource utilization, starting from already high levels. The August unemployment rate was about ½ percentage point lower than the previous year. If unemployment continues to decline at the same rate as we saw over the past year, we'll soon see unemployment rates not seen since the 1960s. Historically, in the few periods when resource utilization has been at similarly tight levels, we've tended to see elevated risks of either accelerating inflation or financial imbalances. And, in fact, in the most recent episodes, the signs of overheating have not showed up in inflation, but rather in financial-sector imbalances.

After the sustained period of historically low interest rates that we've experienced, special vigilance is warranted. And, as was stated earlier, the staff's latest assessment suggests that financial vulnerabilities are indeed building, especially in the corporate sector, in which low

spreads and loosening credit terms are mirrored by rising indebtedness. And we're also seeing leveraged lending once again on the rise, with low spreads and loosening terms.

While rising stimulus and accommodative financial conditions present some upside risks, recent foreign and trade developments present risks on the other side. Real GDP growth in Europe has moderated from its strong pace of last year, and there are some political risks that bear watching, such as Italy's budget negotiations and the looming Brexit deadline.

As U.S. real growth has pulled away from foreign real growth, in part reflecting fiscal policy divergence, expectations of monetary policy divergence have strengthened, contributing to upward pressure on the dollar earlier this year. The resulting currency adjustments are compounding challenges faced by some emerging market economies, along with a complicated and unpredictable trade environment and gradually increasing interest rates. Although capital flow reversals have been contained to several notably vulnerable countries so far, there's some risk that we could see a broader pullback.

As has been widely commented on, changes in trade policy present some uncertainty. Analysis by the Board's staff and by outside analysts finds little evidence of an effect in aggregate inflation, investment, or consumption data. Equity prices have moved in response to news about trade policy, but these movements generally appear to be short-lived, and, in the case of the United States, are outweighed by positive expectations overall. If there were some further broadening of tariffs both here and abroad at a moderate level, we might see something that looked like a supply shock, but it's not obvious it would have implications for monetary policy.

In the extreme, we could see financial stress spillovers if trade disputes trigger a broader bout of instability associated with China. Before the imposition of trade measures, China was embarked on a policy course oriented toward deleveraging and gradual deceleration while

continuing to manage capital flows and the exchange rate. Deteriorating trade relations could greatly complicate those policy challenges, so there is some risk of destabilizing currency dynamics and associated financial spillovers.

Finally, because of the important role of temporarily elevated federal spending, I do see some risks associated with the uncertainty regarding the fiscal trajectory a few years out, especially if this comes around the same time that underlying momentum in the domestic economy is losing steam. The Tealbook projection is formed on a number of assumptions that smooth through that risk while also ensuring debt sustainability. A less benign path is an important risk, and market participants may be looking for clues in upcoming election outcomes.

But, for now, strong growth and the tailwinds that are likely to continue boosting the economy over the next year or two have important implications for monetary policy, and I look forward to discussing them tomorrow. Thank you.

CHAIRMAN POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. I'm going to sound a little bit like a broken record, because I haven't changed my outlook much since we last met or, indeed, really all that very much since the first time I participated in this meeting almost a year ago, and certainly not since early this year.

My SEP submission from the beginning of the year is virtually the same as the one I submitted for this meeting. I had a relatively optimistic forecast of U.S. real GDP growth when 2018 began, and the economy's performance has more or less confirmed that outlook. And while the staff outlook has caught up for 2018, I am more bullish for 2019 and beyond, although even there the staff outlook is moving in the correct direction. [Laughter]

One factor underpinning my outlook has been my optimism regarding the economy's growth potential. That's been importantly premised on the implications of increased business investment. And we've been seeing that for some time. Higher investment, obviously, will increase the nation's capital stock, nudge up productivity growth, as new technologies and methods of production have an opportunity to be put into practice.

Now, that pickup in investment predated the tax bill, so I don't think that it is entirely an evanescent result of a sugar high. But there's every reason to think that it will be extended and deepened by the incentives that were included in the tax reform bill, and so far the data are encouraging. Real business fixed investment jumped 10 percent in the first half of this year, the fastest pace in six years—but, again, continuing a pickup that had begun over a year before the passage of the tax bill—and leading indicators of capital spending are strong.

Because of my optimism on potential, I think that strong growth outlook is consistent with continued moderate inflation pressures. Certainly, up to this point, inflation hasn't been sending a strong signal of an economy that's at capacity. Wages have been picking up somewhat. They're still well below pre-crisis growth rates. And, as a wise man has said, there's a lot to like about that.

As I've also said before, another component of my outlook that helps reconcile strong growth and low inflation is an assessment—which I think is shared by many of you—that the labor market likely has more slack than might be apparent from a straight read of the unemployment rate. In particular, the current strong economy, the strong labor market, will pull more people into, or keep more people from leaving, the labor force. This is pushing up the labor force participation rate relative to its current still-depressed level. And, again, it would be

anomalous if the incentives stemming from the tax bill didn't extend and deepen this effect, although it is not driven principally by the tax incentives.

In this regard, I like the box in Tealbook A on the sources of strong employment growth that laid out a plausible scenario—to me, still a relatively conservative one—for an upward tilt in the labor force participation rate in the period ahead.

Now, although that baseline forecast is upbeat and unchanged, not chasing the needles, I do think we have to keep an eye on some emerging risks. They've been mentioned by a number of people already. One, as Joe noted in his presentation: stresses in some emerging markets have increased. So far, the effect has been fairly contained, limited to the most vulnerable countries, Turkey and Argentina. But it's not going to be terribly surprising if, as we raise interest rates further, emerging market stresses become more widespread and remain an issue. Tighter monetary policy in the United States has never been a particularly good thing from the point of view of emerging markets. Now, certainly, tighter policy in the context of strong growth is less of a bad thing than if we had tightened in response to inflation concerns. It would certainly be worse even for the emerging markets that are affected if we were to get behind the curve in the United States and, therefore, have to steepen our policy response in the future as a result of having flattened it now. Overall, the best thing we can do is to be clear and consistent in our communications and gradual in our policy. But still, the effect of this on the rest of the world, and particularly emerging markets, is something that we need to continue to monitor.

And, second, as I think almost everyone has mentioned, trade tensions present a risk, although, again, as discussed earlier by Joe, the effects don't appear to be very large or discernible in the data currently, apart from uncertainty being very high—but uncertainty means exactly that. Markets and economic actors are generally projecting that there is a material

chance that the outcome of all of this mudwrestling will be the resolution of some long-standing irritants, with a still strongly open trading system, which has always been in the long-term interest of the United States.

We should keep a careful watch for signs either that the tariffs are having more consequential effects than the fairly slight adjustments that the staff has currently built into the outlook or that the path of this process is leading this uncertainty to resolve itself in a belief that we would not be ultimately tending toward a more open economy. And I think that the consequences of that on sentiment and the substantive consequences of that would be much more consequential for economic growth. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Well, thank you very much. And before I jump into the outlook go-round, just let me say a few words. It's really a distinct honor and personal privilege to join this Committee and to begin to participate with all of you in formulating U.S. monetary policy. I've been a student of this institution for 35 years, and like any student, I have things to learn, but I look forward to learning from you and working with you in the meetings ahead. And, again, it's a thrill to be here. So thank you.

The U.S. economy—in particular, the labor market—had been surprising on the upside for nearly two years. It's impossible to know with any precision how much of this is really due to a durable uptick in trend growth and a fall in the rate of structural unemployment or perhaps is the result of some combination of good luck, animal spirits, some fiscal stimulus, or just plain noise in the data that may soon mean-revert.

But my personal view—which, of course, I'm willing to update as the new data come in—is that the economy may indeed have hit bottom on trend growth several years ago, and that

U^* may be somewhat lower than I would have thought at that time. But, of course, let me acknowledge that my uncertainty about those key parameters is elevated relative to the past 20 years.

I'm going to talk a little bit about the labor market. On the labor market, we're seeing a late-cycle rise in real wages, and that's typical in an economy that's operating in the vicinity of full employment. And we're starting to see that in the data, as several of you have mentioned. And, certainly, I'm glad to see that. I've done a little work looking at the past data, and in the past several cycles when we've seen this late-cycle rise in real wages, it was not accompanied by a material increase in core inflation but was absorbed through a decline in profit margins. And we actually saw that decline in the profit share and rise in the wages share.

Now, of course, that's the past. And, importantly, in those previous cycles, monetary policy was aimed at achieving a desirable inflation outcome. But it did occur in that mix, as I said. So I think, in addition to looking at the focus on prime-age labor force participation—as many of us do—as a swing factor that may extend the expansion, how the unemployment rate, which has been declining, and wages and profit margins play out will be an important thing to follow. And I'll talk a little bit more about that.

Piggybacking off something that Dave Wilcox said, my own analysis suggests that a simple productivity-adjusted wage Phillips curve relationship has remained relatively stable over the past couple of decades. This suggests to me that the inflation outlook—to the extent we continue to have a strong labor market, as we're projecting—is really going to depend upon how this balances out between wages and profits and the pass-through of that to inflation.

Let me talk a little bit about the durability of the expansion. And I would note a substantial recent upward revision to the household savings rate, which was reported in the BEA

data in July. With the revised data, the household savings rate stands at 6.6 percent, which is several percentage points above where the BEA thought it was before the revision. And that suggests to me that, in the aggregate, households are not stretched, and that continuing gains from a healthy labor market are likely to continue to support consumption.

But as many of you, I'm sure, know, at this comparable stage of the previous cycle, households were cutting the savings rate to sustain consumption growth. It fell to a revised 2.2 percent. I think, in the original data, it was actually zero or negative, but it did get revised up. We've also seen, in the past couple of years, some pickup in measured productivity growth, albeit from a very depressed pace, and as one of you mentioned, this has coincided with the rebound in nonresidential investment. In both the 2001–07 cycle and the 1982–90 expansion, productivity actually began to trend down in the late stages of that cycle. And, of course, in the 1990s, we saw the opposite pattern. Of course, recent changes in the tax code have favored investment, and the capital deepening that we're seeing will need to continue if the gains in productivity are to be sustained. Thank you.

CHAIRMAN POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. The 11th District economy continues to be strong. Texas job growth year-to-date is in excess of 3½ percent, annualized. Our broad surveys across the board are strong. The one sticking point, which a number of you have mentioned, is that the manufacturing uncertainty index is higher due primarily to concerns regarding trade and tariffs. We do think this is having, among manufacturers, a chilling effect on their capital expenditure considerations, and I'll mention more about that in a moment.

We've been struck since the previous meeting about reports of broader strength of the U.S. consumer among retailers. A few months ago, if you talked to a mall operator in the United

States—many of them domiciled in Texas but operating nationwide—they would have told you that unless you had a Tesla and an Apple store in your mall, as well as a number of high-end luxury stores, sales for your mall were going to be down. Since that previous meeting, these operators have indicated that consumer strength is now across a much broader range of stores than they've seen earlier in the year, and they believe that this indicates an increased willingness of consumers across a broader range of incomes to step up their purchases. Mall owners are also increasingly citing labor shortages across their constituent stores as a key issue in their malls.

A broader range of manufacturing contacts are suggesting a need and an ability, as a number of you have mentioned, to raise prices in response to higher labor costs as well as higher input costs generally. And, certainly, they are more confident about the ability to make those price increases stick.

Consumer business contacts, on the other hand, are also suggesting higher labor and input costs that have been, at least to us in our discussions with our contacts, much more cautious and doubtful, mainly because of competitive pressures, about their ability to pass on those cost increases to their customers. All comment on continued labor shortages and a focus on spending more in technology in order to mitigate labor cost and availability pressures. Contacts continue to report a desire for greater scale in order to protect margins—and this is the margin-share erosion that Governor Clarida was just talking about—and, so, many more of our contacts are continuing to focus on their ability to afford increased technology spending. And they cite easy access to capital to fund merger transactions as a key factor in their strategic thinking.

Regarding wage pressures, we certainly see them intensifying at the low end—that is, \$10 to \$15 per hour—and certainly for skilled workers. We still think the picture is a little more mixed in the middle. And when I say “middle,” I mean those workers who are making \$20 to

\$25 per hour with benefits. Discussions with business contacts suggest that these workers in the middle are highly focused on the quality of their employer and the sustainability of their job—particularly in the event of the next downturn—and other benefits, such as training, paid leave, vacation time, stock options, as well as promotion opportunities that come with working with a larger company. This causes us to think that big companies have got a greater ability to cope with a tight labor market than smaller companies, but we’re continuing to explore this.

In response to tariffs and threatened tariffs, an increasing number of our contacts are telling us they’re actively discussing reorganizing their supply chains. They’re also actively rethinking their product offerings and, in some cases, reclassifying product offerings in order to manage around potential tariffs. They emphasize, though, that this may not mean bringing manufacturing to the United States, but instead means moving the manufacturing most likely to other Asian countries that are not the subject of tariff discussions. Executives are taking a wait-and-see approach but are getting more ready to take action. And each of them emphasizes a focus on global competitiveness, which, again, they emphasize will probably not mean bringing operations back to the United States.

And so we’ll see how this all shakes out on the tariff front, but we think it could be just as likely that people will more aggressively pursue other countries around the world in order to maintain global competitiveness. And many of them are assuming that, five years from now, the policies of the United States government may be different from today’s policies, and they are loath to make moves that may look good for a few years but actually mean they are not globally competitive over the longer horizon. So we are struck by those conversations.

We recently held, with the Kansas City Fed, our third annual energy conference. The conference reinforced our view that the world is increasingly reliant on shale oil growth in order

to meet global demand growth, and it's very likely, as we've said before, because of the rapid-decline curve of shale and the lack of long-lived projects for the past several years in the United States and infrastructure and labor constraints, that shale will struggle to keep up with global demand growth.

Tariffs on aluminum and steel are making these constraints worse, particularly by making it more expensive and possibly delaying pipeline capacity out of the Permian Basin. Again, as we've said before, we believe we're in relative supply–demand balance globally—with increasing vulnerability, though, to supply outages as a result of geopolitical events—as we're seeing right now with Iran and the Iran sanctions. We certainly expect more price volatility in the months and years to come.

Finally, our Dallas Fed economists continue to believe the fiscal stimulus is having a substantial effect on GDP growth in 2018. But, as many of you also point out, we believe it will fade somewhat in 2019 and further in 2020. And this is all reflected in our SEP submission.

We are cognizant that fiscal stimulus may be temporarily masking the negative effects of aging demographics and sluggish productivity growth that is at least in part due to lagging educational and skill levels of our workforce. We are cognizant that monetary policy acts with a lag; that is, we may not see the effects of our current removals of accommodation until sometime in 2019, just as fiscal stimulus is continuing to fade. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. Over the intermeeting period, the Third District has experienced what I would characterize as modest growth. Labor markets appear healthy, while services and manufacturing were on solid footing, and consumer spending has firmed. The only sector that is not performing well is residential investment. And I'll come back to that.

Employment growth has picked up, with two new casinos in Atlantic City adding measurably to job growth there. The unemployment rate ticked down by 10 basis points in both July and August and now stands in the District at 4.1 percent. Sectors that show particular strength were professional and business services and education and health care. But I want to give one example of, I think, the broad-based strength of the job market in the Third District. A snack food manufacturer in Lancaster County reported that they are paying \$17 an hour with benefits for someone to take pretzels off the line and put them in a box. And you get some sense now of how tight that market is if they can't find people to do that job. Thus, I think our regional labor market is looking more and more like that of the nation.

Manufacturing in the region is performing well. Our manufacturing surveys showed a significant bounceback in activity in September, and the current conditions index once again exceeds its nonrecessionary average. Of interest was a decline in the inflation measures, both current and expected, from their elevated August level. Many respondents indicated that business activity was especially healthy, but—a point many have already voiced—there are also concerns over tariffs. By and large, manufacturers remain quite optimistic, expressing intentions to increase hiring over the next six months as well as to make additional capital expenditures.

One diverse manufacturer in our District indicated that the rest of this year would see exceptionally strong growth, but that there were some concerns coming on the horizon. Growth in demand from Europe has slowed, and North American sales, while healthy, are no longer accelerating. Only Asia is booming, especially for this firm, particularly in products related to AI and AI server farms. The server demand in China, he said, is off the charts, according to this contact, and he just can't meet the demand. However, tariffs are becoming a source of concern, and he is a bit nervous that some of the strong demand this year was from buying goods forward,

ahead of the tariffs. If that's the case, he was very concerned that activity could reverse quite quickly.

Another manufacturer mentioned that they're in the process of moving some of their supply chain from China to South Korea; this echoes the comments previously reported today. And a banking contact indicated that a number of firms that bank with them have decided to delay some of their planned capital expenditures because of concern over trade.

Anecdotes of this nature indicate that firms are acting in response to the actual and proposed tariffs, and their behavior may—and I emphasize “may”—eventually show through to the data.

Further strength in our region was reported by a number of bankers whose loan growth hit double digits, and that growth was occurring across their loan portfolios. Retail activity in the Third District continued to grow modestly in both July and August, and August auto sales were the highest for the year. Our service-sector survey shows increased activity in employment, and the employment index hit a new record high. Consumers in the region, like those in the nation, remain very optimistic.

The only sector that is not experiencing much in the way of growth is residential real estate. Permits for single-family homes remain flat for the year, as does the value of residential contracts. With the exception of the Philadelphia metro area, house prices are appreciating very gradually.

Now, some of the weakness appears to be driven by supply constraints, as a house remains on the market for an amazingly short time and inventories are very low and declining. In addition, contacts mention the lack of building lots as a future constraint on residential investment. In fact, they said, “You know, we weren't doing the work of getting those permitted

during the recession, and now we're concerned that we just don't have those lots in place." This is particularly true in areas like Lehigh Valley, Pennsylvania, in which the housing market is extremely "hot."

To sum up, the economic activity in the Third District is improving and broad based, and we continue to hear anecdotes of wage and price pressures. However, as I said, there's growing concern over tariffs.

My view of the national economy is generally similar to that of the Board staff. My unemployment rate forecast is slightly different, envisioning a trough about 3.5 percent next year before seeing a gradual rise to 3.9 percent by the end of the forecast horizon. Also, our forecast of real GDP growth levels off at 2 percent in 2020 and 2021. However, my funds rate path is much shallower. I anticipate one more rate hike this year to be accomplished at this meeting and perhaps two more in each of 2020 and 2021, bringing the funds rate to 3.13 percent, which is in line with my medium-term view of its neutral level. I'll elaborate on why I believe this in our policy go-round tomorrow.

For now, I'll summarize the Philadelphia region's growing optimism by stating one very simple fact: Carson Wentz is back. [Laughter] Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The most recent economic data show the 10th District has been growing faster than the nation, and our business contacts other than in agriculture remain very optimistic. District employment is currently growing about as fast as at any time in the past 20 years, with unemployment in the region at its lowest level since 2000. Hourly wage growth is around 4 percent, and some contacts report that nonwage compensation is pushing up labor costs. Although business contacts expect to expand hiring over the next six

months, we are beginning to hear reports of labor supply constraints impeding business expansion.

Despite a positive outlook overall, two-thirds of the firms in our surveys report negative effects due to tariffs, although, as others have noted, such effects have yet to show up in the data. Exports in the District through July actually increased year-over-year in every category except for farm and food products, which were down about 8 percent on last year.

Regarding energy and agricultural activity in the District, drilling activity continued to expand, along with the number of oil rigs over the past three months. The ag sector, on the other hand, has remained relatively weak in the third quarter. Corn and soybean prices have remained low after dropping substantially this summer, alongside intensifying trade disputes. Soybean producers in particular have felt the effects of a 25 percent Chinese tariff. The announcement this month of a new government assistance program largely aimed at these producers could offset lost income by more than one-third, and losses could be further mitigated for farmers who sold their 2018 crops earlier in the season. But the storyline for agriculture over the past several years remains the same. Even with the assistance of this new government program, incomes in the farm sector are expected to remain low in the months ahead.

As for the national economy, my outlook is little changed since our previous meeting. I continue to expect above-trend real GDP growth in 2019 and 2020, with growth returning to its trend rate in 2021, an unemployment rate at 3.4 percent, and inflation remaining near 2. My view of the appropriate path of the federal funds rate is somewhat lower than in the June SEP, due to my assumption for the broad exchange rate of the dollar and its implications for growth and inflation. I expect solid consumption growth in the third quarter, and wage growth appears to be well positioned to support consumer spending over the medium term. Household balance

sheets remain strong, and measures of consumer confidence are also at their highest level since the 2000s. And more households are reporting that their financial situations have improved compared with a year ago. Increased momentum in spending and the strengthening financial situation of households support a forecast of above-trend growth this year and next.

The labor market continues to tighten, with the unemployment rate well below my assessment of its longer-run level. Job openings hit a new record high and outnumbered the unemployed for the fifth consecutive month. Workers seem increasingly confident about their job prospects. Further evidence comes from the Kansas City Fed's Labor Market Conditions Index. For the fifth consecutive month, the rise in voluntary unemployment made the strongest contribution in this index to the improvement in the level of activity. Notably, the share of the unemployed who left their jobs voluntarily and immediately began searching for their next job is at its highest level since 2000.

Consistent with the tight labor market conditions, measures of wage growth have increased moderately. Average hourly earnings of private-sector employees rose compared with a year ago, and the employment cost index, which controls for compositional shifts in jobs, also increased year-over-year. Although nominal wage growth has increased, corporate profits have remained strong in the past several years. And, as in the experience of the late 1990s, rising labor cost measures do not yet appear to be squeezing profit margins.

I expect year-over-year inflation to remain near 2 percent this year, in line with the economy's solid fundamentals, with upside risk over the medium term as labor markets continue to tighten and the economy continues to grow above its trend rate. On the other hand, further strengthening of the dollar poses a downside risk to my inflation forecast. In particular, flight-to-safety flows from emerging market assets into dollar-denominated assets could lead to further

appreciation of the dollar and put downward pressure on inflation, as highlighted in the staff's analysis and Tealbook A's "Risks and Uncertainty" section.

Finally, I continue to view the outlook as roughly balanced. On the upside, accommodative financial conditions, elevated consumer confidence, and expansionary fiscal policy could lead to further increases in real growth. And on the downside, trade policy uncertainty, growing risk in emerging market economies, and policy divergence between the United States and other advanced economies could weigh on both foreign and U.S. real GDP growth. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chairman. The incoming economic data on the real side of the economy have come in stronger than I had written into my June SEP submission, and I find myself once again revising my current-year growth forecast upward. The central question I am now wrestling with is whether the apparent strength in GDP and job growth is a signal that I have materially underestimated the underlying momentum of aggregate demand. If that is the case, the elevated potential for overheating would require a more aggressive approach to raising rates than what I had been thinking.

As is typical when data interpretation has become challenging, I have been leaning heavily on my network of business contacts and directors to glean some useful signals on the likely forward path of the economy. Sentiment among directors and contacts remained largely positive this cycle, with the majority reporting that demand roughly matched or was slightly above expectations. Although reports reflected an uptick in the pace of activity since the start of the summer, my contacts generally indicated that their outlooks for the remainder of 2018 and 2019 have not been materially changed. This is especially true regarding expectations of future

investment spending. With few exceptions, firms in my District have maintained their previous capital investment plans and are not expecting a significant increase in cap-ex spending over the next year or so.

My staff and I pressed our contacts to explain why the recent upbeat economic news is not stimulating a greater appetite for capital expenditure, especially against the backdrop of recent tax reform and fiscal stimulus. As usual, the responses were varied. But they had one unifying theme: Businesses' investment strategies are driven by demand fundamentals. In the current environment, business leaders in the Sixth District have not yet bought into a significant, persistent pickup in demand over and above their current capacities to meet that demand. Capacity constraints are an issue in some cases, particularly with respect to labor, but businesses in general are not yet in the mindset to take on aggressive expansion plans in the face of what they perceive as continued substantial uncertainties.

On this front, consistent with previous cycles, uncertainty regarding tariffs and trade policy remains a feature of the economic landscape. And I did hear a few concerns related to the outcome of the upcoming elections. However, I am getting the sense that business leaders have become inured to the seemingly endless string of day-to-day fluctuations in the business environment—so much so that it is damping their reactions to good news as well. To quote one of my directors, “The chaos we are now experiencing is becoming customary.” And, like President Kaplan reported, this view is cementing a “status quo” perspective.

With regard to the consumer, I have taken on board some of the pickup in household spending and have nudged up my 2019 real GDP growth forecast accordingly. Indeed, the latest consumer confidence numbers, which came in quite strong, suggest a vigorous consumer who has a robust demand for goods. However, I think it is noteworthy that much of the recent

strength in consumer spending has not been in goods that are associated with longer-term commitments, such as autos and large appliances. A reasonable interpretation of this behavior is that households are exercising prudence, not wanting to take big, irreversible bets. And it is in this context that I view the substantial revision to the personal savings rate. Despite high levels of sentiment, households—like businesses—appear to be continuing forward with caution. In light of these reports, I am largely holding on to my previous growth narrative for the time being. I find that these non-euphoric outlooks of business and the consumer—both of which seem to be decidedly free of irrational exuberance—give me a degree of comfort. That said, I do see the risks as being tilted to the upside. Should consumer spending hew to a higher growth trajectory, I suspect that would prompt firms to respond by ratcheting up investment spending.

While the translation of the August CPI and PPI data suggests a soft core PCE inflation number, I see retail prices continuing to increase at about a 2 percent rate. But here, too, I view the risks to that projection as being tilted to the upside. Consistent with aggregate measures of wage growth, reports received from my District suggest some firming in labor costs. A growing number of firms across the District report an uptick in merit increases, and these increases have been occurring for a number of cycles, with merit averages reported in the range of 3 to 3½ percent. The formerly dominant 2 to 2½ percent range is now the exception. But perhaps the biggest shift in contact and director sentiment this cycle concerned input cost increases and price pressures. As noted by President Rosengren initially but by many others around this table, there has been a marked increase in the reported ability to pass on cost increases. In the Sixth District, this was especially true for firms subject to tariff- and freight-related cost increases. Those firms reported little to no “pushback” when passing along the rising costs to their customers. But I get the sense that the phenomenon is becoming more widespread.

So, returning to my initial question—whether GDP and job growth strength signals stronger momentum of aggregate demand than I have expected—the sense I have today is “yes,” but not by an appreciable amount. So my out-year projections are not changing all that much. But this is today. We heard clearly that business stands ready to respond quickly if demand strengthens significantly, and this reality will motivate my monitoring of the economy in coming weeks.

Finally, I want to echo concerns raised by President Mester and Governor Brainard regarding the increase in leveraged lending, particularly in the nonbank sector. I am hearing concerns about this from an increasing number of people in the market and am starting to share their fear that rising risk here may introduce systemic concerns. I encourage more discussion of this at future meetings. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. Moderate growth continues in the Ninth District. Almost all sectors report to be doing well, with the notable exception of the agricultural sector, in which international demand for crops is down sharply and many producers are blaming the tariffs, as others have noted. A regional survey of HR professionals in our region said that about 40 percent of firms claim to be adding to headcount. About two-thirds are describing the labor market as very tight. Firms say that they are expecting some pickup in wage growth. There appears to be moderate price pressure at the wholesale level, with less at the retail level. And manufacturing is strong, but, again, there are heightened concerns about tariffs.

For the national economy, so far there is little evidence of a slowdown after the strong growth in Q2. Pickup in growth this year is in part attributable to the fiscal stimulus. However, the stimulus, importantly, does not appear to be showing up in inflation expectations. It does

seem that the stimulus is boosting supply via increased investment, and that itself should not be necessarily inflationary. It could be increasing our economy's capacity, which would be a good thing.

In the labor market, strong job growth continues. Nonfarm payroll is still rising at about 200,000 a month. However, as others have noted, labor force participation has edged up further, but prime-age LFP is still about 1 percentage point below pre-recession levels. Wage growth has edged up a little bit, and that is welcome. But unit labor costs are rising at less than 2 percent, so wage growth is still a drag on inflation.

As for prices, core PCE inflation is now at 2 percent on a yearly basis. This is a milestone; I welcome it. And inflation expectations appear to be solidly anchored—not moving up much, maybe somewhat less than 2 percent, but certainly not climbing above 2 percent.

With regard to financial markets, we discussed the yield curve. David gave a nice presentation today. I am still concerned about the yield curve. It remains pretty flat. It's still flashing yellow as a warning signal. Again, I'm not focused on the causation between the yield curve necessarily and the real economy, but, to me, it is giving us feedback about the state of monetary policy.

I am taking some comfort that long-term rates have moved up a little bit lately, and maybe it is giving us a little bit more room. It may reflect more optimism about long-term growth prospects, under the stable inflation expectations. If long-term rates continue to move up, I will be less concerned about the SEP path, in which we raise the policy rate. And while this is all happening, the stock market continues to outperform, which is a confident signal.

Regarding threats to the outlook, risks seem to have increased, as others have noted. The trade war with China seems to be heightening. There is emerging market turbulence in

Argentina and Turkey that we're all monitoring and a general slowdown outside the United States. But the domestic fiscal stimulus appears to be having a larger upside effect than I, at least, had expected a year or so ago.

So, in summary, we have reached our inflation target, which I think is very positive. Let's hope we can stay there. Ongoing strong job growth, coupled with modest wage growth, suggests that we may still not have reached full employment. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Vice Chair Williams.

VICE CHAIRMAN WILLIAMS. Thank you, Mr. Chair. During the break, Jeremy Rudd handed me a note that I thought I'd share with you. This was actually a reminder that the great Benjamin Strong, the first president of the New York Fed, kept in his desk at all times. And the note said: "To the Governor of this Bank." And I'll paraphrase to shorten it: "Never forget that this Bank was created to serve in the interest of the country as a whole," which is a great reminder. I, too, left a note at my desk when I left the San Francisco Fed. And that note said, "Don't mess with my estimate of r^* ." [Laughter] That had, apparently, no effect.

[Laughter]

Okay, moving along—incoming data have confirmed my positive assessment of the U.S. economic outlook. Growth in the first half of the year was a surprise to the upside, and with support given by fiscal stimulus and still-favorable financial conditions, growth should remain strong for the remainder of this year and through 2019. And in a reassuring development after the disinflation scare of last year, inflation appears to be settling in at our 2 percent longer-run objective. So no matter how you cut it, this is a very good macroeconomic situation.

Now, despite the Chair's plea at the Jackson Hole symposium not to be overly "starstruck," I find it useful to gauge the economy's strength relative to the benchmarks of

underlying trends. And, through that lens, things continue to be strikingly strong. Even with the labor market already reaching or even surpassing most measures of full employment, job growth has averaged over 190,000 jobs per month over the past six months, and that's roughly double the 75,000 to 100,000 job estimates of trend labor supply growth. And with no signs of significant slowing on the horizon, I expect real GDP growth to come in around 3 percent this year and 2½ percent next year, well above my estimate of potential growth of 1¾ percent. And with sustained above-trend growth ahead, I perceive the unemployment rate edging down slightly below 3½ percent next year, significantly below my estimate of the natural rate of unemployment at 4.5 percent. And if that happens, that would be the lowest unemployment rate we've seen in nearly 50 years.

I'd also mention this Conference Board survey that came out today. And, you know, I follow this jobs availability index very closely. We've seen a steady increase in this measure of labor market strength, and today we saw the strongest reading on that that we've seen in 17 years—again, an independent confirmation, beyond the unemployment rate, of how at least employees are feeling or households are feeling about the labor market.

Although recent data have been very cooperative in terms of building confidence in my baseline projection, one large surprise was a substantial upward revision of the personal saving rate in the comprehensive revision to the national accounts. So I'm going to pick up on a theme that was mentioned by Governor Clarida and President Bostic. For example, the personal saving rate for the first quarter of this year was revised up from 3.3 percent to 7.2 percent, and although the saving rate is prone to sizable revisions, this was, in the parlance of statistics, a “whopper” of a revision. [Laughter] The level of the personal saving rate now looks quite high in light of the very elevated level of household net worth. One possible interpretation is that consumers have

oversaved and may be on the verge of a spending spree, which would give an added boost to an already “hot” economy.

Now, although this is conceivable, there are alternative explanations for the persistently high level of household saving that suggest that consumers may not be about to shop till they drop. One is rising income and wealth inequality, which implies a lower propensity to spend out of wealth. More generally, the surprisingly high saving rate in the context of high asset values may just be another manifestation of the very low r^* environment we’re in. All else being equal, a low value of r^* implies elevated asset prices relative to historical norms. If this increase in asset prices only reflects a change in the discount rate rather than fundamentally stronger economic prospects, then consumers should, in theory, not increase spending in response. Thus, the apparent twin puzzles of sky-high asset prices and high personal saving may not be puzzles at all. And my “takeaway” is that a sustained high saving rate is mostly not a precursor to a surge in consumer spending.

For inflation, the data have been favorable. Measures of wage growth, the missing piece of the puzzle over the past few years, have moved up somewhat, in an encouraging sign. Underlying measures of price inflation over the past 12 months, whether you look at the core rate or the trimmed mean, came in at 2.0 percent in July. And despite the very strong labor market and the pickup in wage growth, there’s little if any evidence of substantial inflation pressures building in the U.S. economy. I see this as reflecting countervailing forces. The strong economy will likely push up inflation in the nontraded domestic sector, such as services, but underwhelming growth in the rest of the world points to a somewhat stronger dollar and softer import prices, which will provide a partial offset. Of course, the relatively subdued inflation pressures, despite a very strong economy, are a testament to the importance of well-anchored

inflation expectations—a lesson we must not forget. Taking all of this in, I envision only a modest overshoot of inflation *vis a vis* the Committee’s longer-run 2 percent objective over the next few years, with core inflation peaking at around 2¼ percent.

And I see the risks to the outlook as balanced. Now, I can list, as others have, the usual suspects: emerging market contagion; Brexit—which I’m not sure was mentioned yet, but I would highlight that; trade wars; high-end rising asset prices; elevated debt and risk in the nonfinancial sector; and the list goes on and on. What stands out to me in the comments by financial market participants is an overriding sense that things will work out, and that the “grownups in the room” will take care of things before they get out of hand. And you definitely hear this tone regarding Brexit. Now, this may well turn out to be the case, and I hope so. But, to my ear, the tone of this commentary borders on complacency—and that is worrisome.

The lessons I take away from comments by financial market participants are, one, that they may be unprepared for disappointment. In the event of a surprise, we could see a sharp negative reaction as a result. And, two, we ourselves must guard against this type of complacency. I’ll reserve my remarks on policy till tomorrow. In terms of my projection, I penciled in gradual rate increases over the next two years, resulting in a funds rate target range that eventually lies moderately above my long-run estimate, which stands firmly at 2½ percent. I am participant number 10 in the Summary of Economic Projections. Thank you.

CHAIRMAN POWELL. Thank you. And thanks to everyone for really a very interesting and thoughtful round of comments. There is, indeed, a lot to like about this economy right now. Growth is strong, the labor market is strong, and inflation is finally around our target. So I’m happy to join in what seems to be a widely held view around the table that these

favorable conditions are likely to persist. Overall, this is a particularly positive moment for our economy. And I continue to see the risks to this outlook as roughly balanced.

To start with, both the staff projections and our SEP submissions show an upward revision for growth to a bit above 3 percent this year, and that increase is well supported by incoming data. With fiscal stimulus likely to support demand at least into 2020, as well as solid fundamentals for consumers and businesses, growth seems likely to remain strong this year and then gradually slow as we continue to scale back policy accommodation and as the demand-side effects of fiscal stimulus work their way into the economy. Solid consumer spending reflects healthy household balance sheets and confidence readings as well as the state of the labor market. Payroll and employment growth in July and August continued well above trend labor force growth. Various aggregate measures of wage and compensation growth are showing some acceleration and are now clustered around 3 percent, a full percentage point above their levels of five years ago.

These wage gains and many other indicators suggest that we're in the neighborhood of full employment, although so far I see no clear signs that the economy is overheating. Strong job growth is likely to drive the unemployment rate a bit lower, as forecasts generally predict, but further sideways movements in labor force participation could moderate the expected reduction in unemployment—as has happened so far. There's also room for further gains in participation by prime-age males, as some mentioned around the table, which remains meaningfully below its pre-crisis level. This suggests to me that, at least in the aggregate, the labor market may still have a bit of room to run. Data through July show headline PCE inflation running at 2.3 percent and core PCE inflation at 2.0 percent. Core has been close to 2 percent since March, and the

August CPI reading suggests just a tick down from these levels. This is very welcome, and we need to see more of it to meet our symmetric inflation target on a sustained basis.

As for the risks—and these have all been touched upon to one degree or another—in contrast to our strong performance here at home, growth abroad has generally fallen short of expectations, particularly in the emerging markets, and as the year has progressed, we're hearing less talk of a synchronized global expansion and more talk of divergence between U.S. output growth and growth elsewhere. With respect to the emerging markets, for now the financial markets are differentiating between the most troubled countries, which are primarily facing homegrown challenges, and other emerging market countries with better fundamentals. But I do agree with the view expressed by many around the table that we need to be on the lookout for signs of broader turmoil.

I would also agree that, for now, it looks like we're going to be—for an extended period, probably—in an unsettled environment regarding trade negotiations, and that that will be the new normal. The risks here are very difficult to evaluate, and at the very least, these issues are probably adding some fragility to the economic backdrop at the moment. It's striking the extent to which, around the table, people raised labor market constraints and other supply-side constraints and also improved belief—a higher belief on the part of companies and their ability to pass through cost increases, wage increases into prices. We don't see it yet in the aggregate data, and it's not in the forecast. It's not in anybody's forecast—which I guess is why we think of it as a risk—but it's clearly something that we'll have to be keeping an eye on.

John said it very well about Brexit. When the vote came through, in the immediate aftermath and since then, it has really been hard to conjure up a scenario that would have represented a significant macroeconomic risk. And I think they're on their way to managing to

create such a scenario, perhaps. [Laughter] High uncertainty, with big gaps to fill in the negotiations. You know, we know that U.S. banks are, in theory, ready for this; but this is so unprecedented. If it really is a hard Brexit, then we're just going to have to live with some uncertainty.

Okay. So let me conclude, then, with a couple of thoughts about the path forward. And for this purpose, I'm going to ask us to assume that, for the moment, the economy, the global geopolitical situation, the balance of risks, and financial conditions also continue to evolve about as we expect them to over the next year or so. And on that path, the further gradual increases in the federal funds rate that are envisioned in our draft statement—assuming we move forward with it tomorrow—will soon bring the federal funds rate into the broad zone of our estimates of the neutral rate sometime during the middle part of next year.

And at that point and between now and then, we're going to face challenging questions about how far to raise the federal funds rate and at what speed. So, as we move into 2019, and assuming we do stay on this path, I see us as feeling our way forward, listening carefully to what the economy and the financial markets are telling us about the state of the economy and the outlook.

At any given point, the question will be whether our policy setting is appropriate to sustain the expansion, maximum employment, and inflation around 2 percent. So, in this thinking, the location of one's point estimate of the neutral rate is a factor to consider, but it's only one factor. As we all know, our estimates of the neutral rate are highly uncertain, and we would do well to focus on what the economy and the markets are telling us about the appropriate degree of accommodation. For example, if we were to reach my personal estimate of r^* , but, let's say, the economy is still growing well above trend, job growth remains strong, inflation is at

or above target, inflation pressures are building, I'd be inclined to continue rate increases, as I imagine many of us would. I might also be tempted to raise my estimate of r^* . On the other hand, if the economy weakens or if financial conditions tighten sharply, we can adjust the path of policy appropriately. Inflation shows no signs of accelerating, and I don't have a sense today that we need to be in a hurry to tighten policy or that we are in danger of falling behind the curve in containing inflation pressures.

So, to wrap up, anticipating tomorrow's discussion, with generally favorable conditions at home and the risks to the outlook roughly balanced, I see a strong case for a 25 basis point increase in the target range at this meeting. The market fully expects that, and the proximity to our goals seems to me to warrant it. So, again, thank you for this round of comments, and why don't we go ahead and proceed with Thomas's monetary policy briefing and Q&A before we break for the reception and dinner.

MR. LAUBACH.⁵ Thank you, Mr. Chairman. I will be referring to the handout labeled "Material for Briefing on Monetary Policy Alternatives."

The draft of alternative B includes an increase in the target range for the federal funds rate and continues to note the Committee's expectation of further gradual increases in the target range. The upper-left panel summarizes the rationale for the key change that alternative B makes to the statement language. By removing the second sentence of paragraph 3 from the statement, the FOMC would position itself for further increases in the federal funds rate target as appropriate without having to characterize the stance of monetary policy. You may view eliminating the need for such an assessment as desirable at a time when the federal funds rate has reached the lower end of the range of your estimates of its longer-run normal level—especially in light of the substantial uncertainty attending such estimates. In the early stages of normalization, it was appropriate to underline the message that monetary policy remained accommodative even as you began raising the federal funds rate. Reflecting that accommodation, the economy has continued to strengthen. But as the federal funds rate has moved up and the effects of asset purchases have been waning, assessments of the policy stance have become more uncertain.

Assuming that the "accommodative" language is removed from the statement at this meeting, your public communications may become less focused on where the

⁵ The materials used by Mr. Laubach are appended to this transcript (appendix 5).

federal funds rate stands in relation to the neutral rate. Nevertheless, the Summary of Economic Projections will continue to convey views on the extent to which participants see a need to raise the federal funds rate temporarily above its longer-run normal value. In your September projections, almost all of you are expecting that, sometime over the next three years, it will be appropriate for the federal funds rate to move at least modestly above your individual assessments of its longer-run level. One interpretation of this feature is that the shorter-run neutral rate will, for a while, exceed the longer-run normal value, reflecting in particular the effects of fiscal stimulus. An alternative, complementary interpretation is that you perceive a need for the federal funds rate to move above neutral to forestall inflationary pressures or incipient financial imbalances that could result from a prolonged period of high resource utilization.

As noted in the upper-right panel, the level of the longer-run neutral rate will unavoidably have a bearing on the path of the federal funds rate. For example, some of you may directly use your estimate of the longer-run level in deciding on appropriate policy, as would be the case with a standard Taylor-type rule. Others of you may prefer to gear your changes in the policy rate to the observed changes in goal variables, as in the spirit of a first-difference rule. Here, too, the neutral rate is influencing policy, but it is doing so more indirectly because it affects economic outcomes. In any case, real-time assessments of the neutral rate are uncertain, and examining market-based measures of the longer-run neutral rate can serve as a crosscheck on your own estimates. In addition, investors' views on the longer-run neutral rate have substantial implications for asset pricing and financial conditions more broadly.

The following three panels, which draw on Andrew Meldrum's briefing to the Board last week, present estimates of the federal funds rate in the longer run from three sources: The Treasury yield curve, the Blue Chip survey, and macroeconomic models of r^* . For the first two of these, I define "longer run" as a horizon 5 to 10 years ahead; in the macroeconomic models it is less precisely defined, but approximately the same. The red line in the middle-left panel shows the 5-to-10-year forward rate derived from the yields on Treasury securities. While this forward rate is directly observable, it is well understood that long-term forward rates do not provide a clean measure of investors' expectation of the longer-run federal funds rate, because forward rates also include a term premium. The blue shaded area presents the range of point estimates of the short-term interest rate expected to prevail 5 to 10 years ahead, obtained from three staff term structure models. These model-based estimates of the longer-run neutral rate move reasonably closely together; they also fluctuate considerably less than the 5-to-10-year forward rate, consistent with the view that term premiums can be volatile. These estimates have risen somewhat over the past couple of years and currently range from 3.3 to 3.9 percent.

The middle-right panel compares the range of term structure model estimates to the average longer-run expectation of the federal funds rate from the Blue Chip survey. The estimates drawn from the term-structure models move fairly closely with the surveys, which is not surprising, because all three models include in their

estimation data provided in Blue Chip surveys, but the models do not have to fit the surveys exactly. In contrast to the term structure models, the average of Blue Chip respondents' longer-run federal funds rate expectations has not moved up in recent years.

There are advantages and disadvantages associated with each of these estimates: On the one hand, the Blue Chip survey asks directly about the object of interest, whereas the term structure models rely on a number of assumptions to which the estimates may be sensitive. On the other hand, the models aggregate information from a much broader range of participants than the survey does.

Yet another source of information are the longer-run r^* estimates derived from macroeconomic models. We periodically report these estimates in the “Monetary Policy Strategies” section of Tealbook A. The pink shaded area in the lower-left panel shows the range of five of these estimates, converted to nominal rates by adding a survey-based measure of long-term inflation expectations. These estimates declined more sharply in the wake of the financial crisis than those using the term structure models and have, on balance, been running a little lower since then, but the range has moved up slightly, in this case over the last six years or so. The range of point estimates of the longer-run neutral rate from these models is wide and most recently stretches from 2.6 to 4 percent. All of these model estimates, whether from term structure or macro models, are individually uncertain. Nonetheless, the preponderance of the evidence is that there has been some slight upward drift in these various estimates over recent years.

The lower-right panel discusses some implications that these estimates might have for your policy decisions in coming meetings. Because of the substantial uncertainty regarding estimates of the longer-run federal funds rate, you may be well served by adopting a risk management approach to how these estimates affect your choice of the policy rate path. There is a risk that you may underestimate the longer-run neutral rate or how much it has increased in recent years. If so, then over time, you would find that the economy is stronger, and inflation higher, than you expected, and the delayed policy response could lead to a greater inflation overshoot than you desire or a buildup of financial imbalances. Once markets come to realize that the path of the policy rate would be persistently higher, some asset classes would post losses, although this would occur against the backdrop of good news about the strength of the economy. The opposite risk, that the longer-run neutral rate is lower than you estimate, could be more pernicious in current circumstances when those estimates are already at historically low levels, as it would reduce even further your ability to respond to a future downturn with conventional policy. You may see a continued gradual pace of rate increases even in the face of a strong labor market as appropriately balancing these two risks.

Thank you, Mr. Chairman. That completes my prepared remarks. The August statement and the draft alternatives are shown on pages 2 to 9 of the handout. I will be happy to take any questions.

CHAIRMAN POWELL. Thanks, Thomas. Any questions for Thomas? President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. So, Thomas, these blue shaded regions, I guess, do not reflect the uncertainty regarding the estimates. So this is the range?

MR. LAUBACH. This is the range of point estimates. So, three of them.

MR. BULLARD. And if I was going to put a 90 percent confidence band, what would it be?

MR. LAUBACH. Probably wide. [Laughter]

CHAIRMAN POWELL. It's safe to say.

MR. LAUBACH. Frankly, unfortunately, I don't know this off the top of my head. I rarely see, actually, confidence intervals around the estimates obtained from these term structure models, in part because they are extremely computer-intensive to estimate. But my best guess is that a number of parameters in there are not very well pinned down.

MR. BULLARD. Do you think it would include zero?

MR. LAUBACH. I don't know the answer.

MR. POTTER. No.

MR. BULLARD. Would not?

MR. POTTER. No.

MR. BULLARD. Well, you're estimating something 5 to 10 years ahead—well, with lots of assumptions associated with it, surely it would be—

MR. POTTER. We haven't observed negative nominal rates, though. It's very hard to do that.

MR. BULLARD. I've seen negative nominal rates—

MR. POTTER. Not in the United States.

MR. BULLARD. Okay.

CHAIRMAN POWELL. President Kashkari.

MR. KASHKARI. Just a follow-up on the blue shading. Can you just walk me through again—what is the term premium? Can you explain that piece of that? Is that—assuming a reversion to historical term premiums, can you just explain that component of this to me again?

MR. LAUBACH. All right. So, I'll try. I'm not sure that I'm going to exactly hit your question. So the estimates in the blue shaded region are the ones that have been purged of the term premium component—

MR. KASHKARI. I see.

MR. LAUBACH. —whereas the red line includes the term premium. So, you know, on the basis of that you can sort of roughly gauge what a term premium estimate in these models would look like. So one feature that you can very clearly see, for example, is that the term premium, according to these models, was positive up until about 2011-ish or so, has since then been around zero, and in recent years slightly negative. So the one model that I have most present in my mind is the Kim-Wright model, which is one of the three that's in here. And, for example, there the 10-year term premium was for a while negative and has now just edged back up into positive territory. However, here we are looking at a 5-to-10-year-forward concept. I'd have to actually look up what, according to that model, the term premium is right now. But the broad feature is, basically, they were positive up until shortly after the crisis, and then in 2011, in particular, they came down sharply, and since then they have been either negative or just sort of crawling back to zero.

MR. POTTER. Except in late 2013.

MR. LAUBACH. Yes, yes. So you can see here the hump occurring basically the period around the taper tantrum. I don't know whether that was the object.

MR. KASHKARI. This is going to be a longer conversation, so I won't bore everybody else.

CHAIRMAN POWELL. Further questions for Thomas? [No response] Seeing none, why don't we adjourn now to the elegant West Court Café [laughter] for a reception and dinner, and we'll resume the meeting tomorrow at 9:00 a.m. Thanks very much, everyone.

[Meeting recessed]

September 26 Session

CHAIRMAN POWELL. All right. Good morning, everyone. Let's begin with our policy go-round, starting with President Mester.

MS. MESTER. Thank you, Mr. Chair. I support increasing the federal funds rate target range 25 basis points today, and I'm comfortable with the language in alternative B.

If the economy evolves as expected—with above-trend growth, tight labor markets, and inflation at 2 percent—I expect further rate increases will be warranted to sustain the expansion while balancing the risks to the outlook for both parts of our dual mandate and helping mitigate the risks of growing financial imbalances. And this view is supported by historical experience and also by economic models, including the Tealbook's optimal control exercises, and the prescriptions of monetary policy rules, which provide a framework for making policy decisions in a systematic way.

Now, yesterday we talked a little bit about the fact that we are behaving a bit differently than we have in the past, and I think that's important to recognize. And I also think that being systematic about it is important—understanding the factors that drive you to behave in a different way. We certainly behaved in a different way during the financial crisis and early in the recovery, and we had very good reasons for doing so. And I think we need to be very careful in understanding what factors are driving us to behave differently and then tracking them over time, because they can change over time, so that we're prepared. I think that'll help us actually explain our rationale for our policy decisions to the public.

Of course, I'm supporting 25 basis points today. But if the economy evolves differently, then perhaps we'll have to change our policy. For some time, the Committee has been moving the policy rate up toward the range of estimates of the neutral rate. The case for moving the rate

up has been very compelling, in view of the economy's strength and the fact that inflation has moved up to our target of 2 percent. Now, as we get closer to the range of estimates of neutral, as uncertain as they are, we are nearing a new phase in which determining appropriate policy will require the Committee to be even more attentive to the evolution of economic conditions and their implications for the medium-run outlook and the risks to the outlook. And we'll need to give some consideration to how our statement language should evolve to support this new phase.

Regarding statement language today, the question is whether now is the time to delete the sentence in paragraph 3 regarding the stance of policy remaining accommodative. Now, it's possible that removing this sentence will cause market participants to revise down their expectations for further rate increases. But as the minutes of our previous meeting indicate that this language would be revised "in the not-too-distant future," that there's a press conference today, and that paragraph 2 in the statement continues to say that further increases are consistent with sustained expansion, I think that any misinterpretation of the removal of the sentence can be handled. In addition, there's probably less signal about future rate increases from removing this language when there's a strong consensus in the market that further rate increases are likely to be warranted. So I support removing this sentence today.

Looking forward, I continue to think we should try to include more information in the statement about the Committee's outlook so that we can more clearly tie any indications about future policy to the outlook and risks to the outlook.

Finally, I understand we will be discussing the operating framework at coming meetings this year. I'm also looking forward to our discussion of the monetary policy framework next year. President Rosengren recently laid out a solid proposal for what a review of the policy

framework should entail, including making it a regular evaluation and making it more open. Seeking the views of external experts, including academic economists and market participants, to inform our work appeals to me. It's similar to what the Bank of Canada does when it renews its agreement with the government on its inflation target. And, as I've said before, any changes to our policy framework have to be well thought out. A workshop, laying out the issues and gathering diverse views, is an idea worth serious consideration. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. While I support alternative B, I could also have supported some of the language in alternative C for this meeting. Removing the language on monetary policy remaining accommodative could be interpreted quite dovishly. That is, at a rate of 2 to 2¼ percent, we're moving out of accommodative rate territory.

While the uncertainty about r^* admits this possibility, this is at the very lower end of estimates of r^* and is not consistent with most of the estimates presented in the SEP. This certainly would not be the message I would want to convey after a meeting at which the Tealbook has the unemployment rate drifting to lows we have not seen in 50 years. By fully explaining the change in the press conference, this perception can be avoided. However, such a discussion has the potential to sound much more "hawkish," possibly resulting in a steeper yield curve than is intended. I trust the Chairman will be able to negotiate this difficult communication challenge.

My baseline forecast has quarterly increases in the federal funds rate for the next year and a half. My funds rate path does not include a pause in increases at the point when it reaches my estimate of the medium-term equilibrium rate. In fact, I think that rates will need to continue to gradually rise until we are mildly restrictive in our monetary policy stance. With significant

tailwinds being provided by fiscal policy, the unemployment rate is likely to fall further below our estimate of the natural rate, and, with wage and price pressures gradually building, there is a risk that moving too gradually will allow price and financial stability pressures to build to the point at which more aggressive action will eventually be necessary.

I see the balance of risks inherent in a too gradual increase in rates as tilted toward our becoming the cause of the next recession, an outcome that I hope can be avoided by continuing steadily to raise rates. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. Acting President Gould.

MR. GOULD. Thank you, Mr. Chairman. I support alternative B as written. The recent strong economic growth well above trend has drawn down the unemployment rate and pushed us further beyond full employment. In addition, inflation has reached our target and appears likely to edge above 2 percent during the next year or two. In these economic conditions, raising the funds rate today is the appropriate policy response. In addition, the economy has considerable forward momentum, and this bolsters the case for signaling a path of further steady but gradual rate increases.

I also prefer removing the “accommodative stance” sentence at this meeting. That sentence has been in every FOMC statement since liftoff in December 2015, and it has served this Committee well. But on account of the favorable economic conditions, it’s time to de-emphasize accommodation and instead focus on communicating a policy setting consistent with sustainable growth.

This meeting seems like a particularly opportune time to make this change, because we’re still comfortably away from most estimates of neutral. If we wait too long, the removal of the “accommodative stance” sentence could be taken as signaling the precise level of r^* , which

could convey a misplaced sense of precision. Today’s press conference will provide an opportunity for the Chairman to clarify this change in language. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I support a 25 basis point increase in the funds rate at this meeting and alternative B as written. Inflation has moved up to target, and labor market conditions remain tight. The recent uptick in wage growth is welcome, and if that growth translates into a bit more price pressure, that would be welcome as well.

The recent fiscal stimulus may in part be responsible for the strengthening in inflation and could cause inflation to modestly exceed our target in the near future. Those tailwinds will likely be transitory, as the tax cuts may not be permanent and current levels of government spending may be unsustainable. Thus, I believe that any overshooting in inflation will likely be short-lived, and that future policy should err on the side of caution when considering the appropriate degree of tightening in response to inflation exceeding target.

With the transitory increase in demand, the price level will need to rise only modestly. Firms facing price rigidities will not respond in an aggressive manner to this type of shock. We have considerable credibility, which will afford us time to act, should price pressures begin to build more strongly than I envision. Some overshooting of our inflation target will not unleash the inflationary dog and will not threaten our credibility as responsible inflation targeters. Additionally, we will need to look through the tariff-induced response of prices in order to assess the fundamental degree of price pressures in the economy.

Further, I do not believe that the economy is quite as strong as recent GDP growth implies. Gross Domestic Income growth has been a bit weaker, and the measure computed at the Philadelphia Bank that optimally combines the two, which we call “GDPplus,” indicates growth

roughly ½ percentage point lower growth this year than what one observes when looking at GDP expenditure on its own.

For these reasons, I have not penciled in another rate hike for this year and envision only two rate hikes in each of the succeeding two years. Of course, incoming data may cause me to revisit this policy stance before December.

I also find myself, as others have said, looking forward to our December meeting when we take an intense look into our longer-run framework. I appreciate and share the Chair's concern for the importance of this discussion. The topic raises difficult issues, and the assembled team looks ready to give us the detailed and in-depth background that will be required for an informed assessment of the alternatives, and I thank them for their work. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I support alternative B as written. I do believe we should be gradually and patiently removing accommodation, at least until we get to a level that approximates our best estimate of the neutral rate. As I say this, I'm mindful of the following issues. Number one, monetary policy acts with a lag.

Number two, I still believe that the effect of fiscal stimulus will likely fade in 2019 and further in 2020, and that current economic data—incoming economic data—are being heavily influenced by fiscal stimulus. As a result, I'd prefer to say that my views on future monetary policy moves will be more dependent on the outlook than dependent on current data, because I believe the current fiscal stimulus is having a substantial effect on current economic data.

Number three, our tools in a downturn, I think, are likely to be less potent than in the past—that is, it's easier to tighten than to ease, and I'm cognizant that in the next downturn, there

may be less capacity for fiscal stimulus due to the path of current government debt-to-GDP and high deficits.

All of this suggests to me that, as we move gradually and patiently, we should not be predetermined about what we might do once we've reached our best estimate of the neutral level, which I understand will be a range, and we'll have a debate about that. And I'm also keeping open in my mind the possibility that the economic outlook by mid-2019 may look very different from the outlook today due to, again, waning fiscal stimulus at the same time that the effect of our current rate increases is taking hold. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Let me start by saying that I support President Mester's suggestion for "regular review" of our framework. I think that that is a best practice for central banks. I think the Bank of Canada has led the way on this, and we should do this, especially during a period when things are going well for us, with inflation at target and the economy doing very well. It's not realistic to think that any framework is going to last over many decades, so there should be minor tweaks, probably, over time. But you want to do that in a way that gets the discussion out of, and away from, the day-to-day grind of monetary policy. So I support her suggestion. I know others on the Committee have talked about this both here at the Committee and outside the Committee meetings.

I have projected no planned rate increases over the past two years. I've not put rate increases in the SEP. In my view, it's not been appropriate to signal that we knew for sure the right path of policy. During that time, the economy has consistently surprised to the upside, as mentioned by Governor Clarida yesterday. I tried to look at what the Committee thought would happen as of the January 2017 FOMC meeting, and it looks to me like 2017, on real GDP

growth, surprised to the upside by about $\frac{1}{2}$ percentage point over what we thought at that time, with 2018 now surprising by about 1 percentage point on the growth rate compared with that time, and even 2019—another $\frac{1}{2}$ percentage point on GDP growth. So it has been a period of upside surprise for the economy, and if you add all of that together, you get about 2 percent on the level of real GDP. That's a substantial upside surprise. In my view, this has justified some policy rate increases during 2017 and 2018, and I've gone along with these as they have occurred, based in part on the idea that the economy has surprised to the upside.

The Committee has also established during this period a plan to allow the balance sheet to run down, which is, I think, serving us well. And I think we should keep in mind that the size of the balance sheet is shrinking faster than you think, because the economy is also growing. So it's really the size of the balance sheet relative to GDP that matters. And that's, in my opinion, going very well.

Altogether, the rate increases plus the balance sheet rundown have put the Committee in a good position today. In my opinion, we've been preemptive against possible inflation pressure during a period when inflation was running below target. Since we've already been preemptive, it's not clear in my mind what the next direction of monetary policy needs to be. I think we should be data dependent and look at what's going to happen. I agree with President Kaplan that the good news on the economy will not continue forever. We have to be prepared to pause, if necessary, when the moment comes.

I think the Committee should, generally speaking, be more cognizant of market signals than is often the case here. We're very model-centric in our analysis. In particular, I think we should avoid inverting the yield curve deliberately and therefore pushing recession risk higher than necessary, as outlined by David Wilcox yesterday.

I would stress, on this argument, a couple of points. The yield curve is not inverted today, so it doesn't surprise me that recession probability models say that the recession risk is low today. We have very strong growth, with everything looking good today. So I think it's a bit of a sleight of hand to say that recession probabilities are low today. The point is, are we going to deliberately invert the yield curve, let's say, over the next year? And even then, the yield curve would have to not just invert for a moment, but also stay sustainably inverted for a period. Even then, a straight read of the data would say it would be 15 months after that before you'd get any kind of downturn, presuming that the effects that have been there historically would repeat themselves. So, in the presence of those kinds of time lags, I think the issue of what to think about the yield curve and what to think about yield-curve inversion will be with us for a long time to come, and it'll be part of the debate here for quite a while.

I would point to the late 1990s as a successful case which we should try to emulate. In the second half of the 1990s—let me start a little earlier. In the middle of the 1990s, this Committee raised the funds rate a shocking 300 basis points in a single year. But the Committee did stop at that point, and the yield curve did not invert in 1995 or, indeed, all through the rest of the 1990s. You had a positive slope to the yield curve, and the slope ranged anywhere from 0 to 100 basis points. The long-term average on the yield curve spread between the 10-year and the 2-year rates is about 70 basis points.

So I consider the late 1990s a successful case. That was a point when we did normalize monetary policy according to that era, but we didn't overdo it, and we got very good outcomes for the economy, including extremely low unemployment rates, which helped us a lot. When the yield curve did invert in 2000, sure enough, recession followed not too long after. So I think we should keep that particular case in mind when thinking about this issue. But it's going to be with

us for a long time. And the good news is, the yield curve is not inverted today, so we don't seem to have too much problem today. And, like President Kashkari, I'm a little bit encouraged that maybe, indeed, the 10-year Treasury yield will move up, as we've been expecting, and we'll keep an eye on that, based on recent observations on that particular yield.

I also think, as I was discussing yesterday, that the FOMC should give more consideration to the asymmetric loss function idea. This is something that was presented by Thomas Laubach in a presentation to the FOMC several meetings ago. In my opinion, it better reflects Committee views on how we probably are thinking about the economy. We had some news yesterday about Ed Knotek's Taylor rule calculation using the SEP. That calculation seemed to indicate that the Committee was putting less weight on the unemployment gap than you would otherwise—possibly close to zero weight on the unemployment gap—which would suggest to me that we're not taking that much signal for inflation on the basis of the good labor market performance. That makes a lot of sense: When you get to a situation like today, with inflation at target and good labor market performance, you could just focus on the inflation part of the mandate—let's keep inflation close to target—and that would be the right thing to do when unemployment is low and the Phillips curve is flat. But, just focusing on inflation, you're going to guard against the possibility that you would get a sudden upsurge in inflation. But you don't have to pencil in the idea that the unemployment rate has to go up 90 basis points or 100 basis points in order to keep inflation under control.

So if you look—just to remind you—at Tealbook A's "Monetary Policy Strategies" section, you do get very similar inflation outcomes, but with a very flat policy rate projection, if you take this asymmetric loss, optimal control exercise seriously, and I think we should take it seriously. So I'd like to perhaps talk more about that at future meetings.

I'd be remiss if I didn't mention my views on the Dallas Fed trimmed mean, of which I've been a proponent for a long time. I very much enjoyed the memos on this. I thought they were very well done. I have long felt that the Dallas Fed trimmed mean is a good idea for this Committee. I would take the bottom line of the memos to be that it has good properties as a trend measure of inflation.

I think it's just, generally speaking, a better idea for this Committee to refer to the Dallas Fed trimmed mean rate as opposed to core inflation. The core inflation calculation arbitrarily cuts out two categories of prices, food and energy. The problem with that from a communications perspective is that, for most people, their market interaction is actually going to the grocery store and going to the gas station. So it's very bad public relations for this Committee to say that we're ignoring the prices that people experience the most, day to day. The trimmed mean, I think, helps us with that. It amounts to a more rigorous technical measure of what we're trying to get at in terms of underlying inflation.

Finally, I think this would have helped us a lot in 2017. So 2017 was our test case for whether we should look at core inflation or the Dallas Fed trimmed mean, but in 2017, you had this special event in March, when cell phone prices declined precipitously. Because we focus on core inflation, we spent the entire year telling the markets and whoever else would listen, "Oh, this is all temporary, and it's going to roll out of the year-over-year comparison," which it did. But if we had focused on the Dallas Fed trimmed mean, there would have been no cause for telling that story, because the Dallas Fed trimmed mean did not decline precipitously the way core inflation did; the Dallas Fed trimmed mean naturally took out these big declines in cell phone prices.

So there's a lot to be said for this measure. I know a lot of people here have been referring to it more and more, and the staff has been using it more and more in analysis, and I think that that's all healthy and good.

Lastly, I support alternative B for today. I do think that the removal of the “accommodative” language sets the Committee up to pause if desired, but not necessarily, which is, I think, exactly what we'll need over the next year. And I also am hopeful regarding the press conferences at every meeting—the next meeting will be the last meeting that doesn't have a press conference afterward. All meetings after that will have a press conference. That will allow the Committee and the Chair a great deal of flexibility and allow us to be more data dependent, which is what we'll need from now on. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Mr. Chair. The economy is continuing to expand rapidly at a time when we're already beyond most estimates of full employment and inflation is at target, and there's substantial fiscal stimulus in the pipeline, which will likely keep the economy growing at an above-trend pace into next year.

I believe it remains critical to return underlying trend inflation to our 2 percent inflation objective. We are on track to accomplish this. But there are risks in running the economy “too hot.” As we know from previous episodes, the dynamics of inflation expectations may change unpredictably at very low unemployment rates, and financial imbalances may reach unsound levels.

A gradual pace of funds rate increases seems appropriate to achieve the important goal of anchoring underlying trend inflation at target, after a long period of undershooting, while recognizing that the short-run neutral rate is likely rising due to rising tailwinds. Like many of

you, I do find the neutral rate of interest to be an important frame of reference. But in periods when the economy is buffeted by headwinds or tailwinds, I find it helpful—indeed, vital—to distinguish between the short-run and long-run levels of the neutral rate. The longer-run neutral rate—which is the focus of most of our discussions here—is the appropriate equilibrium in circumstances in which the economy has converged to its longer-run trend, after headwinds or tailwinds have played out, in an environment of full employment and stable inflation. But in the shorter run, the neutral rate doesn't stay fixed but, rather, fluctuates along with important headwinds or tailwinds. For that reason, whenever there are material headwinds or tailwinds, the shorter-run neutral rate, rather than the longer-run federal funds rate, is the relevant benchmark for assessing the near-term path of monetary policy.

The shorter-run neutral rate tends to be cyclical, falling below long-run neutral in recessions and rising during expansions, and estimates suggest the current expansion is no exception. Indeed, Janet Yellen often made the case for the shorter-run neutral rate being below its long-run equilibrium value during a time when the Committee kept the federal funds rate, in real terms, negative for nearly a decade. And this was instrumental in reducing the unemployment rate to pre-crisis levels, as happened last year.

This year, at the same time that the federal funds rate has increased, the unemployment rate has fallen further, and job market gains have gathered strength. That combination suggests that the short-run neutral rate has increased. If, instead, it had remained constant, as the federal funds rate increased, we would have expected to see labor market gains slow.

That intuition is supported by the formal model estimates. It's also corroborated by the observation that financial conditions overall have remained quite accommodative during a period when the federal funds rate has been moving higher. It also lines up with the latest FOMC SEP

median path, which shows the federal funds rate projected to rise to a level that exceeds the longer-run federal funds rate during a time when real GDP growth is expected to exceed its longer-run trend rate and unemployment continues to fall. That circumstance has been described as restrictive by some.

Yesterday, we discussed some specific factors that may be expected to push the short-run neutral rate above its longer-run trend in the next year or two—in particular, the sizable deficit-financed fiscal stimulus in the pipeline as well as the relatively “rich” level of current asset valuations. Further out, the neutral rate and the policy rate path will depend on how the economy evolves.

As I’ve indicated previously, I strongly support the proposal to remove the reference to “accommodative” from the statement. To be clear: I don’t believe the federal funds rate is approaching its neutral rate. As I just explained, my estimate of the short-run neutral rate has moved up. Rather, I believe that the language—which was originally intended as forward guidance—has outlived its usefulness and no longer provides meaningful information about the Committee’s reaction function.

Finally, with fiscal policy and the economy’s momentum likely to push the short-run neutral rate above its longer-run level, it’s not surprising that in most of our SEP submissions, the setting of the federal funds rate exceeds current estimates of the longer-run federal funds rate. That raises the possibility of a flattening or inversion of the yield curve in the event that term premiums don’t rise from their current, very low levels. Around this table, we’ve discussed at some length the historical observation that inversions of the yield curve linking the 3-month and 10-year Treasury rates have had a relatively reliable track record of preceding recessions. But today the 10-year yield is about half the average during these historical episodes.

To the extent that the historically low level of the term premium globally reflects the asset purchases of central banks in several major economies, if the term premium rises as the effective asset purchase programs diminish, the effect may be to forestall that yield-curve inversion. But if the term premium remains very low—due to some other factors that we’ve discussed—even a modest tightening that might not have led to an inversion historically could do so today without necessarily providing the same signal as in previous decades.

So I will keep a close watch on movements in the yield curve. But I want to interpret such movements holistically, as one of our colleagues said in an earlier meeting. Indeed, that uncertainty about the yield curve is one of the compelling reasons to continue raising interest rates gradually, as we’ve done so far. In the absence of an unexpected acceleration of inflation or financial imbalances, that gradual pace should give us some time to assess the effect of our policies and make course corrections as we proceed. In short, with the economy at, or beyond, full employment, inflation at target, and fiscal and financial tailwinds reinforcing above-trend real GDP growth, continued gradual increases are likely to be appropriate.

Beyond the near term, how much further the short-run neutral rate is likely to rise and whether it flattens or retreats will depend on a variety of developments—whether fiscal stimulus is extended or expires, whether foreign and trade risks grow or recede, and whether financial system vulnerabilities extend. The gradual pace implicit in the SEP’s median policy rate path incorporates a degree of caution—which is appropriate, in my view. For all of these reasons, I support alternative B. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. First, I need to address something that I forgot to do yesterday. Since transparency is my lodestar—it wasn't me [laughter]—I am SEP participant number 14.

I support alternative B as written. An increase in the policy rate at this meeting is consistent with the gradual path that the Committee has communicated and been following. In particular, I support the removal of the “remains accommodative” language. I think Governor Brainard expressed it perfectly, at least the way I'm thinking about it, which is, it's not that I think that we actually have reached a neutral level. In fact, my estimate of the long-run neutral level is higher than most people's on the Committee. But the language was important when policy normalization was first initiated. It was a useful reminder that those first post-crisis hikes didn't signal an intent to slow the economy. But, at this point in the process of normalization, the utility of that language has faded. And taking it out now saves us the trouble of trying to communicate exactly when it is that we think that policy is no longer accommodative, which is a tipping point that will be impossible to identify with precision and, hence, over which there's going to be a wide divergence of opinion around this table.

As I discussed yesterday, I'm fairly optimistic about the potential growth rate of the economy as well as the capacity for increases in labor force participation to provide additional slack to be taken up, thereby restraining increases in prices. Certainly, inflationary pressures appear to remain modest, with the most recent data, which consisted of the August CPI, even surprising a little bit on the downside. So, all in all, I think the data have been very supportive of this gradual approach toward removing policy accommodation that we have been following.

As part of that gradualism, in my utopia, I would be most comfortable continuing the gradual slope of policy normalization that we have been on, which would be three rate increases

this year and not one in December. As I said yesterday, I haven't changed my economic outlook since the beginning of the year. In the March SEP, I wrote down an optimal policy rate path that included three rate hikes in 2018. The economy has been surprising some people to the upside. But, as the data have largely come in as I expected at that time, a consistent approach to monetary policy would maintain the same optimal policy rate path. A change in the profile of risks might shift that optimal path even as the baseline forecast is unchanged. But if anything, I'd argue that the risks have increased, to a minor extent, as the year has progressed. The foreign outlook is a little cloudier, after a very upbeat start to the beginning of the year. Trade tensions continue to escalate.

But, most importantly, my view about what gradualism would imply for our future rate path has to do with two differing views of the meaning of the mantra of data dependence—the two potential images that could be conjured. The first is a wholly salutary intellectual openness and humility. I think it was Thomas Carlyle who said—when he heard that Margaret Fuller had said, “I accept the universe”—“Gad! She'd better.” But the other potential image of data dependence is that of the mad scientist in the laboratory—with the beakers overflowing, with the dry-ice smoke and the spark jumping between the two wires—fiddling with the dials with precision, which is a level of science and precision regarding what we are doing that I think is beyond our powers. So, for me, our job is to articulate clearly a general path without fiddling with the dials, still remaining intellectually open to large signals that are given us. And I think that continuing the path that we had previously articulated gives us an opportunity to evaluate the underlying strength of the economy, confirm that inflation has indeed firmed at its target, and assess the effects of our tightening up to this point.

Additionally, a logistical advantage of that approach would be that, with a press conference following every meeting after November, not moving in December doesn't lock us into anything for very long and would provide an opportunity only six weeks later, in January, to demonstrate immediately that every meeting is "live." So the signal value of skipping December would be an affirmation of our commitment to gradualism while also an immediate demonstration of the flexibility of the new communication strategy. That said, we would have to provide careful communication of the message that not moving in December was not a pause. That doesn't mean that we're done, especially in the context of the removal of the "remains accommodative" language from this meeting's statement.

As I've said a number of times, I continue to be an r^* optimist. My estimate of the longer-run policy rate is at the high end of Committee estimates—it used to be the tippy-top, and now someone has beaten me—which is consistent with a higher projection of potential growth. But as Thomas has pointed out, many estimates of r^* have been inching up recently. And as r^* increases, any given setting of policy becomes more accommodative so that more hikes are likely coming. That said, while there are arguments on both sides, I think we can afford to be patient. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Mr. Chair. Wow, how am I going to follow that? Okay. I'll be a little bit more boring. But those were great insights given by Randy.

I support a decision today to raise the target range for the funds rate by 25 basis points, and I prefer the language in alternative B. For the first time in a very long time, the Committee is achieving—or, in the case of our unemployment objective, perhaps more than meeting—both pillars of our dual mandate. The momentum in the economy appears to be robust. The labor

market is strong. And even after today's decision, the federal funds rate will, for the first time in a decade, be only barely above our inflation objective.

I'll talk a little bit about market-based measures, piggybacking off President Bullard. Market-based measures of our policy normalization path obtained from interest rate futures suggest that the markets have priced in several more rate hikes over the next year or so. And, importantly, market-based measures of inflation expectations have rebounded to levels that I interpret as consistent, but just barely, with our long-run inflation objective of 2 percent.

I believe that these inflation expectations proxies discount at least some of the additional rate hikes that the Committee believes will be consistent with economic expansion and inflation near our 2 percent objective. And this tells me that we are not yet in a situation in which a contemplated firming of monetary policy would be expected to push inflation expectations below our 2 percent target. However, that said, these market-based measures of inflation expectations are still somewhat below where they were at a comparable stage in the previous cycle, so I'm certainly not complacent about it.

So, maybe just a bit of an aside about how I think about market-based information—I don't ever want to be handcuffed to it, but it's certainly something I want in my inbox every morning to look at.

I support a decision today to delete the language saying that "policy remains accommodative." If we decide to delete this language today, there may inevitably be questions as to what motivates the Committee to remove the language now, as opposed to doing so at some future meeting. Speaking for myself, I think it makes sense to do so at a meeting in which we raise the target range for the funds rate above our 2 percent inflation objective, but before that target range begins to overlap with some individual participants' estimates of the longer-run

neutral rate. If we were to delay the decision to such a point in time, it could convey to the public a sense of precision about our estimates of r^* that does not accurately reflect the uncertainty about these estimates.

If I may look ahead a little bit, as I see that this is an allowed custom here, while I believe it will likely be necessary over the next several years for monetary policy to enter restrictive territory, at least relative to my estimate of r^* , so that we could contain any potential overshoot of core inflation. This has been the case in previous cycles. I personally expect that the required adjustment in the policy rate relative to my estimate of r^* may be somewhat more modest than in past cycles. And in making this assessment, I'm factoring in a scenario in which the relative stance of fiscal policy—in particular, Treasury bond supply—could push up not inflation compensation, but the real term premium on government bonds back to a level more consistent with historical experience, and also based on what we saw in the international briefing.

Our relative stance of policy under this scenario could give additional support to the dollar. So, were this to occur—a return to a more normal term premium and dollar appreciation—given our stance of policy, it could mean that the longer-run policy rate consistent with our dual-mandate objectives could be somewhat lower than if we did not see a rebound in the term premium or this response of the dollar. Of course, neither of these is preordained. I'm just outlining one scenario. And there remains significant uncertainty about the point at which policy inflects from accommodative to restrictive. But at least that's one factor I'd think about in terms of longer-term scenarios. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I support alternative B. I find today's decision relatively straightforward. We've outlined the gradual path. Growth, inflation, and

unemployment have all tracked about as we expected and as I reflect in my SEP, which is little changed from June. We're still, in my judgment, a long way from restricting the economy, so we ought to stay on the path we've outlined and raise rates today.

How we want to position policy for the next year is a more complex question. We're nearing many estimates of the neutral rate, several of which are drifting up as the economy performs well. The data are unlikely to stay as consistent, and we could see shocks on both the upside and downside that would force us to consider restricting or loosening.

As I said yesterday, those shocks could show up in inflation and financial excesses, but also in supply constraints. Supply constraints, should they occur on a large scale, could muddy the metrics we normally watch. Growth in employment could slow because of overheating rather than tightening. Inflation could increase, but anchoring might limit that signal, too. So, in addition to our usual metrics, I plan to also watch the classic indicators of constraints, such as job vacancy rates, service levels, and stock-outs.

On the statement, I quite like the new—and might I say “terse”?—statement we're approving today. I think it gives us maximum flexibility to send, with minimum confusion, any signals we will want to send when the time is right.

CHAIRMAN POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I support alternative B and increasing the federal funds rate target range 25 basis points, to 2 to 2¼ percent. I also support removing the characterization of monetary policy as accommodative at 2 to 2¼ percent. This is below my long-run funds rate of 2¾ percent. And I agree with Governor Clarida: In the presence of all of the uncertainties, it's better to remove any suggestion that we have a precise characterization of monetary policy today.

My SEP submission envisions raising the funds rate to a range of 3 to 3¼ percent by the end of 2019. So I also support paragraph 2 language that includes “further gradual increases.” By my long-run funds rate, a funds rate endpoint range of 3 to 3¼ percent is modestly restrictive in 2019 and through 2021. I will monitor different assessments based on our shorter-run assessment of the neutral funds rate, but for today, I don’t think that’s critical.

I see inflation slightly above our 2 percent objective, with core PCE inflation at 2.2 percent in both 2020 and 2021. With sustained growth and strong labor markets through the forecast horizon, this is a good place for monetary policy to be. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. I, too, support alternative B. As we move into 2019, judging the stance of policy will become increasingly challenging, in my view. The gradual path of interest rate increases has moved the stance of policy closer to neutral in the context of today’s tight labor markets and inflation near target.

Yet as policy accommodation has diminished, financial conditions overall have actually eased, as illustrated by a number of financial condition indexes, including one we publish at the Kansas City Fed. At the same time, we are more directly confronted with the uncertainty associated with a wide range of estimates of the neutral rate. At this stage in the normalization process, it seems to me that we must be particularly vigilant in calibrating policy in order to best promote long-run sustainable growth, consistent with our objectives, including the risk to the financial system that could impede the attainment of the FOMC’s goals.

Under these conditions, removing language in today’s statement about the accommodative stance of policy seems appropriate to me. And, although I continue to think additional increases in the federal funds rate could be appropriate, we may need to consider

further adjustments to the language at upcoming meetings that allow the Committee to take a systematic, and perhaps even more patient, approach to its policy decisions based on the outlook as it is influenced by incoming information on the economy, rather than following what may become viewed as a preset course of further gradual increases at every other meeting. Thank you.

CHAIRMAN POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chairman. I support the policy action in alternative B and have no comment on the proposed statement language. I am comfortable dropping the “accommodative” language—I guess I do have a statement. [Laughter] Retract that. Just strike that. [Laughter] So I am comfortable dropping the “accommodative” language—and I’m going to make my statement now—for the same reasons articulated by my colleagues here. And, like them, I take comfort in the Chairman having the opportunity to explain our rationale at today’s press conference. We’re counting on you, Mr. Chairman.

At the previous meeting, I noted that even though the data in the second quarter were stronger than I had expected, I did not take that as a signal of stronger real GDP growth in the period ahead, and I felt comfortable with a total of three 25 basis point moves this calendar year. Since then, the data have continued to be stronger than I anticipated, and, as a consequence, I have again moderately increased my growth outlook through 2019. If the data come in over the next couple of months consistent with this new forecast, then I think it will be appropriate to pull forward the timing of rate increases a bit, to four increases this year.

For me, this is about timing and is not a change in the overall strategy. As before, though, I would not advocate moving policy beyond the range of estimates for neutral, which I have at between $2\frac{3}{4}$ and 3 percent, and I would not be in favor of moving us into a more

contractionary policy stance without seeing more and clearer evidence that the economy is overheating. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. I support alternative B. Since our previous meeting, inflation has reached our target, wage growth has picked up somewhat, long-term rates have picked up slightly, and economic growth has been strong. In this context, raising rates today is appropriate.

Looking forward, I'm more focused on our communications about the future path of monetary policy. Assuming that inflation and inflation expectations remain close to target, I believe we should move gradually to a neutral policy stance. In contrast, the Tealbook and the SEP outline a more contractionary policy rate path, with the federal funds rate significantly overshooting its long-run rate. Let me explain why I think such a policy would be a mistake in the absence of an increase in inflation or inflation expectations.

First, I don't buy the argument that the economy is operating far above potential and thus at risk of overheating. Ongoing strong job growth and modest nominal wage growth suggest we have yet to reach full employment. We should let growth continue as long as people are willing to continue entering employment. And you've heard me say this before: Trying to assess supply and demand in a market starts by looking at the price. The idea that the U.S. economy is running above potential but it's not showing up in price, or that there are big labor shortages but it's not showing up in wages—both of those tell me we're probably not really at full capacity yet.

Second, I don't think that we should raise rates more sharply to offset the expansion in fiscal policy. There are three scenarios I see. One is that the fiscal expansion, just by virtue of leading to the issuing of more debt, leads to longer-term higher inflation. Well, that's a

possibility, but there's no evidence for that right now. Long-term inflation expectations are anchored. So that scenario doesn't seem to be happening.

The second scenario is, it's just sugar. It's just temporary sugar. It doesn't affect long-term inflation expectations. If it's just sugar, we should just let the sugar burn itself off. I don't see why we would have to respond to that.

The third is, it actually leads to more investment, which also should not be inflationary. It's going to increase the productive capacity of the economy. So, absent some uptick in long-term inflation expectations, it isn't clear why we would respond to a fiscal stimulus that's been passed.

My third point is about financial stability. Several members of the Committee, this time and in previous meetings, have talked about financial stability concerns as a reason to raise rates. I've obviously been very outspoken publicly about the need to increase capital requirements for the biggest banks because of financial stability concerns. I've not been as focused on the countercyclical capital buffer, just because it's relatively small compared with what I think is needed. Nonetheless, I've been pushing my staff to analyze the relative costs of using monetary policy versus bank capital requirements to address financial stability risk.

Now, this is an inexact science, as is a lot of what we do here, but no matter how we do the analysis, raising rates is many times more costly to the real economy than raising bank capital. I mean, it's anywhere from a few multiples more costly to an order of magnitude more costly in terms of cost to GDP and cost to jobs. And I think it's intuitively obvious that we should use the lower-cost tools before we use the higher-cost tools. So as we think about financial stability risks, I would encourage us to think in that capacity.

Finally, overtightening creates its own risks. You know, David talked about the yield curve in the context of recessions. If we slowed the economy to forestall inflation that is not, in fact, materializing, we are increasing recession risk. Whether it's a case of literal causation between the yield curve and economic activity, or it's just a matter of creating a slow-growth environment in which we're more vulnerable to downside shocks, nonetheless we are increasing the odds that the economy gets hit with something just by virtue of raising rates. So I think we should proceed cautiously.

So, in sum, I believe we should communicate a plan to move gradually to a neutral stance while emphasizing that we will adjust the path of the policy rate as data evolve.

And the last thing on language, although not for this meeting—to avoid giving the impression that we plan to move beyond neutral into a contractionary stance, I would encourage us to drop the language soon about “further gradual increases in the target range” being “consistent”—I think we could be silent on what's going to happen to the policy rate path, just like we're being silent on where we are relative to neutral, and just let the data guide us and then respond appropriately. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Vice Chair Williams.

VICE CHAIRMAN WILLIAMS. Thank you, Mr. Chairman. This morning there's some chatter about a *Wall Street Journal* op-ed disparaging the usefulness of r^* in terms of thinking about monetary policy. I've been very encouraged by the comments, especially by the Governors this morning, highlighting the importance of this concept. So I will paraphrase Mark Twain: The rumors of the death of r^* are greatly exaggerated. [Laughter]

Okay. So, once again, I somehow find myself in full support of alternative B as written. At our previous meeting, I said that, barring any dramatic change in the outlook, it'd be

appropriate to increase the funds rate in September. Well, now it's September, and the incoming data have been in line with what I expected, or even better. Overall financial conditions remain quite supportive of growth, and I continue to project solid growth in real activity over the medium term. With the economy operating above potential for the remainder of this decade, I expect underlying measures of inflation to rise gradually, moving modestly above 2 percent by 2020.

Uncertainty associated with my projections is aligned with historical norms. And, in light of the sustained ongoing strength in the economy and the realized firming of inflation, our strategy of gradually raising rates has served us well in the past and remains appropriate now and for some time into the future. I anticipate that it'll be appropriate to raise the target funds rate to a level moderately above my assessment of its longer-run value, which I continue to put at 2½ percent. Such a policy rate path is designed to support ongoing economic expansion while minimizing the risks of overheating in terms of either inflation or risks and imbalances in financial markets. Although I am confident that we're on the right path, it is worth reminding ourselves that we don't have much experience operating with such low levels of unemployment as we're all projecting, and achieving the desired soft landing is easier said than done.

As our policy stance approaches neutral territory, it makes sense to remove the reference to an "accommodative" stance, and here I agree with the comments of Governors Brainard, Quarles, and Clarida and others. This language played a helpful role early in the normalization process, but retaining it would give the public the false perception that the Committee is confident in its ability to ascertain where neutral is, and that this demarcation is somehow pivotal to our decisionmaking. As I mentioned in the past, I see no benefit of adopting alternative language that bridges us forward, such as "somewhat accommodative." Again, introducing such

modifiers would lead to a misleading impression that the neutral rate, wherever that may be, is the primary determinant of our policy decisions. Thank you.

CHAIRMAN POWELL. Thank you. And thanks, everyone, for your comments. I hear broad support for a 25 basis point increase in the target range for the federal funds rate and also consensus for removing the “accommodative” language, which I will attempt to communicate in a way that suggests there’s no signal in doing so. And with that, I’m going to ask Jim Clouse to review what we’re going to vote on and then read the roll.

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

Chairman Powell	Yes
Vice Chairman Williams	Yes
Governor Clarida	Yes
President Barkin	Yes
President Bostic	Yes
Governor Brainard	Yes
President Mester	Yes
Governor Quarles	Yes
President George	Yes

CHAIRMAN POWELL. Thank you. Now we have two sets of related matters under the Board’s jurisdiction: corresponding interest rates on reserves and discount rates. So may I have a motion from a Board member to take the proposed action with respect to the interest rates on reserves as set forth in the first paragraph associated with policy alternative B on the last page of Thomas’s briefing materials?

MR. CLARIDA. So moved.

CHAIRMAN POWELL. Can I have a second?

MS. BRAINARD. Second.

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

MR. CLARIDA. So moved.

MS. BRAINARD. Second.

CHAIRMAN POWELL. Without objection. One other little piece of business I wanted to mention is that I've asked Rich to chair the subcommittee on communications and bring it back to life after a period of hiatus since Stan Fischer's departure. As you all know, the role of the subcommittee is to help prioritize and frame communications issues for the Committee and to reach out to all FOMC participants in identifying key themes and areas of common ground.

The most recent membership of the subcommittee included former Governor Fischer, President Mester, then-President Williams, and yours truly. And I want to thank all of you, except for myself [laughter], for your service and your many contributions.

The appointment of a new chair for the subcommittee has typically involved a changeover for the other members of the subcommittee, and that practice has been helpful in bringing new perspectives on board. So the newly constituted committee will include Governor Brainard, President Rosengren, and President Kaplan. And we look forward to hearing from this subcommittee at future meetings.

With that, our final agenda item is to confirm that the next meeting will be on November 7 and 8. It will be a relatively rare Wednesday–Thursday meeting, which means that you won't have to submit an absentee ballot in the midterm elections. It may be too early for

lunch for some of you, but we do have boxed sandwiches, which are excellent, and salads in the next room.

And thanks again, everybody. Great meeting, and I look forward to seeing you soon.

The meeting is adjourned.

END OF MEETING