

**Meeting of the Federal Open Market Committee on  
December 13–14, 2016**

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, December 13, 2016, at 1:00 p.m. and continued on Wednesday, December 14, 2016, at 9:00 a.m. Those present were the following:

Janet L. Yellen, Chair  
William C. Dudley, Vice Chairman  
Lael Brainard  
James Bullard  
Stanley Fischer  
Esther L. George  
Loretta J. Mester  
Jerome H. Powell  
Eric Rosengren  
Daniel K. Tarullo

Charles L. Evans, Patrick Harker, Robert S. Kaplan, Neel Kashkari, and Michael Strine,  
Alternate Members of the Federal Open Market Committee

Jeffrey M. Lacker, Dennis P. Lockhart, and John C. Williams, Presidents of the Federal  
Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

Brian F. Madigan, Secretary  
Matthew M. Luecke, Deputy Secretary  
David W. Skidmore, Assistant Secretary  
Michelle A. Smith, Assistant Secretary  
Scott G. Alvarez, General Counsel  
Michael Held, Deputy General Counsel  
Steven B. Kamin, Economist  
Thomas Laubach, Economist  
David W. Wilcox, Economist

Thomas A. Connors, David E. Lebow, Stephen A. Meyer, Christopher J. Waller, and  
William Wascher, Associate Economists

Simon Potter, Manager, System Open Market Account

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

Robert deV. Frierson, Secretary, Office of the Secretary, Board of Governors

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

Margie Shanks,<sup>2</sup> Deputy Secretary, Office of the Secretary, Board of Governors

James A. Clouse, Deputy Director, Division of Monetary Affairs, Board of Governors; Andreas Lehnert, Deputy Director, Division of Financial Stability, Board of Governors; Beth Anne Wilson, Deputy Director, Division of International Finance, Board of Governors

Trevor A. Reeve, Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

David Bowman, Andrew Figura, Joseph W. Gruber, Ann McKeehan, and David Reifschneider, 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

Antulio N. Bomfim, Robert J. Tetlow, and Joyce K. Zickler, Senior Advisers, Division of Monetary Affairs, Board of Governors; Wayne Passmore, Senior Adviser, Division of Research and Statistics, Board of Governors

Brian M. Doyle, Associate Director, Division of International Finance, Board of Governors; Stacey Tevlin, Associate Director, Division of Research and Statistics, Board of Governors

Stephanie R. Aaronson, Assistant Director, Division of Research and Statistics, Board of Governors; Christopher J. Gust, Assistant Director, Division of Monetary Affairs, Board of Governors

Don Kim, Adviser, Division of Monetary Affairs, Board of Governors; Karen M. Pence, Adviser, Division of Research and Statistics, Board of Governors

Penelope A. Beattie,<sup>3</sup> Assistant to the Secretary, Office of the Secretary, Board of Governors

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

Edward Herbst and Lubomir Petrasek, Principal Economists, Division of Monetary Affairs, Board of Governors

---

<sup>1</sup> Attended the discussions of the Rules Regarding Availability of Information and developments in financial markets and open market operations.

<sup>2</sup> Attended Wednesday session only.

<sup>3</sup> Attended Tuesday session only.

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

Mark L. Mullinix, First Vice President, Federal Reserve Bank of Richmond

David Altig, Executive Vice President, Federal Reserve Bank of Atlanta

Michael Dotsey, Evan F. Koenig, Spencer Krane, and Mark E. Schweitzer, Senior Vice  
Presidents, Federal Reserve Banks of Philadelphia, Dallas, Chicago, and Cleveland,  
respectively

Terry Fitzgerald, Giovanni Olivei, Argia M. Sbordone, Mark Spiegel, and Alexander L.  
Wolman, Vice Presidents, Federal Reserve Banks of Minneapolis, Boston, New York,  
San Francisco, and Richmond, respectively

Willem Van Zandweghe, Assistant Vice President, Federal Reserve Bank of Kansas City

**Transcript of the Federal Open Market Committee Meeting on  
December 13–14, 2016**

**December 13 Session**

CHAIR YELLEN. Okay, folks. Let's get started. Today and tomorrow's meeting is a joint meeting of the FOMC and the Board of Governors. I need a motion to close the Board meeting.

MR. FISCHER. So moved.

CHAIR YELLEN. Okay. Thank you. Without objection. I think most of you know that President Lockhart has announced that he plans to step down from his position early next year, and this will be his last FOMC meeting. Dennis has agreed to come back for a reception in January on the evening of the first day of the FOMC meeting, which will provide us with an opportunity to honor him appropriately and express our best wishes in a more festive setting than an FOMC meeting.

But I'd also like to make just a few remarks today. After a long and varied career in finance and academia here and abroad, Dennis joined the Federal Reserve in March 2007 as President of the Federal Reserve Bank of Atlanta. That was just months before the Global Financial Crisis. Fortunately, we all know that correlation is not causation. [Laughter] For the past decade, President Lockhart has ably represented the Federal Reserve in the Sixth District. He has contributed greatly to the System's work generally, including serving most recently as chairman of the Conference of Presidents. And, in the course of attending 79 FOMC meetings, he has enhanced the Committee's deliberations on monetary policy through his careful reporting on economic and financial developments in the Atlanta District, his thoughtful analysis of national conditions and the economic outlook, and his balanced approach to our policy decisions.

Dennis, we thank you for your service to the Federal Reserve, and we wish you all the best in the next phase of your career.

MR. LOCKHART. Thank you, Madam Chair. [Applause]

CHAIR YELLEN. Okay. Let us turn to our agenda. The first item pertains to “Proposed Revisions to Rules Regarding Availability of Information.” You recently received a staff memorandum that proposes certain revisions to the Committee’s rules regarding the availability of information. To summarize briefly, legislation passed earlier this year requires federal agencies to implement a number of changes to relevant information availability policies by December 27. Approval of the staff proposal would align the Committee’s FOIA rules with the new statutory requirements and would implement a number of additional changes, all of which are technical.

Let me ask: Does anybody have any questions for the staff about the proposals? [No response] Okay. If not, I suggest that we now have a single vote on the proposal, and I’m going to ask Brian to explain exactly what it is that we will be requested to vote on.

MR. MADIGAN. Thank you, Madam Chair. This vote will encompass three sets of items. For your reference, I might note that these items are included on page 2 of the staff memorandum under the heading “Procedural Notes.” First, the Committee would approve the adoption of the recommended changes to its rules regarding the availability of information. A tracked-changes version of the rules is attached to the staff memo. Second, the Committee would make two determinations that would allow the revised rules to be published in the *Federal Register* as an immediately effective interim final rule under the Administrative Procedure Act. One, the Committee would determine that there is good cause that public notice and comment on these amendments would be “impracticable, unnecessary, or contrary to the public interest.”

Two, the Committee would determine that there is good cause to waive the typical 30-day delay for the effective date of the rule. The staff believes that these determinations are reasonable because, one, the act requires agencies to implement the necessary changes to the rules in a very short time frame, and, two, the changes beyond those required by the act are technical in nature. Third, the Committee would authorize the Secretary in consultation with the General Counsel to do two things: one, to take the appropriate steps to reflect these changes in the rules and records of the Committee and submit the appropriate filings to the *Federal Register*, and, two, to appoint a Federal Reserve employee as the Committee's FOIA public liaison to fulfill the roles described in the amended rules.

A draft of the *Federal Register* notice, which includes a detailed description of the changes, was attached as appendix 2 to the staff memo. That notice is the proposal on which the Committee is being asked to vote.

CHAIR YELLEN. Okay. Do I have a motion to approve the proposal?

MR. FISCHER. So moved.

CHAIR YELLEN. And a second?

VICE CHAIRMAN DUDLEY. Second.

CHAIR YELLEN. Okay. Without objection. Okay, Brian.

MR. MADIGAN. Thank you very much. I just have an additional note. Although the interim final rule will be effective immediately upon publication in the *Federal Register*, the public will have 60 days to submit any comments. The staff anticipates that after the public comment period, the Committee will be asked, potentially at the March meeting, to make the rule final either as is or with changes, if warranted by public comment, and to authorize publication of the final rule in the *Federal Register*. Thank you.

CHAIR YELLEN. Okay. And let me next call on Simon.

MR. POTTER. It's a Board meeting as well?

CHAIR YELLEN. Yes, this is a Board meeting as well. We've already had a motion and closed the Board meeting.

MR. POTTER. Thank you, Madam Chair. I was just checking.

CHAIR YELLEN. Yes. We're now going to go to "Financial Developments and Open Market Operations."

MR. POTTER.<sup>1</sup> Thank you Madam Chair. The U.S. election outcome produced a significant repricing in financial assets over the intermeeting period. Market participants expect the new Administration to introduce expansionary fiscal policies over the coming years and to implement a shift in tax and regulatory policy that is thought likely to promote economic growth. While there is perceived to be a high degree of uncertainty about the ultimate nature, extent, timing, and effect of these policies, market participants expect the Committee to pursue a somewhat faster pace of policy normalization.

As shown in the top-left panel of your first exhibit, the nominal 10-year Treasury yield increased more than 60 basis points since the November FOMC meeting, the largest intermeeting increase since 2010. Although this is consistent with expectations of fiscal expansion, some contacts have suggested that nominal and real yields were too low earlier this year in relation to fundamentals. But market participants were hesitant to put on corresponding positions until the election-related risk event had passed. Meanwhile, the dollar jumped, domestic risk assets rallied significantly, and emerging market assets sold off.

Ahead of the election, market participants had expected a victory by Mr. Trump to cause the opposite domestic market reaction, driven by an increase in perceived economic and political uncertainty. Market participants now argue that the Republican control of both the legislative and executive branches of government and President-elect Trump's conciliatory comments on election night may have somewhat reduced such concerns.

In the most recent Desk surveys, we asked respondents to rate the importance of changes in expectations for various U.S. economic policies in driving the intermeeting change in the 10-year Treasury yield. The bubbles in the top-right panel are scaled by the number of responses and, on average, respondents rated changes to tax policy and government spending as the most important drivers. In the case of other economic policies that were rated less important, there was a much wider

---

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

dispersion of views, potentially suggesting greater uncertainty over the effect of the proposed policies. Respondents generally cited the same drivers as the impetus for dollar strength and higher equity valuations.

Alongside the shift in economic policy expectations and the apparent increase in risk appetite, the market-implied probability of an increase in the target federal funds rate at this meeting increased from approximately 60 percent at the time of the November FOMC meeting to 90 percent, as shown by the dark blue line in middle-left panel; this market-implied probability is consistent with responses from Desk surveys. Economic data and FOMC communications over the period reinforced market expectations for a rate hike in December, and the market-implied probability is now above what was seen just ahead of the December 2015 FOMC meeting.

Beyond this meeting, the market-implied path of the target federal funds rate steepened significantly, as shown by the shift from the light blue to the dark blue line in the middle-right panel. The unconditional survey-implied path, shown by the pink diamonds, also increased, and for the first time in at least the previous two years the market- and survey-implied paths are roughly equal. Despite the substantial repricing in the market-implied path, survey respondents generally do not expect the median SEP rate forecasts to change materially at this meeting, with some noting that it may be too soon for FOMC participants to adjust their forecasts.

As shown in the bottom-left panel, the distribution of respondents' expected outcomes for the federal funds rate of the year-end 2018, conditional on not moving to the effective lower bound, shifted right, with the average probability ascribed to the rate being at or below 1 percent falling from roughly 20 percent to less than 10 percent. The skewness of the distribution shifted slightly toward higher rates.

The bottom-right panel shows the probability individual respondents assigned to a move to the ELB sometime between now and the end of 2019 on each of the previous three Desk surveys. The bubbles are scaled by the percent of respondents, and the average probability, denoted by the blue diamonds, declined to roughly 20 percent in the most recent survey. This level is the lowest this year, and the dispersion of responses also fell a bit.

The top-left panel of your next exhibit shows the relative contributions of each of these factors to the change in the unconditional PDF-implied point estimates for 2018 and 2019. The shift toward higher rates, conditional on not moving to the ELB, accounts for the majority of the increase in the path, the dark blue area, followed by a reduction in the probability of moving to the ELB over the forecast horizon, the red area. Thomas will show further supporting evidence on the sources of the increase in the path from Eurodollar options and term structure models.

Despite the steepening in the expected path of the policy rate, the median survey respondent expects no change to reinvestments until the second quarter of 2018, roughly unchanged compared with the November surveys, as shown in the top-right panel. That said, 10 respondents cited expected changes to the composition of the



FOMC in 2018 as influencing their expectations regarding the timing of a change in reinvestment policy, and, interestingly, all but one of these respondents pulled forward their timing estimates.

Average PDF-implied mean expectations for the par value of SOMA at year-end 2019 were little changed. As a result, it seems unlikely that changes in expectations for the size of the SOMA portfolio contributed significantly to the rise in 10-year Treasury yields over the intermeeting period.

As a means of further informing our understanding of the rise in Treasury yields, the Desk surveys asked respondents to decompose the intermeeting period change in the 10-year yield. As shown in the middle-left panel, respondents, on average, decomposed the move fairly evenly across possible factors. However, there was a wide dispersion of views regarding this decomposition, with the exception of inflation risk premiums, which most agreed contributed to about one-fourth of the move in the nominal Treasury yields.

U.S. five-year, five-year forward inflation compensation as measured by inflation swaps increased roughly 30 basis points over the period, shown in in the middle-right panel, to the highest level year-to-date. The Desk's survey measures of expected inflation also moved up, and the distribution of PCE inflation in 2019 is now assessed as roughly symmetric around 2 percent. The increase in domestic inflation expectations and compensation was part of a global re-pricing. The roughly 15 percent increase in oil prices over the period was an additional contributor. That said, inflation compensation in the euro area and Japan still remains well below the central banks' respective inflation targets.

Consistent with higher growth forecasts and an increase in investor confidence, the S&P 500 index jumped by around 7 percent over the period. As shown in the bottom-left panel, financials outperformed dramatically. In fact, they outperformed the broader S&P 500 index by the largest intermeeting margin since 2009 and performed better than would have been predicted purely on the basis of the increase in interest rates and the appreciation in the overall stock market. Market participants attributed this outperformance to expectations of less stringent financial regulations. However, contacts are uncertain about exactly what form these regulatory changes might take, and Desk analysis has not found any differentiation in performance across banking sector shares that might indicate expectations for specific regulatory changes. Bank shares also outperformed markedly in Europe and Japan. The outperformance of industrials and materials sectors was attributed to expectations for increased infrastructure spending, while the stock prices of companies with higher effective tax rates that would benefit the most from potential changes to the corporate tax system also saw outsized gains.

As shown in bottom-right panel, the dollar appreciated broadly over the period. Supported by wider interest rate differentials, the broad trade-weighted dollar has now strengthened to its highest level in 14 years. Potential changes to U.S. trade and immigration policies reportedly weighed heavily on the Mexican peso, while

monetary policy actions in Japan and the euro area served to reinforce depreciation pressures on the yen and the euro.

As part of its yield-curve control framework, the Bank of Japan conducted a fixed-rate full allotment purchase operation for the first time, unexpectedly targeting the two- and five-year maturity sectors. Consistent with theory, the operations generated no demand but were effective in controlling rates. The JGB yield curve has been relatively stable since the introduction of yield-curve control in September. The bar chart in the top-left panel of your next exhibit compares the steepening of sovereign debt curves across the G4 by showing the change in the spread between the 2- and 30-year securities. As shown by the left bar, the JGB curve steepened by about 10 basis points over the intermeeting period. As you can see, this move is small compared with other countries in the developed world.

Meanwhile, the German yield curve, the right bar, steepened dramatically. The steepening was driven in part by a decline in short-dated rates and an increase in long-dated rates following last week's ECB meeting. The ECB announced an extension of its asset purchase program until at least December 2017, though starting in April the monthly pace of purchases will be trimmed to €60 billion. The ECB also announced some technical changes to the program's parameters to address a growing scarcity of eligible assets for purchase; most notably, securities trading below the deposit facility rate will be eligible for purchase beginning in January. We estimate that the parameter changes allow the ECB's asset purchase program to run until at least December 2017.

The abrupt re-pricing of longer-term U.S. Treasury securities has had a significant effect on the market value of the SOMA portfolio. As shown in the top-right panel, the unrealized profit, measured by the difference between market and book value, has declined by the largest amount since the "taper tantrum." It is important to note that after many years of QE and a longer period of official-sector dollar reserve accumulation, much of the decrease in market value is registering on central bank balance sheets.

Stepping back from the immediate price action and bearing in mind the failure of the market to price any of these moves before the election, market participants have cited several key areas of uncertainty. First, many market participants say that the nature, extent, and ultimate effect of any fiscal stimulus is quite unknown. Potential changes to U.S. trade and immigration policies are also viewed as key tail risks that have the potential to offset the macroeconomic benefits of other economic policies.

Additionally, market participants are reportedly concerned about political risk in Europe over the next year or so. As shown in the lower-left panel, the Global Economic Policy Uncertainty Index, the red line, has increased notably: The index is at its highest level since the beginning of the time series in 1997.

However, identifying market pricing that reflects these uncertainties is difficult. While some measures of implied volatility have increased a bit, the Desk's

standardized cross-asset implied volatility index, the blue line, is nearly one standard deviation below its historical average. The subdued levels of implied volatility across markets could reflect the difficulty in effectively pricing risk associated with events or policies for which the timing and effect is unknown and potentially might not materialize for some time. A simpler explanation is that there could be some complacency or overconfidence among investors.

A final and related risk identified by market participants is a further sharp appreciation of the U.S. dollar and the potential challenges it poses for China. As shown in the lower-right panel, the onshore renminbi, the red line, depreciated 2 percent against the dollar over the intermeeting period to its weakest level since the financial crisis. The persistent depreciation of the renminbi against the dollar has occurred amid large net capital outflows, the blue bars. Chinese government officials have reportedly responded by enhancing capital controls and by intervening to stem renminbi depreciation. China's foreign reserves declined over the intermeeting period and intervention activity is likely at its highest level since early this year. For now, market participants appear relatively comfortable with these developments concerning China, but if capital outflows increase significantly, global financial market instability may return. Brian will analyze possible reactions of the dollar to various scenarios in his briefing.

I will now turn to money markets and Desk operations on your final exhibit. The FX swap basis has widened across major U.S. dollar currency pairs, shown in the top-left panel. The basis indicates the implied cost of borrowing U.S. dollars offshore through the foreign exchange market, above what it would cost to borrow dollars directly at U.S. dollar LIBOR. If covered interest parity held, it would be zero.

Specifically, the one- and three-month FX swap bases have widened as investors have sought to secure U.S. dollar funding over the year-end date. The reduction in the size of lending by U.S. prime money market funds to banks had already reduced one alternative supply of dollar funding for foreign banks. The most pronounced widening has occurred following the U.S. election, as interest rate differentials between the U.S. dollar and other currencies increased. As yields on U.S. assets become more attractive and this increases cross-border purchases of dollar-denominated assets, demand for hedging in the FX forward market will likely increase, contributing to a further widening of the swap basis. Lastly, emerging market reserve managers reportedly reduced their provision of dollars in the FX swap market since the U.S. election, as they maintained higher levels of liquidity to prepare for possible FX intervention to support their currencies. The further widening of the basis might produce more demand at the dollar auctions run by central banks in the standing swap network, particularly over year-end.

In domestic funding markets, we have observed a significant decline in overnight secured rates in recent weeks. The average Treasury triparty ex-GCF repo rate, which is the market in which the bulk of money market fund lending in the repo market occurs, has fallen to 28 basis points this cycle, compared with 33 last intermeeting period. As shown in the top-right panel, rates on triparty repo

transactions for Treasury collateral have shifted lower since the middle of November and have been largely concentrated at or just above the 25 basis point ON RRP rate.

We observed an increase in the number of triparty repo transactions executed below the ON RRP rate, although the overall magnitude of such trades remained relatively small. Cash lenders at these low rates were exclusively non-RRP counterparties.

In addition to the increase in government money funds seeking investment in Treasury repo driven by money fund reform, some market contacts have noted that the recent rise in rates has reduced the market value of the collateral to fund. The rise in rates has also amplified demand to establish short positions in the Treasury securities market, which has served to increase the amount of securities trading special. When securities trade special, they are removed from the GC collateral pool, putting further downward pressure on the GC rate.

These factors had an even more pronounced effect on rates for Treasury GCF repo—a smaller market made up largely of transactions between dealers—which averaged 36 basis points this period, compared with 55 basis points last cycle. This effect has compressed the spread between the GCF and GC rates, shown in the middle-left panel. This spread represents the compensation required by dealers with large, stable repo funding bases to intermediate between money funds and smaller, less creditworthy dealers.

The increase in government money fund AUM and the lower levels of overnight secured rates were both reflected in ON RRP usage over the period. ON RRP take-up continues to be larger than earlier this year, with government funds making up the large majority of the increase, shown as the dark blue area in the middle-right panel. As a result of the lower level of repo rates, participation by government securities dealers, included in the red area, has also increased modestly, as the 25 basis points offered by the ON RRP facility has at times become attractive to them as an arbitrage activity.

Usage of the ON RRP is expected to increase materially as we approach year-end. The Desk recently conducted a survey of money fund counterparties to gauge their expectations for demand around year-end, shown as the gray bars in the panel. While respondents expect the ON RRP facility to see demand of around \$500 billion on the year-end date, the expected change from its current level is similar to that seen on previous quarter- and year-ends and smaller compared with year-end 2015.

One consideration with regard to year-end is whether some large government money fund and GSE counterparties may be limited by the \$30 billion individual cap on the ON RRP facility. The bottom-left panel shows a time series of the number and types of counterparties that have participated in the ON RRP facility at a level equal to or greater than \$15 billion, half of the individual cap. While this has occurred more frequently since the middle of this year as some government money funds have

grown in size, the number of counterparties participating at these levels on any given day has remained low.

In contrast to the movement in secured rates this period, the effective federal funds and overnight bank funding rates were unchanged at 41 basis points. As noted, all respondents in our surveys expect an increase in the federal funds target range at this meeting. Based on responses to the Desk's recent survey of money market participants, the median expectation is for nearly full pass-through of such a tightening to money market rates, shown in the bottom-right panel as a spread relative to the IOER rate. These expected rates are generally consistent with forward rates implied by financial markets.

To conclude, we would like to note that in the appendix, in addition to the usual summary of small value test operations that have been conducted by the Desk, you will find a short update pertaining to a memo that was recently circulated describing the Desk's operational readiness framework. Thank you, Madam Chair, that completes my prepared remarks. We would be happy to take questions.

CHAIR YELLEN. Thank you. Are there questions for Simon? President Lacker.

MR. LACKER. Yes, I have two or three questions. One is about the SOMA Domestic Portfolio Unrealized Profit and Loss on exhibit 3.

MR. POTTER. Yes.

MR. LACKER. There's also a figure in Tealbook B, and, for November 30, I wasn't sure if they lined up. Is there something conceptually different between those numbers? Because some of us are going to be eager trackers of unrealized capital gains or losses in the months and weeks ahead, I suspect.

MR. POTTER. That's very perceptive of you. I also noticed that. So, my reckoning is 80; they've got 120 there. I think there's a difference in definition and timing involved in that, but you're right. There is a bit of a difference.

MR. LAUBACH. I believe that in Tealbook B we are using our estimates of what we would show in the Quarterly Financial Report.

MR. LACKER. I see.

MR. POTTER. So I'm just giving you right up to what the controllers and markets tell us on that day.

MR. LACKER. Okay. I don't expect someone to regurgitate the difference now, but would it be possible to circulate a little write-up of what the difference is?

MR. POTTER. We will do that, yes. It's a question I raised this morning on the call.

MR. LACKER. Second, I really appreciated the overview of the operational-readiness framework. I'm a longtime supporter of the Desk's operational readiness and participated in readiness preparations, and I'm really glad to see the Desk taking a systematic approach to ensuring the Desk's ability to conduct operations that it is currently authorized to conduct.

I was intrigued, however, by the memo's reference to the Desk assessing the readiness to conduct operations that it may be asked to conduct, might not have ever conducted, and might not be authorized to conduct now. I was really curious about this. First of all, there's an appendix that shows 26 operations that have the highest readiness prioritization, and so you engage in regular readiness preparations. And I was really glad to see selling MBS was on that list. I want to commend you for that right off the bat.

MR. POTTER. We are authorized to do those types of open market operations.

MR. LACKER. But you maintain a catalog of 58 operations, and you just told us about 26 of them, and I didn't see the other 32 listed anywhere. These are things that you folks think you need to be ready to do, but we haven't talked about them here. I don't know if any of us have even thought about them. So, actually, I'm really curious about them. Does it take many resources to maintain some readiness for these things that we haven't even thought about doing? Have you assessed the likelihood of use? Have you ever discussed any of these with external parties by way of researching what would be involved in operations in some far-flung market or

in other—the imagination runs wild in this circumstance. I was wondering if you could make available the list of 32 to the Committee at some point.

MS. LOGAN. You're right that the three categories that are listed here are the categories of operations in which we're currently using resources, and that's why we focused on the three. There are about 30 other operations that we didn't list, and they cover a wide variety of things, including things we did in the crisis. Agency debt purchases would be one of those; TSLF Schedule 1 would be in that category. They also include things that we may have done pre-crisis—for example, options on repos that we did during Y2K would be one—and some things that we haven't done, such as municipal debt. There may have been things that people asked us about during the crisis, and we may have done a little work on them but didn't do any real operational work. They include a wide variety of things, and we can certainly share that. But we're not using resources on the things that are in those two categories today, and the purpose of this is to show you the things in which we are.

MR. LACKER. Okay.

MR. POTTER. We will be happy to share the full list.

MR. LACKER. Great. Are they all things that the open market Desk is legally entitled to do?

MS. LOGAN. Yes, everything there is within the Federal Reserve Act. For example, there are agency debt sales, FX forwards, FX swaps with private counterparties, purchasing spec pools instead of TBAs, or doing repos DVP instead of through the triparty system.

MR. LACKER. I see.

MS. LOGAN. So there are things that have been at this table.

MR. LACKER. Thanks.

MR. POTTER. It will be very exciting reading for everyone.

CHAIR YELLEN. Other questions? President Kaplan.

MR. KAPLAN. Is it your sense that the Chinese are selling Treasury securities to meet some of these redemptions?

MR. POTTER. Yes, as they have been for quite a while.

MR. KAPLAN. And that's continuing?

MR. POTTER. Yes.

MR. KAPLAN. And then the second thing. Do you think people are expecting—I know that it's not explicit—that once the exchange reserves run low enough the Chinese might be thinking about taking some preemptive action to stem these flows, such as a devaluation?

MR. POTTER. So I'll let Steve comment as well. They still have more than \$3 trillion in reserves and a current account surplus. So I don't think there's anything next week. The notion would be if this kept going for another 12 months, then that might show a bigger rundown in the reserves. Part of the fall in exchange reserves is due to the valuation effect, because they hold nondollar assets. If they're pricing in dollars, that moves it down. Also, because they previously sold quite a lot of short stuff in the intervention, their portfolio will also have market losses in it, as the rates have gone up and the way they report is that way. Steve.

MR. KAMIN. I think they've already taken one preemptive action, which is to tighten up capital controls on outflows, and, meanwhile, I think there is actually an active debate within China among different observers and policymakers over whether a preemptive large devaluation would help by delivering the devaluation people are worried about or hinder because once you do one devaluation, a lot of market participants expect more to follow.

MR. KAPLAN. Right.



MR. KAMIN. And history suggests they are correct. In other words, an awful lot of out-of-control depreciations start with a deliberate devaluation. So this is still up in the air. Our forecast is for neither a preemptive devaluation nor a very large and continuing depreciation. Our view is that a lot of the depreciation of the RMB against the dollar that we've seen is, more or less, in line with that of other currency movements and is in line with one of their standard objectives, which is to keep the RMB more or less stable against the basket of currencies, and, in fact, that has continued. So our forecast over the next few years is that they keep the RMB stable against this basket of currencies, more or less, and as a result of that, you get a little bit more depreciation of the RMB against the dollar.

MR. KAPLAN. Thank you.

CHAIR YELLEN. Other questions? [No response] Okay. Seeing none, I need a vote to ratify domestic open market operations.

MR. FISCHER. So moved.

CHAIR YELLEN. A second?

VICE CHAIRMAN DUDLEY. Second.

CHAIR YELLEN. Okay. Without objection. Let's move along next to our "Economic and Financial Situation." Stephanie Aaronson is going to start us off.

MS. AARONSON.<sup>2</sup> Thank you, Madam Chair. I will be referring to the "Material for Staff Presentation on the Economic and Financial Situation."

Your first exhibit summarizes the data received since the October projection, which corroborate that economic activity picked up in the second half of the year, as we've been anticipating for some time. As shown in panel 1, we expect real GDP to rise at about a 2½ percent pace, on average, in the second half of the year, up from a 1 percent pace in the first half. In addition, the BEA's first estimate of GDI in the third quarter, line 7, which we also find to be a useful signal of the strength of the economy, posted a large increase. The incoming data for the third quarter have been a bit stronger than we expected, but with much of the surprise in volatile categories

---

<sup>2</sup> The materials used by Ms. Aaronson and Mr. Doyle are appended to this transcript (appendix 2).

such as inventory investment and net exports, we now expect a smaller gain in the fourth quarter. As shown in panel 2, a number of System nowcasts of Q4 call for faster growth than the Board staff projects—suggesting some upside risk to our current-quarter projection.

The two employment reports we've received since the October Tealbook show that the labor market has continued to tighten. Payroll employment advanced at a solid pace, and the unemployment rate, the black line in panel 3, dropped 0.3 percentage point to 4.6 percent in November. Meanwhile, the labor force participation rate, the red line, has moved down 0.2 percentage point since September to 62.7 percent.

Our assessment is that the surprise in the unemployment rate will be only partially unwound—we have penciled in a forecast of 4.7 percent for December and in the first quarter. This view is partly informed by the labor flows data. As can be seen in panel 4, some of last month's decline in the unemployment rate reflected an increase in the transition rate from unemployment to employment—a development that we think is likely to persist.

In a longer view, the flows data on labor force entry and exit, shown in panel 5, indicate that entry into the labor force, the black line, has slowed over the past year or so, even as labor market conditions have continued to tighten. Nonetheless, exits from the labor force, the red line, have slowed even more, the result of which has been an improvement in participation over the past year. A look at the past few business cycles suggests that it is not unusual for exits to fall faster than entries as the unemployment rate nears the natural rate. These flows data suggest that workers are becoming more attached to the labor force as the expansion matures, perhaps reflecting better-quality job matches.

The first panel on your next exhibit compares the current path of GDP growth, the black line, with the one from a year ago in the December 2015 Tealbook, the red line. As can be seen, the data on GDP growth over the past year or so have surprised us to the downside, although our projection is little revised. Meanwhile, the GDP gap in panel 2, which takes into account some small revisions to our supply side, shows a bit lower resource utilization this year than in the December 2015 Tealbook, although by the end of 2018 the gap is essentially unrevised. Similarly, the unemployment rate in panel 3 was a touch higher than we anticipated for much of the past year but is little revised for the period ahead.

While GDP growth has been a bit weaker and resource utilization is little revised, the interest rate environment has been much more accommodative than we expected. Panel 4 plots the Treasury yield curve for 2016:Q4 as we projected at the time of the December 2015 Tealbook, the red line, and at present, the black line. Last December we projected the yield on three-month Treasury securities would stand at 1½ percent by now, about 1 percentage point higher than its current value. Meanwhile, the 10-year Treasury yield—despite its recent jump—is about 1¼ percentage points lower.

As we have informed you previously, we took some signal from these developments over the past year and marked down our assumption regarding  $r^*$  in the longer run. Taking into account the upward revision we made this round, our estimate of longer-run  $r^*$  is  $\frac{1}{4}$  percentage point lower than in the December 2015 Tealbook.

The most important change to our projection this round was that we assumed that an expansionary fiscal policy package would be enacted next year. Obviously, a substantial amount of uncertainty surrounds the ultimate form of any package, so this assumption is meant to serve as a placeholder pending further developments. As is summarized in panel 5, we assume the Congress will pass a personal income tax reduction worth 1 percent of GDP, to begin in the third quarter of next year. We applied a standard marginal propensity to consume out of this income of 0.7 percent, so over the next several years the tax cut boosts GDP by a cumulative 0.7 percent, not including indirect multiplier effects or interest rate offsets.

The more stimulative fiscal policy also results in a higher exchange value of the dollar and higher interest rates. Panel 6 provides a summary of the all-in effects of the fiscal assumptions on GDP growth in our projection. As shown by the rose-shaded part of the bar, fiscal policy, which includes both the initial fiscal impetus as well as the multiplier effect, cumulatively boosts spending by 85 basis points between 2017 and 2019. However, the higher interest rates crowd out private spending, and the higher dollar also subtracts from GDP. On net, we project the fiscal package will boost the level of GDP about 45 basis points by 2019. In the final bullet of panel 5, as Simon discussed, the nominal 10-year Treasury yield moved up dramatically in the wake of the election, so substantial financial restraint is already in place. However, we have assumed, based on past experience, that households won't increase spending in advance of the tax cut—indeed, it takes them three years to build the extra cash flow into their spending habits.

The panels on the next page summarize the inflation outlook. As can be seen in panels 1 and 2, our projections regarding both headline and core PCE price inflation are little changed from the October Tealbook, as the data have come in close to our expectations, and, in view of how flat we think the Phillips curve is, the modestly higher resource utilization in this projection does not translate into noticeably higher inflation.

The next two panels parse out the cumulative revisions that we have made to our projections of total and core PCE inflation since December of last year. Total PCE inflation, panel 3, is now estimated to be about 0.3 percentage point higher this year than we projected last December, the black line, as upside surprises to energy prices and to core inflation outweigh the impact of lower-than-expected food prices. The upward surprises to core inflation, parsed in panel 4, cannot be explained by the main factors that we track and so are concentrated in the yellow category with the not-very-illuminating label of “other.” Part of the “other” category reflects the high readings on non-market-based core inflation we have received this year, from which we typically take little signal.

Panel 5 shows three of the measures of labor compensation that we follow. According to the latest readings, compensation has continued to rise at a moderate pace and is showing some slight signs of acceleration.

In exhibit 4, I summarize the FOMC memo that examined episodes in which the unemployment rate undershot its natural rate. For reference, the shaded regions in panel 1 highlight the domestic episodes of undershooting; I've also plotted total PCE price inflation on the chart. In selecting these episodes, we relied on real-time data and current staff estimates of the natural rate, records of FOMC meetings such as transcripts and minutes, contemporaneous *Monetary Policy Reports* and testimonies, as well as the research literature. The findings are summarized in panel 2. First, although they are not common, soft landings *have* occurred. We identified one domestic example, the mid-1990s, and two examples from advanced foreign economies.

We took a very restrictive definition of a “soft landing,” as we required that the unemployment rate stabilize at or below real-time estimates of the natural rate and that no recession occur for a few years once the soft landing was achieved. This definition ruled out, for example, the moderation in the unemployment rate around 1984, because, at that time, the Committee viewed the unemployment rate as well above their estimate of its natural rate. And it ruled out the late 1990s and mid-2000s in the United States, as, in both cases, recessions followed within a couple of years.

Second, the soft landings share some characteristics. Monetary policy typically began to tighten before the unemployment rate fell significantly below the natural rate. In addition, the achievement of a soft landing depended substantially on the nature of the shocks that hit the economy. For instance, all three soft landings occurred during the mid-1990s or early 2000s, at a time when structural productivity growth was unexpectedly strong.

Another finding, unsurprisingly, is that tight labor markets have often been associated with higher inflation, both domestically and in the AFEs. In the United States, the most prominent examples occurred in the late 1960s and 1970s. These episodes shared several features, which are summarized in panel 3. First, the inflation process was different then. Panel 4 displays the coefficients on slack and inflation persistence from 10-year rolling regressions of an inflation equation similar to that used by the staff. As can be seen by the red line, inflation was more sensitive to slack in the 1970s than in subsequent years, and inflation was more persistent (the black line).

In panel 3, in many inflationary episodes, the Committee appeared to have underestimated the depth of the undershooting. For instance, during the 1960s, the Committee thought full employment was consistent with an unemployment rate of 4 percent, below current estimates. Similarly, Athanasios Orphanides has shown that estimates of the output gap during the 1970s based on real-time information show lower levels of resource utilization than estimates based on current vintages of data and revised estimates of potential.

A final feature of these inflationary episodes is that, for a variety of reasons, monetary policymakers in the 1960s and 1970s did not always focus on restraining economic activity in order to avoid inflation.

As summarized in the last bullet of panel 2, we also sought to determine whether past incidents of undershooting were associated with financial instability and found that while financial imbalances and unemployment undershoots are correlated, causality is difficult to infer. And we examined whether running a “hot economy” has been associated with permanent improvements in the labor market. Again, the results were ambiguous. On both questions, the research literature is sparse, and more research is warranted.

Let me conclude with a few thoughts. Clearly, the historical record is ambiguous regarding the outcome of unemployment undershootings. In the current situation, differences in the inflation process, along with the fact that inflation has been below the Committee’s objective, suggest that a substantial and unwanted move of inflation above the Committee’s objective is less likely than a simple assessment of historical episodes might suggest.

In addition, we continue to judge that financial stability vulnerabilities are currently at only a moderate level. That said, some of the factors that increase the risk associated with undershooting remain. In view of the uncertainty surrounding both published data and our estimates of the natural rate of unemployment and potential output, we could be mismeasuring the amount of slack in the economy. Moreover, as panel 4 suggests, the inflation process is not static and could revert such that inflation is more likely to move higher. Finally, the economy remains subject to substantial shocks—and these shocks will certainly have an important effect on the outcome. Brian Doyle will now continue with the international section of our presentation.

MR. DOYLE. Thank you, Stephanie. At this point, you could be forgiven for being sick of hearing about the U.S. election. But after countless months of heated campaigning and more than a month of post-election debate, I hope you will indulge me in talking a little more about its implications for the foreign economies.

First, an overview of the forecast. As seen in panel 1, third-quarter foreign real GDP growth recovered more strongly from its second-quarter doldrums than we had expected in October. After moderating in the fourth quarter, foreign growth settles around 2½ percent, subdued by historical standards, throughout the remainder of the forecast period. As has been the case for some time, this outlook is helped by highly accommodative monetary policy in advanced foreign economies and a recovery—albeit a tepid one—in South America.

Expected changes in U.S. policy have two small but noticeable effects on our foreign forecast. First, tighter financial conditions have left a small negative imprint on the near-term forecast, especially in emerging market economies (EMEs). As Simon has noted, since the U.S. election, longer-term rates, panel 2, have risen in

most foreign economies; EME credit spreads, panel 3, have increased; and the dollar has appreciated sharply and broadly. Second, the staff's assumed additional U.S. fiscal stimulus has a small net positive effect on foreign GDP growth later in the forecast period. I will discuss the fiscal stimulus effects first, then return to how we are interpreting the dollar.

To gauge the effects of changes in U.S. fiscal policy on foreign economies, we conduct two simulations using the IF Division's SIGMA model, shown in panels 4 through 7. The first is an anticipated U.S. tax cut of 1 percent of GDP, the blue lines, beginning in the third quarter of 2017 as assumed in the staff's baseline forecast, and the second, shown by the red lines, augments this tax cut with another 1 percent of GDP in government spending as in an alternative scenario in the Tealbook. In both cases the results are just illustrative, but the model is calibrated so that the effect on U.S. GDP is reasonably in line with the staff's assessment in the Tealbook.

As you can see in panel 4, the boost from the tax cut scenario to foreign GDP is quite modest, less than one-fifth of the effect seen in the United States in the staff forecast. This foreign output response has helped inform what we have built into the foreign outlook. This effect operates through three channels. First, foreign exports, panel 5, are boosted as U.S. consumers spend some of the tax cut on foreign goods and, second, as the dollar, panel 6, rises almost 1 percent. But, third, foreign interest rates also rise, panel 7, in part as foreign monetary policy reacts to stronger economic growth and higher inflation. Thus, domestic demand in the foreign economy is crowded out some. In the alternative scenario in which additional U.S. fiscal spending is added, the foreign growth effects, the red line in panel 4, are somewhat more than doubled, reflecting the larger effects on U.S. GDP from a similarly sized package of government spending.

In exhibit 6, the broad dollar, the black line in panel 1, has appreciated more than 3 percent since the election, with more of the move coming against the EMEs and with outsized rises against the Japanese yen in green and the Mexican peso in yellow. Beyond this higher jumping-off point, we continue to expect the dollar to appreciate further over the forecast period, panel 2, reflecting our assessment that market expectations of U.S. monetary policy rates are still below those assumed in the staff forecast. Accordingly, as in past forecasts, we project the dollar to rise as markets are surprised by the degree of FOMC tightening.

As we have indicated for some time, this dollar path could prove wrong for several reasons. To begin with, the sensitivity of the dollar with respect to surprises in monetary policy is quite uncertain. As shown in the scatterplot in panel 3, our rule of thumb is that the dollar's value against the AFE currencies rises about 1 percent for roughly every 30 basis point surprise in interest rates. However, this relationship has varied a lot in recent years. And thus the dollar could be stronger or weaker than we expect.

Furthermore, as Simon noted, some of the recent dollar appreciation is likely a response to expectations of more stimulative U.S. fiscal policy. If we take the post-

election shift in monetary policy expectations as solely due to changes in fiscal policy expectations, then our rule of thumb suggests that only about half of the appreciation is a result of fiscal policy. As shown by the red dot in panel 3, over the five days following the election, the AFE index of the dollar rose about 2 percent, whereas our rule of thumb predicted only a 1 percent rise, on the basis of the more than 30 basis point widening of the interest rate differential shown on the horizontal axis. Note that the 1 percent rise from the rule of thumb is about the same as the increase in the dollar shown in our fiscal scenario on the previous slide.

How do we account for the difference between our rule of thumb and the actual move in the dollar? One possibility is that markets share the staff's view on the size of the fiscal expansion, but the sensitivity of the dollar with respect to interest rates was higher than our rule of thumb during the period. In this case, assuming the 1-percent-of-GDP fiscal package materializes, the dollar might well evolve as we project in the Tealbook. But another possibility is that markets are expecting a much larger fiscal package than we are assuming. Indeed, in the alternative scenario with a larger fiscal policy, the dollar appreciates about twice as much. In that case, if the staff assumption for fiscal policy materializes and markets are surprised by how small the fiscal package turns out to be, the dollar might well prove weaker than we are projecting. And a third possibility is that the outsized rise in the dollar reflects other factors besides fiscal expansion. Some of these factors are reviewed in your next exhibit.

To begin with, talk about repatriation of foreign profits of U.S. companies could have put upward pressure on the dollar. That said, the effect of repatriation on the dollar would probably be relatively small. As shown in panel 1, during the previous episode of repatriation, which was announced in June and passed in October of 2004, the dollar declined against AFEs, although it then moved up before the second half of 2005, when we believe most repatriation flows took place. Furthermore, currently, an estimated 70 to 95 percent of the more than \$1 trillion in U.S. corporations' cash held abroad is held in U.S. dollar-denominated accounts, and transferring these funds from foreign subsidiaries to U.S. parents would not affect the value of the dollar.

Another factor that might have led to the recent outsized rise in the dollar was concerns that EMEs would be especially vulnerable to future increases in interest rates and other developments, as highlighted in a Tealbook alternative scenario. EME capital flows, panel 2, turned sharply negative after the election. And, as shown in the scatterplot in panel 3, the EME currencies that fell the most since the election were those with greater underlying structural and macroeconomic vulnerabilities.

A third factor that may have boosted the dollar recently, or which could influence the dollar in the future, is the risk that the United States will erect trade barriers or tighten immigration policy. The first of these likely explains part of the outsized decline in the Mexican peso, which has a large weight in the broad dollar index. However, it is unclear whether this consideration explains movements in other currencies. As shown in panel 4, if one excludes Mexico from the scatterplot, the

correlation between currency depreciation and the importance of exports to the United States is close to zero. I will return to trade policy shortly.

Besides the factors that likely contributed to the dollar's immediate post-election surge, a number of other factors will likely affect the dollar's path in the future. One of them is worries about Europe. To be sure, the failed Italian referendum left only a limited mark on financial markets. But many risks remain, including the fragility of the European banking sector and concerns that the Brexit vote is one more crack in a fracturing European project. And with several key elections scheduled during 2017, as listed in panel 5, worries that an anti-EU group could gain power will likely feed dollar strength for some time.

Additionally, China is a perennial risk to the dollar forecast. Even before the election, as Simon noted, private capital outflows from China, the gray bars in panel 6, had reaccelerated, apparently on renewed expectations that the depreciation of the renminbi against the dollar is a one-way bet. Indeed, the RMB has continued to depreciate against the dollar over the intermeeting period, falling 2 percent. Authorities have increased their intervention to support the renminbi and more recently imposed additional capital controls. But the accelerated outflows raise the possibility of a more rapid depreciation of the RMB that unsettles markets.

In your next exhibit, despite these risks, and as shown in panel 1, looking through the short-term soybean-related wiggles of late, past dollar appreciation as well as that expected to come continues to weigh on the net export contribution to U.S. GDP growth. The higher dollar has increased the drag arising from net exports, panel 2, although the direct boost to imports due to U.S. fiscal policy stimulus, panel 3, plays a sizable role as well, especially further out in the forecast period. It bears mentioning that at this point in our business cycle, some drag due to net exports in the next couple of years is not necessarily undesirable—it represents one of the transmission channels of a normalization of monetary policy designed to avert overheating in an environment of full or near-full employment.

As noted in panel 4, this baseline forecast of U.S. trade does not include effects of potential trade measures, except to the extent that worries over higher tariffs may have affected the dollar. As discussed in greater depth by my colleague Rob Vigfusson in his pre-FOMC briefing yesterday, the President has broad authority to raise tariffs, and President-elect Trump has discussed several possible actions, including renegotiating or withdrawing from NAFTA and declaring China a currency manipulator.

The panels below illustrate the macroeconomic effects of a generic 10 percent rise in tariffs. As shown by the blue line in panel 5, in principle, a unilateral and persistent hike in tariffs could raise U.S. output in the short run by shifting foreign production to domestic producers and thus boosting the trade balance, panel 6. But the rise in import costs raises inflation, panel 7, which together with the increase in output will result in monetary policy tightening, not shown, and a higher dollar, panel 8, muting some of the shift in trade. Moreover, higher interest rates and import



costs also lower investment, not shown. Outside of the model, it may be difficult to shift production to domestic producers quickly because of specialized production or long-term contracts, and higher trade barriers might disrupt supply chains and, hence, reduce production.

Of course, tariffs rarely remain unilateral. As shown by the red lines in panels 5 and 6, when the foreign country reciprocates with matching-percentage tariffs, U.S. output is hurt even in the short run, in part as U.S. exports decline relative to baseline. Over the longer run, while some of these shorter-run issues might work themselves out, higher tariffs are almost always a net negative for aggregate economic growth and welfare, in part by hampering productivity, although the estimated size of the negative effect of tariffs varies in the literature. I will now turn to Don Kim, who will brief on participants' Summary of Economic Projections submissions.

MR. KIM.<sup>3</sup> Thank you. I will be referring to the packet labeled "Material for Briefing on the Summary of Economic Projections." To summarize, most of your economic projections are little changed from the September SEP, although the median projected path of the federal funds rate is slightly higher. However, more of you now see the uncertainty surrounding your economic projections as above historically typical levels, and fewer of you now see the risks to economic growth or inflation as tilted to the downside or the risks to unemployment as weighted to the upside.

Exhibit 1 summarizes your economic projections, which are conditional on your individual assessments of appropriate monetary policy. As shown in the top panel, the median of your projections of real GDP growth this year is 1.9 percent. Most of you project that economic growth will pick up a bit next year and run at or above your estimates of its longer-run rate through 2019. As shown in the second panel, the median of your projections of the unemployment rate in the fourth quarter of 2016 is 4.7 percent, slightly below the median of its longer-run normal level. Almost all of you see the unemployment rate falling a bit further next year and expect it to remain below its longer-run normal level through 2019. As can be seen in the third panel, the median of your projections of headline PCE inflation moves up from 1.5 percent this year to 1.9 percent in 2017 and 2 percent in 2018 and 2019, with several of you projecting a modest overshooting of the 2 percent objective in 2019. In the bottom panel, the median of your projections of core inflation also increases gradually over the next three years.

Exhibit 2 compares your current projections with those in the September Summary of Economic Projections and with the December Tealbook. As indicated in the top panel, the medians of your projections of economic growth have edged up since September, and, as shown in the second panel, the medians of your projections of the unemployment rate have edged down. Most of you who revised these projections pointed to forthcoming changes in fiscal policy. As shown in the third panel, the median of your projections of headline PCE inflation this year was revised

---

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

up moderately, largely reflecting incoming data. Although a majority of you have modestly revised up your projection of core PCE inflation this year, the median of your projections of core inflation this year, shown in the fourth panel, is unchanged. The medians of your projections of headline and core inflation beyond this year are also unchanged. Compared with the December Tealbook, the medians of your projections of real GDP growth are roughly similar, while the medians of your projections of the unemployment rate and of the headline and core inflation rates are generally somewhat higher than those presented in the Tealbook.

Exhibit 3 provides an overview of your assessments of the appropriate path of the federal funds rate. Your projections of the federal funds rate at the end of this year, shown at the left of the upper panel, suggest that all of you assumed a 25 basis point rate hike at this meeting. Thereafter, the medians of your projections, marked by horizontal red lines, are 1.38 percent at the end of 2017, 2.13 percent at the end of 2018, and 2.88 percent at the end of 2019, with the median projection for each of these three years 25 basis points higher than in September, shown in the bottom panel. The median of the longer-run federal funds rate rose slightly to 3 percent. As in September, almost all of you anticipated that the appropriate level of the funds rate at the end of 2018 would remain below your individual judgments of its longer-run level, but about half of you, considerably more than in September, now project the funds rate to overshoot its longer-run level in 2019.

As shown by the red diamonds in exhibit 3, the median federal funds rate that a non-inertial Taylor (1999) rule prescribes—conditional on your individual projections of core inflation, the unemployment rate gap, and the longer-run federal funds rate—has shifted up since September. The rise in the Taylor rule prescription for the end of this year primarily reflects upward revisions to projected inflation and downward revisions to the unemployment rate, while the higher Taylor rule prescriptions for years beyond 2016 result largely from the downward revisions to the unemployment rate. Almost all of you project levels of the federal funds rate in 2016 to 2018 that are well below the prescriptions derived by using your individual economic outlooks as inputs into the policy rule formula. The median of your projections for 2019 is also below the median Taylor rule prescription but much closer than for preceding years.

Exhibit 4 provides some detail on your assumptions about fiscal policy and some analysis of the effects on your projections. Based on your written narratives, nine of you incorporated some change in fiscal policy in your baseline projections, with most of this group assuming that the fiscal stimulus would be of the same order of magnitude as in the December Tealbook. Among the eight of you who did not incorporate a change in fiscal policy into your baseline projections, many expressed the view that at this point uncertainty surrounding prospective changes in fiscal and other policies is very large or that there is not yet enough information to make a reasonable assumption about the magnitude of the changes.

As can be seen in the top and middle sections of the lower panel, the revisions since September in your projections of real GDP growth and the unemployment rate for those of you who have not incorporated a change in fiscal policy are close to zero

on average. In contrast, those of you who incorporated some stimulus from fiscal policy, on average, modestly revised up your projections of real output growth and revised down your projections of the unemployment rate in 2018 and 2019. A similar breakdown for the changes in your assumptions about appropriate monetary policy compared with September is shown in the bottom section; those of you who incorporated a change in fiscal policy revised up your projections of the federal funds rate in 2018 and 2019 by about 25 to 30 basis points on average, while those of you who did not change your fiscal assumption had little change in your federal funds rate projections on average. Many of you mentioned that the recent tightening in financial conditions, together with a somewhat steeper path of the policy rate, provides a partial offset to the effects of the fiscal stimulus, which may help explain the relatively small size of the revisions to the economic variables, even for those who have incorporated a change in fiscal policy.

Exhibit 5 shows your assessments of the uncertainty and risks surrounding your economic projections. As shown in the figures to the left, a majority of you continue to view the uncertainty associated with your projections as broadly similar to the average of the past 20 years. However, more of you now see the uncertainty about GDP growth, the unemployment rate, or inflation as higher than in September. Many of you mentioned uncertainty surrounding fiscal, trade, immigration, or regulatory policies, noting that it is difficult to predict the size, timing, and composition of these policy changes. As illustrated in the figures to the right, fewer of you now see the risks to economic growth and inflation as weighted to the downside and the risks to unemployment as weighted to the upside than in September. Many of you noted that the prospect of expansionary fiscal policy had increased the upside risks to output growth and inflation, but many also pointed to factors such as the proximity of short-term nominal interest rates to the effective lower bound, global disinflationary pressures, downside risks in Europe and China, and the possibility of a large jump in financial market volatility in the event that fiscal policy turns out to be less stimulative than expected, as sources of downside risk. Thank you. That concludes our prepared remarks. We would be happy to respond to your questions.

CHAIR YELLEN. Are there questions for any of our presenters? Governor Fischer.

MR. FISCHER. I am sure I should know this, but which are generally more accurate, the SEP forecasts or the Tealbook projections?

MR. POTTER. For what?

MR. FISCHER. GDP, interest rates, whatever.

MR. REIFSCHNEIDER. The answer is they are both equally bad. [Laughter] That's the best answer.

MR. EVANS. That was so diplomatic.

MR. REIFSCHEIDER. They are close enough. The Tealbook does slightly better on near-term inflation forecasts, but that's on a very short-run horizon. But other than that, they are really about the same.

MR. FISCHER. Do we need the SEP when we have the Tealbook?

CHAIR YELLEN. Well, we put the SEP into the public domain.

MR. FISCHER. Are we going to put the Tealbook out?

CHAIR YELLEN. Yes. But we do that with a five-year lag.

President Williams.

MR. WILLIAMS. Yes. I have two questions for the staff. One is a technical one on the simulations you reported this afternoon regarding fiscal policy. Those on exhibit 5 were done with the FRB/US model. Is that right?

MR. DOYLE. No, they were done with the SIGMA model.

MR. WILLIAMS. In the Tealbook I thought they were done with the FRB/US model.

MR. DOYLE. That's right. As I noted, we are trying to calibrate the response of U.S. GDP in a model that includes a bigger international sector.

MR. WILLIAMS. Okay. That helped because it is a little confusing. But when I look at the Tealbook assumption about monetary policy in the other advanced foreign economies, except for the United Kingdom, it sounds like you have basically constant, zero, or negative, or whatever interest rates for the next several years. So when you did the SIGMA model simulations of a strong fiscal expansion in the United States, did they incorporate these typically very large multipliers for them?

MR. DOYLE. Yes. So in this SIGMA simulation, it's a three-country model, and the United States of course is one of those countries. The other two countries are split up by those

that are at the effective lower bound and those that are not. And those that are not at the effective lower bound, say, for the blue lines, which is the assumed tax cut, get a little bit more than twice the kick because, at the effective lower bound, monetary policy doesn't respond.

MR. WILLIAMS. And what did you assume about their response? Did you assume that they would just stay at zero for the next few years? This matters a lot when you do these simulations.

MR. DOYLE. Yes. They don't respond for a while.

MR. WILLIAMS. Okay. For the rest of the world, fiscal stimulus in the United States is exactly what the doctor ordered, as they are at the interest-rate lower bound. I just wanted to make sure that that I had that right.

The second question was more of a question to the staff. When I read Tealbook A, I was surprised. I actually thought I was reading the September one. Specifically, on the risks to the GDP outlook, I was surprised the Tealbook took the stand that the risks were still tilted to the downside. When I look at the SEP responses or when I read the Monday morning briefing, which I know had an alternative view aspect, it seems to me there are now a lot of risks to the upside in terms of fiscal policy, at least in the short term. The way I describe my views, I was "balanced but slightly to the soft side" because of the effective lower bound, but then this shifted me over to "balanced but slightly to the upside" because of the potential for much larger fiscal stimulus than you incorporated. Could you explain your thinking about why overall the risks were still to the downside on GDP and the upside on unemployment?

MR. WILCOX. Our views on fiscal policy have changed in the period since the outcome of the election. Previously, our rationale had included a view that fiscal policy was unlikely to be marshaled heavily in opposition to material weakening in cyclical conditions. But it remains

the case, in our judgment, that monetary policy, both here and abroad, is probably less well positioned to combat a significant cyclical weakening. Even with the upward tilt, we think that, if it's long enough until the next recession ensues, monetary policy in the United States, in any event, will be reasonably well positioned to combat that. But at the moment, on the basis of how much reduction in the funds rate the Committee has judged to be appropriate in the face of an average-sized recession and on the basis of how large the balance sheet is already, the capacity for a material monetary policy easing is now less than has been the case historically.

MR. WILLIAMS. So, David, that's exactly what I thought you were thinking.

MR. WILCOX. I'm expecting that I am walking into something. [Laughter]

MR. WILLIAMS. Yes, you are walking into agreement with me, which is probably what you want to run from here.

MR. WILCOX. And that makes me—I've got my hand on my wallet.

MR. WILLIAMS. But seriously, it sounds like it's not really a near-term kind of assessment. It's really more of a medium- or longer-term assessment of where we are in terms of—if I can say this—the steady-state balance of risks, because of the lower bound with a low  $r^*$  and with the global conditions that you anticipate. The reason I point this out is that it's not just a statement in a way about, well, right now we're still at a low interest rate, right now core inflation is 1¾ percent, because even with a 4.2 percent unemployment rate and core inflation roughly at our target, in the Tealbook you still see this as a scenario in which the underlying risks are still to the downside. So I think that maybe just trying to make that point is helpful.

MR. WILCOX. Well, I thought I was with you, but you indicated the opposite conclusion than what I thought. I thought I heard you just say that our judgment is mainly a medium-term judgment about asymmetric risks, and I would have said the opposite—that my

concern predominantly is a recession, if one were to occur. We don't have one in the baseline. But we're talking about risks here. And a recession in the next year or two, before the level of the funds rate has moved further up in its trajectory, would cause greater concern in terms of the ability of the Committee to fight the effects of the recession.

MR. DUDLEY. But then some ways, as long as there is a lower bound, isn't that always the case?

MR. WILLIAMS. Right. So that's what I'm wondering about. Because you have 4.2 percent unemployment, you're basically at baseline in that situation.

MR. WILCOX. Implicit in our projection, I think, is that there are some headwinds and that some normalization of real macroeconomic conditions will occur over the next few years, and that will give the Committee some greater scope to raise the funds rate. In particular, the Laubach and Williams estimates are that the equilibrium real rate is, I think, in the neighborhood of about  $\frac{1}{4}$  percent at the moment. In the longer run, we now, having incorporated a more expansionary fiscal policy, have it at 1 percent. And so, as that process of increase in the equilibrium short rate unfolds, that will give a little bit greater scope for an easing of the stance of monetary policy in the future, several years down the road, than would be available today.

MR. WILLIAMS. Well, my concern, obviously, is that that doesn't occur, right? When we reduce our balance sheet and everything, we will find that the equilibrium real rate is actually quite low. But, anyway, this is just a topic for further discussion.

MR. WILCOX. It certainly is an admissible risk. It's not what is envisioned in our baseline.

CHAIR YELLEN. Vice Chairman.

VICE CHAIRMAN DUDLEY. I have several questions, but first I wanted to build on what President Williams said. I guess my view of the risks to the forecast is that you have a modal forecast and then you ask, where is the skew of the distribution? It's not about where the lower bound lies relative to the funds rate. So I guess I interpret the balance of the risks differently, I think, than you do.

I want to ask about two different things. First of all, what's the staff's thinking about what level of knowledge they have to have before they put something in the Tealbook? I mean, I was really struck by how the FOMC participants handled the fiscal uncertainty in very distinct ways, yet the Tealbook put in 1 percent, starting in the third quarter. What's the threshold for deciding to do that relative to deciding to put something in for trade barriers going up or immigration policy being tightened? I mean, how do you think about that? Because we have this very specific fiscal forecast, and when I think about the uncertainty associated with it, it's just enormous in terms of magnitude, timing, and composition. When does it get over the bar? What is the decision rule? I guess that's what I'm asking.

MS. AARONSON. Yes. I think there are two issues. One is, how do we make the decision to put something in? And then what do we decide to put in? Because once we decide to do something, it's a modal forecast, so we need to write down something specific. In this case we felt that, in view of what had been said during the election campaign and as the Republicans will control the White House and the Congress, there seemed to be some appetite for doing something, and we thought it was likely. There has long been talk about tax cuts. The Republicans have been in favor of doing that, and it was something that Donald Trump campaigned on. The House Republicans have had a plan that has been circulated, and it is actually pretty similar in magnitude to what we built into the forecast. I think that there is clearly



a huge range of uncertainty. But a tax cut was under discussion to a sufficient degree that we thought it seemed likely that they would move forward on this. And, actually, this situation is similar to what happened in the early 2000s when, even before the 2000 election, there was some talk about tax cuts. And, actually, once George W. Bush came into office, their implementation moved forward pretty quickly.

VICE CHAIRMAN DUDLEY. So the bar is sort of: That you're highly confident of direction.

MS. AARONSON. Yes.

VICE CHAIRMAN DUDLEY. If you're reasonably confident of direction, then you're going to put something in. Is that a way to think about it?

MS. AARONSON. I think so. That's how I was thinking about our having moved in that direction.

VICE CHAIRMAN DUDLEY. Okay.

MR. KAMIN. Although it's worth noting, by comparison, on the trade policy front, we are also moderately confident in direction.

VICE CHAIRMAN DUDLEY. Right.

MR. KAMIN. We expect that if there are going to be moves, they will be toward higher barriers of trade. But the array of different possible actions that have been floated by the campaign were so disparate, and the magnitude of some of the individual items—reopening NAFTA, declaring China a trade manipulator—were so difficult to gauge that it was very hard even to assess whether there would be actions that would be macroeconomically meaningful, or whether there would just be a series of disparate actions that might have microeconomic effects

but not amount to a lot on the macro side. So, for that reason, we chose not to assume trade policies in our baseline.

VICE CHAIRMAN DUDLEY. Look, I don't think there is a perfect choice here. I think it is just really a hard choice. I just wanted to understand the rationale.

MR. WILCOX. I'd just like to elaborate on one other aspect of how we made the decision.

VICE CHAIRMAN DUDLEY. Sure.

MR. WILCOX. We had to make a decision to do something. It was clear that financial market participants made a judgment that something is likely to be in the offing.

VICE CHAIRMAN DUDLEY. Agreed.

MR. WILCOX. I think it would have been reasonable, and, indeed, I contemplated seriously putting in front of the Committee a projection in which we had no fiscal adjustment. That would have required a more elaborate process of backing out, on the basis of financial market quotes, some allowance for the response that they had built in, in anticipation of a fiscal policy path that we were not putting in.

VICE CHAIRMAN DUDLEY. Right.

MR. WILCOX. Now, it really was, more or less, a coincidence, not a design objective, that the fiscal package that our analysts proposed to put in does seem to be in pretty good alignment with what most financial market participants are writing down, and that's documented in the memo that we sent to the Committee. We look like we're in the middle of the pack of the various people who were taking a swing at making some kind of judgment. So to a degree I think that has eased our analytical burden in constructing a coherent forecast that had one story behind it. But I would say that to help the Committee in its thinking, we put a couple of

alternative scenarios in the “Risks and Uncertainty” section, one with no fiscal package and one that is, roughly speaking, twice as big. The other percentage point’s worth of GDP comes in the form of government spending rather than tax cuts.

VICE CHAIRMAN DUDLEY. No, I thought it was good to do. I want to switch gears a little bit. I liked the memos on unemployment-rate undershooting. The one thing they didn’t get into, though, is this empirical regularity, at least for the United States, whose unemployment rate either goes up a little or it goes up a lot, and I think in the memo they talked about different countries’ experiences. I think there was one country, Canada, for which it did go up 1 percentage point. But why we see this empirical regularity that the unemployment either goes up a trivial amount, or by a lot, is interesting. And I guess I’m still curious about the staff’s views on that, whether that is just a statistical anomaly, because we haven’t had that many business cycles, or if there’s something dynamically going on in the economy when the unemployment rate starts to go up that generates those kinds of outcomes. And the memos were silent on that one question.

MS. AARONSON. Yes. A couple of years ago, the staff actually did send a memo to the Committee on that, documenting that empirical regularity. And what it found was that those episodes in which the unemployment rate did go up a lot were often associated with efforts on the part of the Committee to—

VICE CHAIRMAN DUDLEY. Make it so?

MS. AARONSON. —to make it so, to tame inflation. And I will note that there were a couple of episodes—in particular, the mid-1990s—when the unemployment rate did come up a bit. But it came up slowly enough that it didn’t trigger this particular stylized fact that you’re referring to.

VICE CHAIRMAN DUDLEY. Right.

MS. AARONSON. The stylized fact is something along the lines of, say, a three-month moving average of the unemployment rate, because it's noisy, rises 0.4 percentage point.

VICE CHAIRMAN DUDLEY. Or more.

MS. AARONSON. Yes, or more, over the course of a quarter or two. Actually, in the mid-1990s, when we did find one of these soft landings, in fact, it was a soft landing from below, where the unemployment rate, relative to what we thought was the natural rate then, did come up a bit.

Clearly, we do think that there are some dynamics, once the economy does start into a recession, that generate these rapid increases in the unemployment rate. But I wouldn't say that I thought that the memo precluded the possibility of these other rises. Actually, in the late 1980s and early 1990s, the period for which we sort of identified the interrupted soft landing, the unemployment rate was gradually drifting up. And we were kind of ambivalent about whether that would have ended in a recession, had not the shock associated with the 1990 invasion of Kuwait occurred. But that's another case in which there is some evidence of it.

VICE CHAIRMAN DUDLEY. So, not to put words in your mouth—would you characterize yourself as believing, agnostic, not believing? Agnostic, is that the way you are on this issue?

MS. AARONSON. About whether the unemployment rate would—

VICE CHAIRMAN DUDLEY. Whether there's something there or just a statistical artifact.

MS. AARONSON. I think there is something there, in the sense that I think when we enter a recession the unemployment rate goes up quickly, and that's often when you see it. But I

don't think that that precludes the possibility that you can have those gradual increases. I think we haven't seen that many of them because we don't have that many examples, but when we were looking, there weren't that many examples we identified in which the Committee actually said that it was trying to achieve a soft landing. And so I think it's just a little unclear. I don't think the fact that we view this empirical regularity rules out the possibility that it can also go up gradually.

VICE CHAIRMAN DUDLEY. So to President Rosengren, don't despair. [Laughter]

CHAIR YELLEN. And with that, we turn the floor over to President Rosengren.

MR. ROSENGREN. I want to follow up on Vice Chairman Dudley's first question and David Wilcox's response to it. When I look at the revisions to the projections broken out by change in fiscal assumption and no change in fiscal assumption, I see that the no change in fiscal assumption for the real GDP is zero, minus 0.01, 0.01, and zero. So, no change from the previous time. But we observe that the 10-year Treasury yield is 70 basis points higher. Either you had to do the exercise that David talked about, which is to back out all the financial market movements in order to be able to come up with that forecast, or you have to be modeling a very severe monetary policy contraction because that would be the reason you don't have fiscal policy changing—then, presumably, it's a monetary policy change. In effect, this would be modeling a very substantial monetary policy tightening with no change in GDP.

If this were to be something that were used in the press conference, I think it would lead to a lot of awkward questioning because you'd have to come up with how people actually backed out their expectation of how much the financial market reaction is due to changed expectations regarding fiscal policy. That could generate a whole host of questions. I don't know if you were planning on using this in the press conference.

CHAIR YELLEN. I wasn't planning on using this, but I was planning on, if asked about the SEP, saying that some participants included a fiscal policy change and some didn't, and that you could note that even when there were assumptions of a fiscal policy change, the changes in the federal funds rate paths were modest.

MR. ROSENGREN. But then, for those that didn't, you have to explain how you had a 70 basis point increase in the 10-year Treasury yield that is not due to changed expectations regarding fiscal policy. I mean, you do observe that the long rate has gone up a lot. So how do you explain the way people actually came up with their assumption about no fiscal policy change using actual rates?

CHAIR YELLEN. And you have essentially a 25 basis point increase in the path, which is, as I understand it, similarly to the effect of this fiscal policy package on  $r^*$ , and a larger, I guess 40 basis point, move in the 10-year Treasury rate. Part of this occurs by term premiums and part by moves in the funds rate. I think that's consistent with the projections that you see here. Now, there's a larger market reaction, but there is a lot of uncertainty and we don't know what assumptions have gone into that—maybe a larger fiscal package than the staff have penciled in here.

MR. WILCOX. President Rosengren, I'm not sure that enough information in the SEP process was collected to answer your question because the 10-year Treasury rate is not specified. So, in principal, we don't know how participants handled that.

MR. POTTER. Also, we didn't really know why the 10-year Treasury rate was so low.

CHAIR YELLEN. President Kashkari, then President Bullard.

MR. KASHKARI. Just one quick response—and then I have a question—which is, I didn't necessarily assume that the market moves are going to be substantial. And when we get

more information, the markets may just reverse themselves. So that wasn't a factor in my SEP submission. And I put in no fiscal policy change.

Onto my question to the staff: In the alternative scenarios, I was surprised that the banking crisis in Europe was the most negative of all the scenarios. The scenario that I worry about is one in which multiple banks get into trouble at the same time or a bank were to fail. But the scenario you picked was one bank doesn't fail and goes to resolution. And that alone was enough to trigger a negative scenario for the United States. I wonder if you could expand on that, and explain that mechanism. And then, how worried are you about this, in light of what we're seeing in Italy and potentially what we're seeing in Germany?

MR. KAMIN. Brian? Unless you'd rather I respond.

MR. DOYLE. No, if you want to go ahead, please. [Laughter]

MR. KAMIN. I'll take this one. First of all, just comparing the two international alternative scenarios, the banking crisis one was, I think, marginally more consequential for U.S. variables than the emerging market turmoil one, but not by a great deal. And, as with most simulations, that reflected in some sense what we put into the simulation, and the inputs included some downward pressure on U.S. confidence and spending and upward pressure on spreads, as the reverberations arising from the banking crisis in Europe spread out through the global economy. We assume that those will be greater in the case of this advanced-economy banking crisis than would be the case in the event of an emerging-market heightened-financial-stress situation.

Now, going to the issue of comparing the effect of one bank having a messy resolution with, let's say, some genuine bankruptcies of some smaller banks, our view was that the scenario in question was one in which if a very large, very systemically important, one of the most

systemically important banks in the world located in the northern part of Europe was forced into resolution, and potentially if that resolution was handled in a somewhat messy way, leaving a lot of uncertainty and leading to a sort of reverse-moral-hazard play in which some investors were surprised that they were not bailed out fully, then that situation, due to the highly interconnected nature of the bank, its many counterparties, and its prominence in the global financial system would lead to a lot more contagion and reverberations than, for example, the other very prominent banking situation right now in Europe, which is about Italian banks.

Now, you can tell a story in which a resolution in bankruptcy of Monte dei Paschi—which is the current Italian bank that's the most exposed to problems—with subordinated debt holders being bailed in and with it also being handled poorly so you get queues of people waiting to get their money out, which is seen on nightly television all around Europe, also leads to banking distress. But the fact is, right now the resolution of that bank and maybe some other smaller Italian banks is a pretty well-anticipated development. Our sense is that even if that bank gets resolved, which seems to be the most likely situation at present, it would take place without the shock to financial markets and the reverberation through a network of counterparties that would be the case in a messy resolution of a much larger and more systemically important bank.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I have several questions. First of all, on the net effect of fiscal policy, panel 6 on exhibit 2 shows a net boost to real GDP of 45 basis points. And my question is, is that the total over the three-year period?

MS. AARONSON. The cumulative effect.

MR. BULLARD. And I presume this is not statistically significantly different from zero?

MS. AARONSON. Given our staff forecast errors, you mean?



MR. BULLARD. Yes.

MS. AARONSON. Yes. That's right.

MR. BULLARD. It's estimated to be a small positive effect, but sort of statistically speaking, you can't say too much. Okay. Not to mention model uncertainty, which would be gigantic.

MR. WILCOX. I think that's correct. I mean, it has to be correct. On the other hand, if we were to apply the standard that we would only build in effects that were deemed to be statistically significant, we'd have remarkably little to say.

MR. BULLARD. I totally understand. I just want to put in perspective what we can say about future fiscal policy in a realistic sense, in view of model uncertainty and statistical uncertainty, and I think the answer is "not much, but we do the best we can."

On "Understanding Movements in the Dollar," exhibit 6, if I'm reading the graph on the real dollar—panel 2—correctly, we're now assuming a bigger appreciation of the dollar. We've talked about this before, and I've questioned this before. We're saying that the dollar is going to appreciate because we're going to surprise the world with more aggressive monetary policy than it currently expects. And yet when I look at panel 4—"Implied Federal Funds Rate Path"—in Mr. Potter's exhibit 1, I see that the market now expects a much higher federal funds rate path—in fact, much closer to the Committee median—than before. So it seems like if anything, on the basis of that, we should be expecting less appreciation of the dollar, not more.

MR. DOYLE. In panel 2, if you look at those black solid and black dashed lines of the current and previous forecasts of the broad dollar, most of the difference is the jumping off point—that is, the higher dollar that we've already seen. And I realize that it's almost imperceptible, but if you look at those two lines you'll actually see that the solid line—the

forecasted line—is actually slightly flatter because market expectations and the staff’s implied path of the policy rate have come closer together. There’s less surprise built in, so this has flattened out the path a little bit. But there’s still some surprise. And that gets you an upward tilt.

MR. BULLARD. Yes. Look at the implied federal funds rate path. According to this picture, almost nothing in 2017, very little by the end of 2018—almost all of it is out in 2019.

MR. DOYLE. In Simon’s presentation, what he’s comparing is the market-implied path and the SEP path for September.

MR. BULLARD. It’s changed a little bit.

MR. DOYLE. That’s right. And what I was referring to was the staff’s assumption regarding policy. And I believe there was a Taylor-rule panel that I feel like I passed through at some point in time. Is it that one right there, Don?

MR. BULLARD. So it’s the appreciation of the dollar because the Committee is going to follow the Taylor (1999) rule—as opposed to the SEP path, which tells you what the Committee participants actually think they’re going to do.

MR. DOYLE. That’s what’s implied in the staff projection.

MR. BULLARD. Isn’t this a little bit off in comparison with what we should be doing? I mean, you’re projecting increases in the dollar that are affecting the whole milieu of how we’re going to look at the future evolution of the international economy and the U.S. economy. And it’s all based on what you think the Committee is going to do versus what the Taylor rule says the Committee should do.

MR. KAMIN. Well, arguably. I mean, let’s put it this way—our job is to present an internally coherent forecast to you. And it’s one in which, basically, market expectations interact

with monetary policy. If we think that markets are going to respond to a monetary policy path that they do not anticipate, that should have implications for the dollar. Those changes in the dollar should feed back to the real economy and, in turn, to monetary policy. It sounds very circular, and that's because it is.

MR. BULLARD. No, I understand.

MR. KAMIN. And that's why, basically, we need to produce a forecast that takes into account all of the different reactions of the variables to everything else, and what we deliver is what happens after the market has settled down and we've converged in our projection to a consistent set of projections.

MR. BULLARD. I guess another way to do it would be to take a market-based forecast of the dollar.

MR. KAMIN. We could do that. I think that's the IMF strategy, in terms of some of its projections. We can do that. That would mean that as we think about monetary policies as we go forward and consider changes in those monetary policies and their effect on the economy, then, by assuming a market path for the dollar, which is invariant to our monetary policy, we're basically shutting down a transmission channel of monetary policy. And that should lead, I think, to a less reliable forecast of the economy, or at least one in which you would have to think more about, "This is what the path of the economy will be if the dollar is fixed according to the market path. What will it be if we think the dollar responds to monetary policy?" In some sense, it would make your job more complicated in interpreting our forecast.

MR. BULLARD. I guess what I'd like to stress to the Committee is that, when we look at these dollar exchange-rate forecasts, they are forecasts made on the basis of the Committee actually following a Taylor (1999) rule.

MR. LAUBACH. An inertial Taylor (1999) rule.

MR. BULLARD. I have one more question on the “Understanding Movements in the Dollar” exhibit, panel 3, “Dollar Response to Monetary Policy Surprises.” Is the staff rule of thumb a fitted regression line or is that just a line?

MR. DOYLE. That particular line is just a line. We have shown the Committee, I think in the chart show in June, what the fitted line has been historically and what it’s been more recently. Since 2010, that line is steeper line. If you go back historically, the line is shallower. There’s a lot of uncertainty depending on the time period you choose to look at. And what we’ve done, I think, over the past year is move that rule of thumb up away from the longer historical period toward a more recent experience.

MR. KAMIN. But the rule of thumb is informed by regressions that we run of exchange rates on changes in interest rates during, before, and after FOMC events.

MR. BULLARD. It’s informed, but it’s not really based on these data.

MR. KAMIN. It actually is based on these data, because these are all the FOMC dates since 2010.

MR. DOYLE. That’s right.

MR. KAMIN. And that, in fact, comprises our sample.

MR. BULLARD. So it is a fitted line.

MR. KAMIN. Yes. Brian?

MR. DOYLE. No. Using this period, a fitted line would actually be steeper.

MR. BULLARD. Okay. So if it was a fitted regression line, then there would be some confidence bounds surrounding it. It looks to me like the red dot is actually within those bounds.

MR. DOYLE. The red dot is certainly within the confidence bounds. I mean, the confidence bounds would actually be outside of the presentation.

MR. BULLARD. You've spent a lot of time in the presentation saying, "Well, this was outsized, looked outsized" or something, but it's not really.

MR. DOYLE. It's outsized relative to just the point estimate of the rule of thumb. But it is true, the confidence bounds are huge.

MR. BULLARD. Just look at these blue dots here. You've got a lot that are just as big as the red dot.

MR. POTTER. The dollar did move a lot, a few days after the election.

MR. BULLARD. No, I understand the dollar moved a lot after the election, but not really that much outside of other events or other surprises that have happened. That's what this would say.

MR. DOYLE. All right.

MR. BULLARD. Okay. Thank you.

CHAIR YELLEN. Okay. Any further questions? President Lacker.

MR. LACKER. Yes. Just a brief, partial defense of the staff.

MR. WILLIAMS. Watch your wallet. [Laughter]

MR. TARULLO. This is a man-bites-dog story here. [Laughter]

MR. LACKER. President Bullard was inviting us to compare the net effect of fiscal policy with the staff's forecast error. But I think that a part of the staff's forecast error that's attributable to shocks that occur in the economy after the forecast is written is irrelevant to the question of the difference between two alternative futures, with and without some assumed intervention. Perhaps some error in that estimation of that difference might be attributable to

uncertainty about coefficients, perhaps model uncertainty. But, surely, the forecast error attributable to shocks that are realized is irrelevant to that. So I think it's an open question as to whether this is within error bands or outside of them.

MR. BULLARD. What would you say about model uncertainty, President Lacker?

MR. LACKER. Model uncertainty? Models are uncertain. [Laughter] That's a blank check, right? I mean, unless you actually calculate it with a certain set of models. And I'm not sure they ever show us those things.

MR. BULLARD. My statement was that we can't tell with very much accuracy what the improvement would be, and I guess I stand by that.

CHAIR YELLEN. Okay. Seeing no more questions, I suggest we begin our economic go-round, have a few presentations, and then take the coffee break later on. Let's start with President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. There have been substantial changes in financial markets since our previous meeting. The 10-year Treasury yield has increased more than 60 basis points, the dollar has appreciated, and the stock market has reached new highs. I must admit, however, that despite all the excitement in financial markets since the presidential election, my economic forecast has responded with more restraint, in part reflecting my skepticism that fiscal and regulatory policies are likely to be as transformative as some of the markets seem to be anticipating. Like the Tealbook, I expect the economy to significantly overshoot full employment. In my forecast, the unemployment rate declines to 4.2 percent by 2019, well below my estimate of the natural rate of unemployment of 4.7 percent. This occurs despite my assumption of an increase in the federal funds rate at this meeting and about four more per year over the forecast horizon. If I took literally the fiscal policy as announced by the

incoming Administration, it would call for much more monetary policy tightening. However, reflecting my skepticism about the speed of adopting new fiscal policies and the uncertainty regarding the magnitude of fiscal policies that will actually be passed by the Congress, I continue to assume a relatively gradual increase in the federal funds rate. Should my skepticism prove wrong, we will need to tighten more quickly.

Because of the overshooting of full employment in my forecast, I was quite interested in the staff memos discussing earlier periods of overshooting. My own conclusion after reading the memos is that significantly overshooting full employment in the United States almost always results in adverse outcomes. Because there is uncertainty about the exact value of the natural rate, there is merit in probing how low the natural rate might be. At the same time, it is important to weigh the potential costs of an unemployment rate that falls well below all of our estimates of what is sustainable in the long run. The countervailing costs and benefits are the reason it can be useful to probe the lower natural rate of unemployment, but remaining more than  $\frac{1}{2}$  percentage point below our best guess of the natural rate for a prolonged period of time would be more like a plunge than a careful probe.

My forecast envisions a very gradual decline in the unemployment rate, reaching  $4\frac{1}{2}$  percent by the end of 2017. However, with the unemployment rate for November already at 4.6 percent, there is considerable risk that we will overshoot full employment by even more than I forecast by the end of next year. If it becomes clearer during the course of the year that this is occurring, I would expect monetary policy to need to tighten more quickly.

It is worth noting that there is increasing evidence of tight labor markets. The share of the unemployed who have been unemployed for less than 27 weeks is now near historical lows. In contrast, the share of unemployed workers who have been unemployed longer than 27 weeks

remains fairly elevated. The general scarcity of workers should encourage employers to hire those who have experienced long-duration unemployment. In support of that notion, we have seen some increase in the probability of reemployment for long-duration workers, although such hires likely come with additional training costs.

In view of the general tightening of labor markets, employers are likely to bid more aggressively for those workers with the appropriate skill set. Indeed, there is already evidence—for example, the wage increases apparent in the Atlanta Fed’s Wage Growth Tracker—that labor costs are starting to rise. Anecdotally, employers in our region increasingly complain about a shortage of workers. This is certainly consistent with the low unemployment rates in many parts of New England, with the unemployment rate in Massachusetts now at 3.3 percent and in New Hampshire now at 2.8 percent. These employers increasingly mention a shortage of workers limiting growth opportunities for their firms. Consistent with the perception of tightening labor markets and the data in the Wage Growth Tracker, these firms are increasingly talking about offering higher wages and increasing their budgets for workforce development.

In sum, my forecast involves an assumption of the same withdrawal of stimulus as the Tealbook. The recent increase in longer-term rates and the dollar appreciation are already doing some of our work for us. Even so, there is a significant risk that fiscal policy will be even more expansionary than I have assumed. As a consequence, I see the risks associated with my GDP forecast as weighted to the upside and the unemployment rate weighted to the downside. Although there is a great deal of uncertainty concerning fiscal policy, even with an unaltered post-election fiscal policy assumption, my forecast has the unemployment rate falling well below its full-employment rate and inflation somewhat overshooting our inflation target by the end of



the forecast, albeit with a very different outlook for longer-term rates and the dollar. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. The economy is on a solid trajectory, the labor market is strong, and the recent employment report suggests that we have achieved or even overshot our full-employment mandate. And we continue to make progress toward our inflation objective.

Of course, a key development during the intermeeting period was the election and the prospect of increased fiscal stimulus in coming years. Financial markets and many of my contacts expect big changes in taxes, spending, and regulation, but they also stress the enormous uncertainty about the size, scope, and timing of what will eventually be passed. Now, this can be seen in measures of policy uncertainty, like the Baker, Bloom, and Davis index, which rose notably after the election. My contacts are divided between those excited by the prospect of lower taxes and less regulation and those concerned about the possibility of large cutbacks in spending on health care and social services, higher tariffs, and labor shortages due to restrictions on immigration.

On balance, our conversations with business contacts in my District portray a cautious optimism. In their view, the key uncertainty today is how much new policies will help businesses over the near term. Will it be a modest bump or a large boost? One summarized this as “positive uncertainty.” But not all of my contacts were so giddy. There are identifiable losers in discussions about policy changes. For example, we have a contact from the health-care sector who complained that having finally paid the substantial costs of implementing and adjusting to the Affordable Care Act, he now has to pay the substantial cost of adjusting away from it. And

the head of a large medical system reported that they have already reduced capital spending and hiring. As he put it, “While we’re not yet in a formal hiring freeze, it would be accurate to describe our current stance as a hiring chill.” Representatives of charitable institutions worry that demand for their services will increase even as tax cuts reduce incentives for charitable giving.

At this point, I still view the risks to my projection as balanced but not unusually large relative to the past 20 years. In part, my views reflect the fact that I penciled in fiscal stimulus of similar magnitude to the Tealbook, although a bit more backloaded, reflecting the fact that I anticipate a mix of tax cuts and other changes that may take longer to agree on and then to implement. If anything, the possibility of an even bigger fiscal stimulus tilts the risk to the outlook for output growth and inflation modestly to the upside. In terms of uncertainty, despite the spike in policy uncertainty that I mentioned, readings from financial markets, such as the VIX, hardly point to elevated uncertainty overall.

I have not changed my assumptions about the longer-run levels of output growth, the natural rate of unemployment, or  $r^*$ . In contrast to the Tealbook, I view it as premature to speculate about the potential effects of changes in federal policies on the longer-run level of  $r^*$  at this time. On this issue, I think it’s not enough just to talk about the change in the deficit—the details matter. Until we have greater clarity on what policies actually get enacted into law, I’ll maintain my current  $r^*$  assumption of  $\frac{3}{4}$  percent. I would add that the level of  $r^*$  is affected by more than just U.S. policies and U.S. economic developments, and that global forces will continue to put downward pressure on  $r^*$ . For example, weighted-average estimates of  $r^*$  for the United States, the United Kingdom, Canada, and the euro area stand at slightly above zero today.

The one place in which we do have clarity is the labor market. We're already overshooting our goal, and I project even greater overshooting of full employment and some modest overshooting of our inflation target. To limit the degree of overshooting of our goals and the buildup of risks to the economy, I have penciled in four funds rate increases next year and even more in 2018. Like the Tealbook, my forecast also contains some overshooting of the federal funds rate relative to its longer-run equilibrium level in 2018 and 2019. I am SEP respondent number 14.

Let me conclude with some additional comments about labor markets. Despite an unemployment rate that is at the lowest level since 2007, there remains concern that we have yet to wring out every pocket of labor market slack. There's been extensive effort throughout the Federal Reserve System over the past several years to measure the state of the labor market and assess the degree of slack. Recent joint work from my staff and colleagues at the Richmond Federal Reserve add to this body of work. Instead of debating whether to include one group or another as part of the labor force, they let the data do the talking. They developed an alternative metric of labor market slack that scales all members of the population by the historical relative propensity to find employment. An interesting insight of this work—and President Lacker has talked about this previously—is that if you look at the job-finding rates of the marginally attached to the labor force—people out of the labor force but who would like to work—their job-finding rates are basically the same as the long-term unemployed. We've had a lot of debates about what's the right definition of the labor force. But I think the right answer to this is there is no right definition of the labor force, because a lot of these groups actually move back and forth between these categories.

Again, what they do is take everybody who's in the population, and then they don't make an ex-ante decision about categories—they take everyone in the population and weight them by their chance of landing a job in a given month. The resulting measure of worker availability provides a theoretically consistent read on the amount of slack in the labor market. And, looking at data through October, the nonemployment index that they come up with stands at levels similar to what we saw back in 2005, which I think is a nice benchmark for when the economy was thought to be at full employment. And this research provides additional evidence that the unemployment rate today is currently providing a reliable signal of labor market slack and that we've reached a full-employment economy. Thank you.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. According to the markets, this is likely to be the second meeting in eight years at which the FOMC changes the federal funds rate. The market's logic is clear: The conditions we have set for raising the federal funds rate have been met; we have, in essence, confirmed that we believe they have been met; and we will therefore go ahead. In addition, market reactions since the election victory of Mr. Trump have been remarkably positive and consistent with our moving at this meeting.

This meeting and this interest rate decision may also mark the end of the post–Great Financial Crisis period in which U.S. monetary policy was most heavily influenced by the memories of the 2008–09 financial crisis, among them the fear of having again to operate in a ELB environment. Will the critics and the historians write that we were justified in moving at this time of enormous uncertainty about what awaits us in the coming year? And will they say that this was the real beginning of the normalization of monetary policy after the second largest financial crisis in the history of the Federal Reserve? Well, there's a great deal of uncertainty

about that, because there's a great deal of uncertainty about U.S. economic policy in the months and years ahead and, of course, about the shocks that will impinge on the world economy, which includes the economy of the United States.

I want to mention briefly the study that was presented by Stephanie of the implications of the unemployment rate undershooting the natural rate or, equivalently, the benefits and costs of running a high-pressure economy. It was encouraging to read that soft landings can and do happen. However, the memo notes that in real time, we really don't know just how tight the economy is. And we, of course, don't know what shocks are awaiting us around the next corner. And if you think that's not right, just think back a month and a half. Another lesson provided by the memo is that we must stay vigilant on inflation. History shows that the inflation process, which appears pretty benign at present, can change quickly. Thus, monetary policymakers will remain focused on keeping inflation near its target.

Turning now to the recent behavior of the financial markets, market participants' optimism derives in part from the fundamentally sound state of the U.S. economy after a recovery that has so far lasted 19 months, and for which a significant part of the credit is owed to the Federal Reserve—not only for the unconventional monetary policies it has undertaken in the period since 2008, not only for the steadiness with which it has pursued the goals set out in the dual mandate, but also for its vigorous implementation of the Dodd-Frank Act. But market participants are also, in part, optimistic about equity prices and pessimistic about bond prices, because they believe U.S. nonmonetary economic policies from 2017 on will be more expansionary, and more inflationary, than they had believed a little more than a month ago.

Nonetheless, we need to remind ourselves that, at this stage, although we have a general idea of the direction of future U.S. economic policies, there is a great deal of uncertainty about

what will be done and when; about the size and direction of fiscal policy changes; about regulatory changes across a broad range of areas, including with regard to financial regulations and labor market policies; about trade policies and the taxation of the foreign earnings of U.S. companies; about NAFTA and other trade agreements; and about events in foreign economies, in China, in the EU, in the process of Brexit, in emerging market and developing economies, in the oil markets, and no doubt in other areas, some of which we can name today, some of which will come as surprises.

We will need to note that future economic growth will depend critically on future rates of productivity growth, about which there's considerable uncertainty and about which questions similar to those about the effect of a high-pressure economy on unemployment are relevant.

There will likely also be challenges to the current operating procedures of the Federal Reserve and to its independence. We will be operating, too, in an environment in which many of the assumptions about the role of the United States in global affairs more generally that have held for more than 70 years may need to be adjusted.

There must be more uncertainty about economic developments over the next four to five years in the United States and world economies today than there has been since the beginning of the Great Recession, and that means there is a great deal of uncertainty. So what can we say to market participants about future monetary policies? And what can we say about future monetary policies to the general public? And what do we say to ourselves?

Now, we've been talking about the details of what's going to happen as if we are still in the normal period. I think that we're at the beginning of a very different period, and that we're going to have to think about it. I think that what we've done today, which is essentially to make a fairly simple assumption about what will change—namely, fiscal policy—and not discuss or

not include other changes, is about the only way we could proceed, because there is so much uncertainty about the state of the economy over the next few years.

What we'll have to do is to emphasize to everyone that our actions will continue to be guided by the dual mandate along with a concern for financial stability. In practice, that most likely means we will not change the interest rate at our end-of-January meeting, for there will be very little reduction in uncertainty by then. There could be a change in the interest rate in mid-March, but even then we will remain extremely uncertain about future economic developments. But whatever happens, it is critical that we behave—and be seen to behave—with the goal of achieving our dual mandate and with a calmness that we have shown in the past. The bottom line is very simple: We must do our job. Looking back, we have the comfort of knowing that we can rely on one another, on the Chair, and on the excellent staff of the Federal Reserve to do that as best we can. And we also know that our best has been remarkably good. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. Over the past couple of months, labor markets and the path of inflation have continued to progress pretty much as anticipated in many forecasts, including that of the Tealbook, and I found that fact in and of itself to be significant.

With respect to inflation, the stabilization of prices in 2016 that was anticipated at the end of last year by many around this table has been realized. As expected, the effects of the big energy price decreases are tailing off, and unlike a number of occasions over the past several years when one factor holding down inflation faded only to be replaced by another, it does not appear that any new disinflationary impulse is currently in play. I'm a little less sure as to whether the effects of a strengthened dollar will also recede, as there seems to me some risk of

further strengthening. But, even if that happens, I doubt it would be of the magnitude of the earlier episodes. And, actually, I now see the risks to inflation as slightly to the upside—with the possibility that the production cuts announced by international oil producers will hold, and with some chance that fiscal policy in the next year or two will become significantly more stimulative.

With respect to labor markets, I have found that our focus on slack over the past couple of years—slack that was not reflected in the unemployment rate as such—has served us well and has served the country and the economy well. But, as I said at the previous FOMC meeting, I thought we might be getting within sight of the point at which labor market slack had been largely taken up. Data in the intervening two months have reinforced that view. As one of our staff economists nicely put it, “Nearly all labor market indicators are either strengthening or are already strong.” Some of the strong numbers obviously include job creation, which, although at a slightly lower level, continues to be substantially above the number needed to create a net increase in employment relative to the labor force. Job openings continue to be high, and layoffs continue to be low. Some numbers, which are already good, are strengthening even further, such as first-time claims. Now, although wages stalled in the November report, this seems to me the classic case of not wanting to read too much into one data point, particularly against the backdrop of several previous months’ indications of some improvement in wages generally.

With respect to indicators of slack, the unemployment rate has finally declined, and obviously it declined by a substantial amount. I don’t think the magnitude of this decrease is going to hold fully, as the staff projection has suggested, but some of it is very likely persistent, breaking the year-long streak of significant labor market improvement unaccompanied by a decline in the unemployment rate. Other indicators of slack, such as part-time for economic reasons and the share of the long-term unemployed, have continued their gradual improvement.



The decrease in the labor force participation rate in the November report is consistent with, though certainly doesn't firmly establish, the possibility I mentioned at the previous meeting that the labor force participation rate has returned to our best estimate of its trend and, at least on the basis of past experience, may thus not be expected to increase above that level in anything but a transitory fashion. Of course, we've adjusted our estimates of trend over the past several years and may again, so I don't want to place too much weight on this factor, but it is something concrete suggesting that slack reduction may be nearly complete.

With respect to wages, I'll just note in passing again that I continue to regard the labor market as a surrogate for output constraints rather than relying on a direct Phillips-curve unemployment–inflation relationship, but I still do find wages to be relevant. Here, I do want to note my uneasiness with explanations of wage increases tied too predominantly, in the short to medium term, to productivity limitations. I think that this approach tends to underplay the fact that labor prices, like other prices, are set at the intersection of a demand curve and a supply curve, and although the demand-curve shape is determined in significant part, though not exclusively, by productivity considerations, the supply curve is not. And I think too much focus on productivity also tends to make the causation one way, whereas my sense is that productivity improvements sometimes come precisely because of upward pressure on wages that motivate firms to invest in productivity-enhancing technologies or production techniques.

So as you can tell, in general, my observation for this FOMC meeting is “the shoe that didn't drop,” which is to say that things have kind of continued as expected. And at least with respect to labor markets, as I suggested last time, I think we're now well within the point at which the elimination of slack is in view.

The second point I was going to make at some length was the uncertainty attending the outlook, but I'm going to truncate my comments substantially because Governor Fischer made most of those points. If I can do this for purposes of the minutes, I would just second everything Governor Fischer said about the fiscal situation, the fact that there are other policies being discussed, and how there are upside and downside risks. It was for that reason, incidentally, that I regard fiscal policy as an upside risk of somewhat indeterminate magnitude, but I did not incorporate any assumed changes into my baseline outlook. And my view is that for purposes of our policymaking, we will have plenty of time over subsequent meetings to incorporate likely effects of a range of policies as they become more concrete.

And, finally, Madam Chair, to add my two cents' worth to people's comments on the Aaronson et al. memo, I have to say my interpretation of Stephanie Aaronson's briefing and the related staff memo was that the strongest conclusion was that the most important factor is luck. That is to say, if you are in a circumstance in which you are trying to either execute a soft landing or deal with inflation, the strong conclusion was that there's likely to be some sort of shock that you haven't anticipated. And then the question is: Is it a shock taking you in the direction you would want it to take you or is it reinforcing the direction that you're trying to reverse? I don't know that that actually provides an enormous amount of policy guidance.

Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. The biggest piece of news in the intermeeting period was the reduction of uncertainty regarding the U.S. elections. With the same party slated to control both houses of the Congress and the presidency, fiscal policy may become considerably more active. At this early stage, however, considerable uncertainty remains about

the size, composition, and timing of the policies the new President and the Congress will pursue. Although financial conditions have changed since the election in anticipation of these possible policy changes, the intermeeting data on real activity has been little affected by the election. Thus, I'll first review what the data are telling us about the economy's current course before turning to the possible implications of fiscal policy changes over the medium term.

I've been heartened to see progress toward both of our goals continuing at a sustainable pace. Recent reports validate the prudent approach we've taken over the course of 2016. Against the backdrop of notable risks associated with developments abroad and with the persistent underperformance of inflation, we were well served by not taking this progress for granted *ex ante*. Since we last met, the labor market has continued to improve. Over the past two months, payroll employment gains have averaged 160,000, sufficient for a continued increase in resource utilization. The unemployment rate fell 0.3 percentage point last month, and it is now 4.6 percent. Although this has led some to conclude that the labor market is now beyond full employment such that future increases in resource utilization will be unsustainable, there are a couple of reasons to think it could be somewhat premature to draw this conclusion.

First, last month's large decline seems out of step with other gauges of labor market activity, such as payroll gains, job openings, and layoffs, which have remained fairly flat. The unemployment rate had also been quite stable over the past year or so, remaining within a range of 4.9 to 5.1 percent between August 2015 and October 2016. There was only one drop during that time period, and it turned out to be a short-lived aberration. We cannot rule out the possibility that November's drop will be viewed as somewhat outsized in retrospect, so we should wait a few months before drawing firm conclusions.

Second, there are signs of remaining slack in the labor market even though the margins are diminishing. Most notably, the prime-age employment-to-population ratio remains 1.4 percentage points below pre-crisis levels, and the number of prime-age Americans who are out of the labor force but want a job today is still elevated—notably elevated—relative to pre-crisis. Related to this, nominal wage growth remains muted. The ECI increased only 2.3 percent over the 12 months ending in September, little different from the pace earlier in the recovery, and average hourly earnings increased 2.5 percent over the 12 months ending in November.

The still low level of price inflation is consistent with this interpretation. Core PCE inflation has exhibited some welcome improvement in recent months. At 1.7 percent in October, the 12-month change in core prices was 0.4 percentage point above the level a year ago. Even so, inflation has been persistently below our target for eight years, and it remains below our target today. Against this backdrop, I welcome the recent upward movements in measures of inflation compensation. Most notably, the 5-year, 5-year-ahead TIPS measure of inflation compensation has increased 40 basis points since October, and median 5-to-10-year-ahead inflation expectations in the Michigan survey moved up in November from a historically low level. But, even with these recent improvements, these gauges of inflation expectations are still noticeably below historical norms, suggesting that we must continue to be attentive to downside risks if we're to achieve our target, which is symmetric around 2 percent.

The news on aggregate activity has likewise been encouraging. Recent indicators suggest GDP will increase at an annual rate of 2½ percent over the second half, a step-up from the 1.1 percent pace in the first half. Retail sales rebounded in October, auto sales remained strong in November, and real income gains look to be solid this year despite a leveling-off in energy prices—all good signs for consumers. In addition, recent data on housing starts and permits

suggest an upturn in residential investment this quarter, following two quarters of declines. In addition, although business investment was flat last quarter after falling in the first half of this year, there are some positive signs. These include small upturns in new orders for capital goods and corporate profitability, as well as in drilling rigs, which likely reflect both demand- and supply-side developments in oil markets. But there are also challenges, most notably the recent rise in the dollar and the foreign outlook.

After changing little over the middle part of the year, the dollar has increased more than 3 percent since October. The staff expects the dollar to appreciate further, by a little more than 1 percent per year over the medium term. But there's a risk of a larger appreciation if fiscal deficits expand more materially. And, although foreign GDP growth looks likely to move up to an annualized pace of 2½ percent over the second half—a welcome improvement—the pace of foreign growth is still considerably lower than earlier in the recovery.

There are also important fragilities in the international environment. A strengthening dollar and rising rates could pose risks to emerging markets that have experienced substantial dollar-denominated borrowing in recent years. For some, this may be somewhat offset by the prospect of stronger commodity prices, but for others, this may exacerbate strains. Mexico, in particular, bears watching because of the outsized currency moves it has experienced related to the election and the extensive ties to U.S. financial markets and trade that could be perturbed in the months ahead.

China continues to pose risks, although as was noted earlier, market participants seem quite complacent compared with the first quarter of this year. Due to stimulus, GDP growth is likely to meet the government's stated objective this year, but attainment of this goal comes at the expense of a further increase in already very elevated leverage. In most economies, the

current trajectory of indebtedness would not be sustainable. It remains to be seen whether China is, indeed, unique in this regard. Most immediately, demand for foreign assets by Chinese households and businesses appears to be increasing, despite the Chinese government's efforts to rein in that demand. Capital account outflows have picked up after a midyear lull, putting downward pressures on the renminbi, which has fallen about 6 percent against the dollar so far this year. The Chinese authorities are estimated to have spent nearly \$40 billion in foreign exchange reserves last month alone. It seems likely that this combination of limited domestic investment opportunities, recent government-induced increases in domestic credit and liquidity, and fears of further depreciation and tightening of exchange controls is driving increased demand for foreign assets, and these pressures could intensify early next year. The Chinese authorities can continue to tighten controls, but this, in turn, has costs in terms of their desire for more private-sector-led economic growth in order to accomplish gradual deleveraging.

In Europe, the “no” vote in the December 4 Italian referendum was widely expected, and the reaction was muted. The ECB retains substantial capacity, as it reaffirmed last week. But the need to recapitalize Italian banks remains, and a credible plan has not yet been agreed upon. Nonperforming loans are quite high, and economic stagnation would continue to add to the level of problem loans on balance sheets. Broader stagnation also poses risks to Italian sovereign debt, which is currently about 130 percent of GDP. Some large European banks outside of Italy have also been challenged by low profitability and relatively low capital ratios and remain vulnerable to a slowing of economic growth.

Returning to the United States, we're now in the eighth year of the expansion, and as we scan the horizon for any increases in risk taking, I found it interesting that, in recent interviews with market participants, all of them highlighted a low level of leverage among investors despite

the environment of very low short-term interest rates. This suggests that regulatory changes and a renewed sensitivity to risks since the financial crisis have constrained, at least up to this point, undue leverage in the financial sector and have reduced, at least for now, an important source of risk, but this bears close watching.

Finally, the advent of a unified government suggests an increase in upside risks to aggregate demand in the United States. Financial market participants and the Board's staff expect deficits to increase into the future. It's too early to evaluate the size of the effect on the economy, in view of substantial uncertainty about the magnitude, the composition, and the effects on aggregate demand and supply, as well as on term premiums. Looking at earlier episodes when significant electoral shifts led to greater unity across the legislative and executive branches, we saw very large increases in deficits, on the order of 1½ to 2 percentage points of GDP, that persisted beyond the first term. Notably, episodes in the early 1980s and 2000s occurred when the economy was further from full employment and there was greater headroom in the national debt.

A large and persistent expansion of fiscal deficits targeted at high-multiplier segments, such as infrastructure investment or low-income households, could have material effects on GDP growth, as well as on the short- and long-run neutral federal funds rate. But for a fiscal expansion to be large and sustainable, it would need to have significant positive effects on aggregate supply. For this to be true, there are a number of very important "ifs" that I won't review here today.

By contrast, an increase in fiscal deficits that does not raise potential economic growth or extend very far into the long term could raise the neutral rate over the medium term, but not as much in the long term. If such an expansion is large enough, the resulting tightening in resource

constraints and upward pressure on inflation may lead the short-run neutral rate to rise above the longer-term neutral rate by the end of the medium term, with important implications for monetary policy. And, of course, we could see additional strengthening of the exchange rate in anticipation of such changes, as we've seen in previous episodes. For the moment, it seems prudent to put some probability on a moderate increase in fiscal deficits starting in the second half of the year, and this leads to a relatively modest change to my forecast. But the possibility of a more significant expansion has altered the risks to aggregate demand and made them more balanced. Thank you.

CHAIR YELLEN. Thank you very much. I suggest we take a break now, grab some coffee, and come back in 20 minutes, at 10 minutes to 4:00.

[Coffee break]

CHAIR YELLEN. Let's resume. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. In my remarks today, I'm going to cover pre- and post-election sentiment of District contacts, anecdotal feedback received from contacts on the state of the economy, and my forecast.

My District's directors and contacts notably changed their tune on economic prospects from pre-election to post-election. The election's results seem to have produced a pickup in optimism based on expectations of an unwinding of regulation, lower corporate and individual taxes, and fiscal stimulus.

Most contacts confirmed ongoing tightening of labor markets. Both employers and staffing agencies reported they continue to struggle to fill positions. We heard that low-wage workers are increasingly difficult to recruit in certain urban and resort locations because of shortages of affordable housing. Staffing agency contacts indicated that many employers are



willing to take longer to fill positions rather than significantly raise starting wages. In order to fill vacancies for low-skilled positions, some firms said they have eased job specs and verification requirements such as drug tests.

We heard opinion to the effect that firms may still be holding the line on starting wages to preserve their salary structures but are, in effect, incurring the costs of labor shortages by way of reduced worker quality and increased training costs. A further point on wage pressures: Anecdotal reports indicated that the overall rate of merit programs remained stable in the 2½ to 3 percent range. However, the Atlanta Fed's Wage Growth Tracker that measures average wage growth of the same individuals accelerated to a pace just under 4 percent in the latest November reading. This is close to pre-recession readings. The labor market looks about as tight as it was before the recession.

Regarding my forecast and SEP submission, my real GDP growth forecast is little changed from the previous SEP and from the outlook that I put forward during most of this year. I had real GDP growing at close to 2 percent per annum over the forecast horizon and for the longer run. However, my risk assessment associated with that outlook has shifted to the upside. The upside risk I perceive reflects accelerating business fixed investment and does incorporate upside risks resulting from changes in fiscal policy. Like Governor Tarullo and others, my baseline projection does not incorporate fiscal policy effects. My thinking is that it's too early to tell the size, timing, and characteristics of any fiscal package. And those details, obviously, matter a lot.

Regarding business fixed investment, my baseline forecast continues to anticipate solid BFI growth over the forecast horizon. Previously, I was worried about my BFI assumption being too optimistic and, therefore, treated this business fixed investment baseline assumption as

carrying downside risk. At the time of earlier forecasts, my assumption regarding BFI growth was not much supported by incoming data and was not getting much support in the form of anecdotal inputs received from business contacts. However, in the most recent intermeeting cycle, we heard indications of accelerating capital spending intentions from a number of contacts. Most contacts cited market demand and revenue growth as the drivers of their revisions to cap-ex plans. In that vein, taking into consideration the likelihood that the economy is arguably near full employment, analysis performed by my staff points out that in earlier periods in which the unemployment rate reached or fell below its natural rate, there has been a sizable pickup in the pace of business fixed investment. This evidence buoys my confidence in the view that BFI growth will accelerate.

My baseline forecast also sees headline and core PCE inflation reaching rates consistent with the Committee's target in 2017 and holding near target thereafter. Consistent with treating the economic growth effect of fiscal stimulus as an upside risk, I see some upside risk for inflation.

Even though I believe an agnostic view of the economic effect of expected fiscal stimulus is the right position at this time in a baseline forecast, it's my view that the possibility of fiscal stimulus reduces the need to think about running a high-pressure economy, dependent solely on monetary policy. My thought process is that we appear to be very close to meeting our policy objectives, there is not much remaining resource slack, and there is reason to be confident that we will be closing in on our inflation objective relatively soon. With a prospect of substantial fiscal stimulus, I am inclined to be somewhat cautious in weighing the degree of monetary accommodation. I will add that an upside scenario resulting from new fiscal measures could

present communications challenges for the Committee, even in the near term, in my opinion.

And I'll expand on this thought in the next round. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President George.

MS. GEORGE. Thank you, Madam Chair. Economic conditions in much of the 10th District remain a bit soft as employment growth lags the nation as a whole. The outlook for the agricultural sector continues to be negative despite the boost in demand from abroad for soybeans, which made an outsized contribution to third-quarter GDP. Some of the headwinds in other sectors of the regional economy, however, look to be dissipating. Our manufacturing- and service-sector surveys both show signs of improvement, and District energy firms appear to have adjusted to lower oil prices. One report pointed to familiar telltale signs of boom times in the Denver real estate market. The online *Denver Business Journal* has resumed a feature called "Crane Watch," watching the number of cranes across the sky.

In general, our directors and other labor and business contacts noted more optimism as they anticipate and assess the effects of potential fiscal policy changes. A notable exception was health care and nonprofits, for which our contacts expressed heightened uncertainty and concern about such changes. Unlike the Tealbook, I did not incorporate assumptions about potential fiscal policy changes into my SEP, on account of the considerable uncertainty about the nature and timing of any such changes. As a result, my outlook for the national economy is little changed and I continue to assume GDP growth near 2 percent over the next few years. Of course, the prospects of tax cuts and more fiscal spending seem likely to pose upside risks to my GDP growth and inflation forecasts over the next few years.

I expect further improvement in the labor market to support household spending and economic activity. The Kansas City Federal Reserve's labor market conditions index shows that

both the level of activity and the momentum in the labor market increased last month. Consumer confidence remains high and has continued to increase over the past few weeks. In addition, the personal saving rate remains high by historical standards, even as housing and equity market wealth post near-record highs.

Like others, I appreciated the Board staff memos on overshooting full employment and the various approaches they examined for determining economic slack. And I would offer just a couple of observations from their analysis.

First, in assessing labor market slack, I'd be interested if geography is an important aspect for this discussion. For example, as I looked at states in my own District, the unemployment rate in New Mexico has never really recovered since the crisis—it's lower, but only modestly, and still well above pre-crisis levels. For this particular geography, I see the issues as structural and complex. For a state like Oklahoma, the unemployment rate increased a full percentage point over the past year. The issue here reflects a sectoral shock—namely, to energy—which has resulted in some reallocation in labor and capital. I see this shock as largely cyclical and unlikely to generate longer-term structural issues. Finally, Colorado's unemployment rate remains near historically low levels and likely below its state-specific natural rate of unemployment. These three examples highlight the difficulty of gauging overall slack, as each local labor market faces a different set of issues.

A second observation on these memos goes back to a question from our previous meeting about historical experience in undershooting the natural rate of employment. Here, I found the staff's broad conclusions of the memos did not necessarily diminish my own concerns about this strategy. Namely, it poses risks, it has uncertain benefits, and, even as policy is calibrated to achieve a soft landing, it requires, as Governor Tarullo and the staff noted, a bit of luck.

Regarding inflation, I continue to view current rates of inflation as consistent with our mandate for price stability and with PCE inflation continuing to make progress toward the Committee's 2 percent objective. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. The economy has made further progress toward our objectives since the November meeting. Core inflation has ticked up; the headline unemployment rate has declined; and GDP growth has picked up since midyear, which should support continued further tightening in labor markets and progress toward 2 percent inflation.

The November jobs report confirms that the labor market continues to tighten, albeit at a slower pace than over the past few years. Over the past 12 months, the unemployment rate has now declined 0.4 percentage point compared with an average annual rate of 0.9 percentage points over the preceding four years, which reflects both a welcome outperformance of labor force participation relative to trend as well as a slower pace of job creation. We are seeing rising real wages and improving job prospects. Surveys indicate that households are finally seeing jobs as plentiful, and firms are finding it harder to fill positions—results that have typically been seen at or above full employment. The unemployment rate at 4.6 percent is now a bit below most estimates of the natural rate and seems to be on a path to reach the low 4s. There is some evidence now of emerging supply-side constraints, particularly in surveys of jobs hard to get and hard to fill. On the other hand, wages and compensation more broadly have yet to show more than a gradual halting increase.

The interesting and excellent staff memo on undershooting the natural rate finds limited evidence on the question of whether such an undershooting should be expected to have highly persistent or even permanent positive supply-side effects. The evidence is limited for one

reason: Because undershoots are rare. The record, however, is clear that prolonged high unemployment can have adverse supply-side effects as workers lose skills and attachment to the labor force. From 2009 through 2013, labor force participation suffered a deep cyclical decline. The exact levels of the natural rate and the trend participation rate are always uncertain. That uncertainty is even higher than usual, in view of the unique characteristics of this cycle.

So, as long as inflation is below target, economic growth is barely above trend, and wage increases are moderate, we have time and space to allow the unemployment rate to decline a bit further without too much risk of getting “behind the curve.” I assume that this will be happening in a context of a rising policy rate and gradually tightening financial conditions. There will be time to react if we see upside surprises in economic growth or inflation. A modest undershoot will also help ensure that inflation does move up to our 2 percent target.

The section of the undershooting memo addressing the Phillips curve was quite interesting in this regard. It does not seem likely to me that the inflation dynamics of the 1970s—with high persistence and a steep Phillips curve—are likely to reemerge unless the Committee manages to convince the public that we are okay with inflation moving well above target and staying there. But we have reached the point at which inflation risks are balanced, and I am open to the idea that a sustained period of time well below the natural rate could risk undesirably high inflation. That will be a risk to watch.

The recent increase in market-based measures of inflation compensation is a welcome development. Expectations remain below our target of 2 percent after accounting for the wedge between CPI and PCE inflation. In addition, these readings are still below where they were in early 2014 or during a pre-crisis period when inflation was close to our target. All told, the move up in inflation compensation supports confidence that inflation expectations are well anchored.

As hoped, economic growth has picked up during the second half of the year. With solid increases in PDPF, real GDP is poised to expand at a moderate pace. Consumption accounts for the lion's share of the domestic demand growth and will likely post moderate gains, thanks to solid increases in income. The pace of business investment remains a concern, as nonresidential investment has not increased, on net, in two years, and that weak performance is undoubtedly contributing to the poor productivity outcomes.

Fiscal policy seems set to take a more accommodative turn, and I find the staff's deployment of a hypothetical tax cut amounting to 1 percent of GDP to be a reasonable placeholder. A fiscal policy initiative of that nature would, at a minimum, provide a near-term insurance policy against downside risks, including weak economic growth, low inflation, and global risk events. I did assume such a tax cut in my baseline, but I didn't take it into real outcomes. I just took it as an insurance policy or a reason for greater confidence in the baseline.

In sum, we are essentially at full employment. The economy is expanding moderately and there is poised to be a more expansionary fiscal stance, which is likely to put upward pressure on output growth, employment, and inflation while also reducing downside risks. A somewhat tighter monetary policy is likely to be needed. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. The past six weeks have been remarkable. As one of my contacts said, many uncertainties have receded, but others have gone up. It's still early days regarding the plans of the new Administration and the Congress. But it does seem pretty clear that more fiscal stimulus is headed our way as well as other major government policy changes. At the Federal Reserve Bank of Chicago, we incorporated a modest fiscal boost into our economic projections, which I will describe in a bit.

With respect to non-election-related developments, the reports provided by my directors and other business contacts on the current economic landscape were a bit more positive than was the case in the previous round. Fundamentals for economic growth continue to be solid, with a strong labor market providing a key source of support. Manufacturers in the aerospace and defense sectors have seen further improvements, while heavy equipment producers and the steel industry still face challenges. Automotive sales continue to be robust. Sales, however, are being supported by strong incentives, and the industry currently anticipates that it will need to continue aggressive pricing to maintain this year's sales pace in 2017. I continue to hear businesses repeat their long-running refrain: Many types of skilled workers remain in short supply at going market rates.

This reminds me—a production of *Hamilton* is playing in Chicago, and I've noticed, first hand, that orchestra-level tickets are in short supply at list prices. But I can get tickets on StubHub if I'm willing to pay more. In any case, nominal wage growth remains relatively subdued, suggesting that labor markets are not all that tight yet.

Looking ahead, a number of my directors and contacts were optimistic about some of the President-elect's economic proposals. For instance, steelmakers and heavy equipment manufacturers are looking forward to more infrastructure spending, and, unsurprisingly, our contacts in the financial sector are almost ringing bells and caroling as they recite their Christmas wish lists for reduced regulatory oversight. [Laughter]

On the other hand, one of my directors runs a large health-care delivery system. He's struggling to figure out how major changes to the Affordable Care Act and other new regulatory policies might affect his hospital system and the provision of health care more broadly. Furthermore, the optimism surrounding pro-business proposals and fiscal stimulus was tempered



by some of my contacts' concerns regarding the potential adverse effects of trade and immigration proposals.

Regarding the national outlook, recent nonfinancial data have come in about as expected. In our opinion, the recent increase in 10-year Treasury rates and the further strengthening of the dollar require some additional economic conditioning assumptions. Accordingly, in our forecast, we assume a modest fiscal expansion that increases the primary deficit a little more than 1 percentage point of GDP. This is a similar assumption to that in the Tealbook. To be clear, we also did not make any changes to our path of potential output. By the way, we're number eight in the SEP submissions.

The direct impulse of our fiscal assumption on consumption and government purchases would boost the level of GDP about  $\frac{1}{2}$  percentage point by the end of 2018. We, like the Tealbook, interpret much of the recent increase in term premiums and the dollar as arising from these expected policy changes. These restraining influences limit the direct policy effect, so the net effect on GDP is only 0.3 percentage point by the end of 2018. All told, this is a relatively modest revision to our outlook, considering the substantial financial market reactions to date.

Putting it all together, we continue to expect that real GDP growth will run moderately above its potential rate over the course of the projection period. As a result, we expect further tightening in labor markets, with the unemployment rate falling from our projected average of 4.8 percent in the fourth quarter of this year to 4.3 percent by the end of 2019. This is about  $\frac{1}{4}$  percentage point below the  $4\frac{1}{2}$  percent natural rate that we expect to prevail in 2020. Our expectation of increased fiscal stimulus makes me, like many around the room, a bit more optimistic on inflation than in our previous SEP submission. Financial market developments have included a welcome increase in TIPS inflation compensation—I believe Governor Powell

used exactly the same phrasing, “welcome increase”—as well as more balanced inflation tail risks, as measured by swaps pricing.

We also have seen better incoming data on actual inflation. As a result, I raised my core PCE inflation forecast slightly, by 0.1 percentage point in each of the next three years. I now expect we will reach 2 percent by the end of 2019. This is the first time in years that my forecast reaches our inflation target within the projection period. Despite these upward revisions, I still see downside risks to my inflation forecast, stemming primarily from a strong dollar, but, overall, the downside inflation risks are smaller than they were in September.

My projections are premised on my assumed path of monetary policy. That’s the statement that makes comments about monetary policy appropriate, according to Hoyle. [Laughter] My path regarding appropriate policy has the funds rate increasing 25 basis points this year, twice more in 2017, and four times in 2018. Once we have more clarity from the incoming Administration and the new Congress on their policies, we might have a stronger economic outlook that could well warrant a steeper path of rate increases. I think we need to see how the economy performs with more financial restraint after the past six weeks and tomorrow’s decision. Indeed, in our view, financial conditions and the dollar have already tightened ahead of the direct fiscal stimulus that will likely occur later in 2017. Some people, I’ve already heard, think it’s going to be a little bit later in terms of the direct influence. With the rise of inflation to our 2 percent objective still being just a forecast, albeit a more likely forecast now, I still see a role for caution in 2017. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. According to some interpretations of the Book of Revelations, when three unusual events occur together, they may be a sign that the

apocalypse is near. Let's take stock: The Chicago Cubs have won the World Series, Donald Trump has won the presidency, and Bob Dylan has won a Nobel Prize [laughter].

At the Federal Reserve Bank of St. Louis, we have a regime-switching model of the apocalypse and currently estimate that we are in the no-apocalypse state. But we have increased the probability of a switch to the apocalypse state somewhat in response to these recent events. In my discussions with Eighth District contacts, indications seem to be consistent with the no-apocalypse state. Economic growth seems to be plodding along much as it has been in recent years, consistent with our estimates of a 2 percent trend growth rate. Some sectors, notably agribusiness—and I agree with President George here—remain in a slump, while others, including those related to housing, seem to be maintaining momentum.

Consumer confidence appears to have picked up noticeably, a factor that may have some influence on holiday retail sales activity. Indeed, the our Reserve Bank's news index nowcast, which tends to put more weight on softer data like consumer confidence, is currently suggesting a fourth-quarter annualized growth rate of close to 4 percent for the U.S. economy. This is something I'll be watching closely in the weeks ahead. Nevertheless, even with the robust fourth quarter, should it occur, the real GDP growth rate for the United States for all of 2016 would still be close to 2 percent, and the St. Louis Federal Reserve's forecast for 2017—and, in fact, for the entire forecast horizon—remains at 2 percent.

The question I am getting a lot in recent conversations is: Does the recent election usher in a regime change with respect to growth prospects for the U.S. economy? The short answer to this is “maybe,” and we are treating this as an upside risk in our regime-based forecast for the time being. On this, I agree with President Lockhart and others. It's possible that we will

become convinced that true change has occurred for U.S. macroeconomic prospects in the quarters and years ahead, but it's too early to reach such a conclusion today.

The Federal Reserve Bank of St. Louis's regime-based approach has two key components: The low-growth, low-real-rate regime we are currently in is characterized by a low rate of productivity growth and by a high liquidity premium on short-term government debt. Both of these factors are working to keep safe real interest rates very low and, by extension, the appropriate policy rate very low. Is either one of these factors likely to switch to a high value during the forecast horizon? The answer is: "Maybe, but not yet."

To organize my thinking, I can divide nonmonetary policy into five very broad areas of change that may occur. One is deregulation, broadly defined. Two is tax changes, especially with respect to business taxes, including repatriation of cash stored overseas and changes in corporate tax rates. Three, infrastructure spending; four, trade; and, five, immigration. Of these five categories, in my opinion, the first three executed properly could conceivably affect medium-term productivity and have some effect on the medium-term growth rate of the U.S. economy. I would not conceive of these initiatives as stimulus but, rather, as an attempt to increase the trend growth rate of the U.S. economy.

I think an argument can be made for deregulation if you think that the regulatory pendulum has swung too far in recent years. However, it's a broad area. It would apply across many different types of activity that would affect business, and it's difficult to gauge. I think that tax changes, to the extent that they could influence investment in the United States, might have some effect on medium-term productivity and might have an effect through that channel. Infrastructure spending tends to take a long time, but in principle you'd like to have the right amount of public capital in place. This could also improve medium-term productivity. So these

are things that—at least in principle—could affect the longer-term growth rate in the United States.

The final two areas, perhaps more important during the election, are, in my opinion, slow-moving issues: trade and immigration. As an example on trade, I would cite the Canada–EU negotiation, which has dragged on for seven years and has still not been approved by the European Union. I would take this as an indication that any attempts to change trade arrangements between countries takes a very, very long time. Of course, you can impose tariffs and start a trade war. But you get retaliation from the other side, and it tends to be counterproductive.

Immigration reform, if done correctly, is another area that could be very beneficial to the United States, but, again, even if you change the flow of immigrants into the United States in a way that would improve U.S. productivity, that would take a long time to shape the U.S. labor force and have a real effect. For the purposes of monetary policy, I think it is the first three areas that are the most likely to inform discussions in the next several years here around this table. Also, I think that the effects from any policy changes that may be upcoming are more likely to be seen in 2018 and 2019 and much less in 2017. Sitting here today at the end of 2016, I would say our near-term outlook has not changed very much.

It is possible that there would be some near-term effects, but I think they're less likely. One thing that people might cite is the equity market rally, which was proceeding apace again this morning when I was watching TV. I don't know what happened today. I would interpret the equity market rally as due primarily to the prospect of corporate tax changes, which by themselves would have a large effect on revaluating the U.S. corporate sector and not so much on anticipated economic growth effects from the possible policy changes ahead, even though

much of the commentary will talk in terms of higher growth ahead. It's really the tax changes that have a very direct and immediate effect. The bottom line is that the St. Louis Federal Reserve left the baseline outlook essentially unchanged over the forecast horizon. We are acknowledging upside risk as we have previously.

On the changes in yields since the election, I have a couple of comments. First of all, I agree with President Williams's comments about global forces. You are talking about yields in a global context. I don't know if the United States can really break out of the global context all by itself. Also, roughly half of the increase in the 10-year yield was inflation expectations. The other half was a real yield. I agree with Governor Powell and President Evans that the increase in inflation expectations was a welcome development. For the Federal Reserve Bank of St. Louis's outlook, we haven't really been acknowledging, at least in recent meetings, that inflation expectations, as measured by the TIPS market, were too low compared with our forecast. Now that they've rebounded back to something more reasonable. That's good from our point of view. But it does not require an adjustment, because we were assuming that they were going to bounce back anyway.

The increase in the real rate is something that we have taken on board, and we've hedged our bets a little bit. We think we may need now to have one more increase in the policy rate in 2017 to maintain unemployment and inflation at longer-run levels. That is a slight change from where we were before, and that's due to the run-up in real rates that we've observed in recent weeks. Even aside from that, there continues to be upside risk to this projection of the policy rate, should any of the switches to a higher-productivity regime or a lower-liquidity-premium regime occur.

Finally, I think it may be time for the Committee to think about another policy tool, which is to reduce the size of the balance sheet. This would be an alternative approach to sole reliance on the policy rate normalization path. And I'll talk a little bit more about that tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. Before the recent OPEC agreement, we had been expecting that global oil production and consumption would get into rough balance by the first half of 2017. On the basis of that analysis, we had expected record excess inventory levels would begin to decline by mid-2017, and we believed that the price of oil, while volatile, would continue to firm.

Obviously, the recent OPEC agreement, which called for a cut in crude oil production of approximately 1.2 million barrels per day and would reduce output to approximately 32 million barrels per day during the first half of 2017, will have an effect on our forecast. There are also hopes—which look like they're materializing—for an additional 600,000 barrels a day by non-OPEC countries, half of that coming from Russia. If this agreement is actually complied with—something that many doubt—it will accelerate this entire balancing process.

Even before this, the rig count had begun gradually increasing during the past few months, and we believe that with a price of oil between \$55 and \$65 per barrel, the rig count could increase substantially. We're now on the precipice of that, and you could see substantial cap-ex flowing into this sector. If you look ahead, though, over the next three to five years, our view at the Dallas Federal Reserve is that if there's a price risk in the oil market, it is likely to be to the upside. This is primarily because of the lack of new investment and long-lived oil production projects over the past few years. In the medium term, new supply is going to have to

come from increased production from shale, which has a very short decline curve. Our forecast also incorporates our expectation that global oil demand will continue to grow, on average, to 1.3 million barrels a day in 2017.

In terms of the District, due to the stabilization of the oil sector as well as continued diversification of the Texas economy, Texas job growth has improved from less than 1 percent in the first half of 2016. We now expect job growth in excess of 2 percent in the second half of 2016 and a similar rate of job growth in 2017. I would note, as many others have, that respondents to our most recent business outlook survey reported a significant uptick in their assessments of current conditions and the outlook, commenting on a more business-friendly environment for taxes and regulation. At this point, we would say that risks to the District economic growth forecasts are to the upside.

Regarding the nation, as many of you have discussed, we are making progress toward reaching our full-employment goal. I find myself increasingly focusing on measures of employment among prime-age workers, which continue to lag. And I've particularly been focusing again on the correlations between employment levels, participation, and levels of educational attainment. Analysis of levels of educational attainment versus participation and employment make me believe that even with beefed-up focus on vocational training as well as other programs that improve educational attainment levels, the labor force participation rate is likely to decline over the next 10 years to below 61 percent primarily due to demographic trends. Based on this, I believe that current rates of real GDP growth, though quite sluggish by historical standards, will certainly be sufficient to continue to take any slack out of the labor market and lower the unemployment rate. I'll come back to that in a moment.



Regarding inflation, the Dallas the year-over year rate for the trimmed mean has been running steadily at 1.7 percent so far in 2016. It has now ticked up to 1.8 percent in the most recent reading, and this trend continues to give me confidence that we're going to reach our 2 percent objective over the medium term, if not sooner.

As I've talked about many times before, I'm continuing to work with my team to try to understand the effects of aging demographics, increasing levels of technology-enabled disruption, increased globalization, and particularly high ratios of government debt to GDP, which at a minimum appear to me at least not to be sustainable, even before considering new policies that may increase debt-to-GDP. We're certainly going to be highly vigilant in assessing the possible effects of significant potential changes to regulatory, fiscal, structural, and other government policies. For the time being, like Governor Powell, I've factored in these possibilities as an insurance policy in our forecast. Having said that, in discussions with our business contacts, we continue to see, as I said before, a sharp improvement in the level of optimism. We're going to have to see what is actually implemented in terms of policy, but I do believe that the probability of overshooting our full employment and inflation objectives has increased. Time will tell, but I'm certainly now much more forward leaning regarding this possibility.

Two final comments. in view of all the discussion about trade and immigration, I thought I'd comment on those issues. We obviously have a very strong relationship between the Dallas Federal Reserve and the Central Bank of Mexico, as well as with the economic and political leaders of that country, and we do a substantial amount of research on trade and immigration. Let me share a couple of thoughts.

First, on trade, Texas is now the largest exporting state in the United States, and our largest trading partner is Mexico. We estimate that trade between the United States and Mexico, measured in 2015 dollars, has grown from approximately \$159 billion in 1994, which was around the time of NAFTA, to approximately \$532 billion in 2015. I see President Williams looking at me.

MR. WILLIAMS. We may need some fact checking on this one.

MR. KAPLAN. We may debate that, yes. [Laughter] Well, let me get to the other parts of our analysis. Approximately 55 percent of U.S. trade with Mexico is imports to the United States, and approximately 45 percent is exports from the United States to Mexico. Approximately 81 percent of Mexico's exports, by our measure, went to the United States. What is interesting to us and what we particularly focus on is that approximately 40 percent of U.S. imports from Mexico represents content that originates in the United States—that is, it's the result of production partnerships, integrated logistics, and supply chains. In our view, these partnerships have improved Texas's competitiveness, as well as U.S. competitiveness. We believe that these arrangements have the effect of increasing employment in Texas as well as in the United States, and if these arrangements did not exist or were disrupted, we would likely lose some of these jobs to other countries, particularly in Asia. Because this aspect of trade is very critical to U.S. competitiveness, we'll continue to focus heavily on it.

Regarding immigration, we estimate that the United States is home to more immigrants from Mexico than any other nation, by our count approximately 12 million. Mexican-born immigrants account for approximately 27 percent of all immigrants living in the United States and 55 percent of immigrants living in Texas. Our research suggests that over the past two years, net immigration flows to the United States from Mexico have basically been close to zero.

Some people think those estimates are wrong, that they've been running negative. And the reasons for that are improved economic conditions in Mexico, industrial reform, creation of a beefed-up social safety net, and smaller family size. We estimate that immigrants generally and their children have made up a substantial portion—in our estimation, more than 50 percent—of the growth in the U.S. labor force over the past 20 years. Let me stop there. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Harker.

MR. HARKER. Thank you, Madam Chair. Over the intermeeting period, overall economic activity in the Third District continued to grow slowly but steadily, with employment barely increasing over the three months ending in October. This recent behavior represents a significant departure from the region's 0.7 percent trend growth rate. A number of areas, such as Atlantic City, Vineland, and Allentown, have experienced contractions in employment this year, while some areas, such as metro Philadelphia, Altoona, and Ocean City, have seen employment growth rates in excess of 2 percent.

However, the recent slowdown in labor market growth has produced an unemployment rate of 5.5 percent for the region, almost a full percentage point higher than at the beginning of the year. The increase in the unemployment rate is due to the loss of 90,000 jobs in the household survey, which represents job losses more consistent with the recession and, frankly, is at odds with the continued upward trend in employment reported in the establishment survey. Additionally, the behavior of new claims for unemployment insurance is more consistent with employment growth. The most recent household labor market data are a bit of a puzzle. Needless to say, we will be monitoring developments in the region's labor markets quite closely.

Employment aside, other economic indicators point to slow-to-modest economic growth and an optimistic outlook among consumers and firms. Our manufacturing survey, due out this Thursday morning, remained in positive territory for the fifth straight month. The current index increased from 7.6 to 21.5, well above its nonrecessionary average of 9.7. In addition, respondents appear to be quite optimistic, with the future activity index jumping more than 23 points, from 29.3 to 52.6. One contact summarized the mood in the business community as one of “awkward optimism”—I love the phrase—reflecting the hopes for a new Administration while recognizing the potential risks due to the presidential transition.

Growth in consumer activity remains modest, and construction spending, both residential and nonresidential, is up on the year. In our region, multifamily starts are approaching the level of single-family starts, which from a historical perspective is quite unusual and very different from national housing behavior. Looking ahead, we continue to forecast an acceleration of economic growth for the region in 2017.

On the nation as a whole, even though I did not incorporate any effects due to a change in fiscal policy, my economic outlook differs little from the staff’s. The uncertainty surrounding the path of fiscal policy makes forecasting especially challenging. I appreciate the staff’s efforts in taking a stand on proposed fiscal stimulus, but my own view is that the uncertainty about what might actually be implemented is high enough that I am not ready to make a major change to my outlook. That said, I do think it is more likely than not that some stimulus will be forthcoming, so the risk to my forecast is weighted to the upside.

My forecast calls for real GDP to grow at 2.3 percent in 2017 and then 2.1 percent in 2018 and ’19. The labor market continues to strengthen, and the unemployment rate edges down to 4.4 percent by the end of 2017 and then remains close to that level through 2019. Headline

and core PCE inflation move up to the 2 percent target in 2018 but do not really overshoot in 2019. The forecasts that I put the most weight on have acceptable outcomes for inflation and unemployment over the medium term together with an underlying policy rate path that calls for a bit less than 100 basis points per year in funds rate increases. Taking a forecast-targeting approach, my outlook calls for the funds rate to rise 75 basis points in 2017, which is one less rate hike than in my previous submission, and then about 100 basis points in each of the next two years.

But, like the staff, my modal outlook for real GDP growth is far from robust. It appears that both of our forecasts are influenced by a somewhat discouraging view of longer-term growth, and there are fundamental reasons to take this view. Simply put, we—present company excluded—are getting older. It seems that at each successive policy briefing, I learn a different way that demographics are reshaping the economy—their effects on labor force participation, their effects on real interest rates, and their effects on economic growth.

Preliminary work by a member of my staff has pointed out that the decline in labor market fluidity, as measured by the gross job relocation rate, may be an important driver in declining productivity growth. This decrease in fluidity is largely driven by demographic factors, with both the aging of firms and the aging of workers playing a role. Indeed, as some recent research at the New York Federal Reserve indicates, the two factors may be related, because with the aging of the workforce and fewer workers entering the labor market, employment costs rise, and it becomes less desirable for new firms to enter. Because new firms tend to have higher productivity, the aging of the distribution of firms can lead to lower productivity. Further, Ryan Decker of the Board staff estimates that productivity would be 2 percentage points per year higher in the dynamic high-tech sector if firms had expanded in line

with their productivity at the same rate as they did pre-2000. If the trending decline in fluidity continues, then we may be in for a period of prolonged low productivity growth that will affect the trajectory of future monetary policy. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Mester.

MS. MESTER. Thank you, Madam Chair. Overall, the Fourth District economy continues to expand at a moderate pace. District contacts report largely stable economic conditions at this time. The Bank's diffusion index of business contacts reporting better versus worse conditions moved up from -6 at the time of our previous meeting to 0 and has been hovering around this level since midyear.

Last Thursday we held a joint meeting of the Cleveland, Pittsburgh, and Cincinnati boards, and I want to thank Governor Brainard and Eric Belsky for participating in a discussion of outreach efforts at the Cleveland Bank and at the System at large. We found that to be a very productive discussion. In the subsequent discussion of economic conditions, many directors expressed uncertainty about the likely effects of the election on their own businesses. The bankers reported an increase in business sentiment among their customers, but a national labor leader on our Cincinnati Branch board noted that the employers they deal with are now less optimistic. A national retail space real estate developer expressed some concerns about the large number of CMBS deals that were made in 2007 and are coming up for refinancing. Many of these deals were significantly leveraged, so some developers may run into trouble refinancing, in light of the new rules on risk retention and tighter underwriting standards by lenders.

District labor market conditions continue to strengthen. The Cleveland Federal Reserve staff estimates that year-over-year growth in payrolls has edged down to 0.8 percent in November, but this pace is above their estimate of the District's trend growth rate of about 0.25

percent, which is well below the trend growth rate of the nation and reflects the region's low population growth and the aging of its population. The District's unemployment rate has remained around 5 percent all year.

Responses from Fourth District contacts to the System's special questions on hiring and wages were in line with those from the other Districts. Firms in the region continued to hire with relatively little change in hiring plans since last November's survey. Compared with 63 percent in last year's survey, 70 percent of respondents reported they were increasing wages to attract workers in either most or some job categories. Anecdotal reports indicate that firms are still having trouble hiring workers in several job categories, including construction and information technology.

Inflation pressures in the District appear contained, but some firms report they are increasing prices after several years of stability. A director who heads a large national paint and coatings company reported that in December, for the first time in four years, the firm increased prices 4 percent to cover rising labor and real estate costs. He said there had been no pushback from customers.

Regarding the national economy, real GDP growth has picked up in the second half of the year, as anticipated. Labor market conditions have continued to strengthen, and inflation indicators and several measures of inflation expectations have moved up since our previous meeting. The prospects for some changes to fiscal and other economic policies—such as infrastructure spending, tax code changes, immigration policy, trade policy, and regulatory change—increased, but the form any policy changes will take, the timing of passage, and the timing and size of the effects are very uncertain at this point.

The Tealbook baseline assumptions about fiscal stimulus seem plausible to me, but the package could be larger or smaller, and its design will be an important factor in assessing the expected effect on the medium-run outlook. Will fiscal policy changes be formulated in a manner that merely gives a temporary boost to aggregate demand to be financed by deficit spending—a development that would not be beneficial to the economy over the medium to longer run? Or, instead, will the policy changes aim to increase productivity growth, which would be very beneficial if the policy changes actually achieve that goal?

We have few details at this point, so in putting together my SEP submission, like the Tealbook, I have incorporated a modest increase in output growth and inflation in 2018 due to fiscal policy effects. Policies that constrain immigration and trade would have negative effects for the U.S. economy over the medium and longer run, but I have not incorporated these into my projections at this point. So fiscal and other potential economic policies impart both upside and downside risks to my forecast. The prospect of a larger fiscal package than I assumed poses upside risks to output growth and inflation, especially if monetary policy does not appropriately respond. A smaller package poses some downside risks, especially because financial market participants appear to be anticipating fairly large effects and could be disappointed.

As more details about forthcoming policy changes come in, we will have a better sense of their implications and can adjust our forecast. At this point, overall, my outlook for the U.S. economy over the medium run hasn't changed much since our previous meeting or since our September SEP submission. I see the fundamentals—including accommodative monetary policy and financial conditions, improved household balance sheets, the strong labor market, and modestly more stimulative fiscal policy—as supportive of GDP growth over the forecast horizon at a pace at or slightly above its trend pace, which I estimate at 2 percent. This pace is sufficient



to put downward pressure on the unemployment rate, which stays below my longer-run rate of 5 percent over the forecast horizon. I anticipate that inflation will move up to 2 percent in early 2018, reflecting stable inflation expectations, continued strengthening of labor market conditions, and ongoing economic growth.

In light of my outlook, I believe it will be appropriate for the federal funds rate to move up over the forecast horizon. My trajectory is a bit steeper than in my September SEP submission, because the funds rate at the end of 2016 will be lower than I projected in September and because, compared with September, I am projecting slightly higher output growth and inflation and a somewhat lower unemployment rate over the forecast horizon. I now assume that the funds rate will end 2019 at a level slightly higher than my longer-run estimate of 3 percent. But, admittedly, there is considerable uncertainty regarding this policy rate path, in view of the uncertainty associated with the forecast and the types of shocks that will invariably hit the economy over the forecast horizon.

On its external website, the Cleveland Reserve Bank now publishes a set of simple monetary policy rules, the outcomes of these rules across alternative forecasts, and a tool for computing rule outcomes on the basis of the user's own forecast. Looking at the rules, one can see there is quite a bit of variation in what the rules prescribe. But the median path across the rules is steeper than the median path in the SEP.

My policy rate path is similar to the outcome from the inertial Taylor rule from our set of rules. My path is a bit steeper than in the Tealbook, in part because I see somewhat greater inflation pressures. As a result, my policy rate path results in somewhat less undershooting of the unemployment rate of its longer-run estimate compared with the Tealbook. I see broadly balanced risks associated with my outlook, but I believe we need to remain very open to the

considerable possibility that the economy will evolve differently from what we currently anticipate. I was struck over the intermeeting period by how sharply financial conditions and consumer and business sentiment changed.

The National Federation of Independent Business survey results, which are embargoed until Tuesday, suggest there was a significant increase in confidence among small businesses since the election. Apparently, financial market participants and business leaders are expecting very beneficial changes to fiscal and other economic policies. I found the Board staff's memo on this to be quite helpful. It could be that these expectations will be borne out, but at this point they seem to be skewed toward putting too much weight on very positive outcomes and too little weight on poor outcomes, especially as we have few details on the actual proposed policy changes. On the other hand, I have always put more weight on fundamentals driving the economy and on these fundamentals driving sentiment. But maybe I have been underestimating the effect that animal spirits or sentiment can have, independent of fundamentals like policy.

We've been somewhat puzzled by the low levels of business investment and productivity growth, against the background of the accommodative financial conditions we have had for quite some time. Perhaps now better sentiment will spur renewed investment. Of course, this possibility also raises the uncomfortable notion that there may be some truth to the skeptics's argument that keeping interest rates as low as we have for as long as we have has sent a negative signal about the economy, which has hurt business, investor, and consumer confidence, thus creating a negative headwind. Recent developments suggest we may need to consider this, as well as the implications it would have for both our policy rate path and our communications.

Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Lacker.

MR. LACKER. Thank you, Madam Chair. Our surveys of economic activity in the Fifth District have shown modest firming since the previous FOMC meeting. Our composite manufacturing index was plus 4 in November, a notable increase from the negative numbers posted in the previous three months. Preliminary figures for December—confidential until the 27th, please—show a reading of plus 6. Service-sector activity also expanded more broadly since the previous meeting. According to our survey, the revenue index for services was plus 3 in November and plus 8 according to the preliminary December results.

Numerous contacts reported a greater sense of optimism regarding the economic outlook since the election. Some have used words like “exuberance” and “euphoria.” An array of sources cited the prospect of changing or repealing regulations enacted in recent years as one source of optimism. The new overtime rules were frequently cited, and firms that had gone through implementation reported cases of employees feeling insulted at being reclassified as hourly or just quitting outright. Prospects for rollback of the ACA and EPA rules and for possible tax reform were also cited as contributing to greater optimism. Several bank CEOs noted a flurry of borrowing requests. They say that many customers had let investment demand build over the past few years and that the election seems to have released pent-up increases in planned capital spending.

Other contacts, however, noted the uncertainty surrounding the contours of upcoming policy changes, and one director called the euphoria “irrational.” One utility industry executive from West Virginia said that some in the state were positively giddy about the prospect of their coal jobs coming back. But he emphasized that while some near-term uptick in coal production in response to firming natural gas prices was possible, there was no way coal production was going to return to anything like previous levels. And one director who’s the CEO of a large

urban Goodwill said that clients at their workforce training centers—these are mostly in the hospitality and security occupations—have become more fearful as a result of the election. Nonetheless, the overall tone of anecdotal comments from directors and roundtable participants was strikingly upbeat.

At the national level, the natural interpretation of the large increases in equity prices and bond yields since the election seems consistent with the general exuberance we've heard from around our District, namely an anticipation of tax reform or reduced regulatory burden. I find it heartening that markets appear to be more or less discounting adverse economic effects from increased trade barriers, although some of our export-oriented manufacturers have expressed some worries about future trade policy. Clearly, there's a lot of uncertainty about just what's coming down the pike by way of policy initiatives, but it seems prudent to build in at least some fiscal stimulus into the baseline forecast at this point, and for simplicity we followed the Tealbook's approach of assuming a medium-sized personal tax cut in Q3. Without that assumption, our forecast would have been little changed from our September SEP submission that showed real GDP growth slowing to its trend rate of about  $1\frac{3}{4}$  percent. With that assumption, GDP growth is  $\frac{1}{4}$  percentage point higher next year but basically the same thereafter.

I agree with the notion that any productivity enhancements arising from the new policy environment are speculative at this point and likely to show up only over an extended horizon, so I'm not assuming any material supply-side effects for now. The way things have played out since the election gives me a bit more confidence in the business investment forecast, however. I think President Mester and others commented on this. Since the beginning of the year, the Tealbook, like many others, myself included, has been projecting an imminent rebound in

business fixed investment. Instead, BFI has been disappointingly sluggish all year. If the post-election response represents the release of pent-up business spending plans, then investment spending may have been held down before the election by firms' apprehension about the election outcome and growing regulatory burdens. If the current burst of optimism is to some extent sustained, then we are more likely to get the turnaround in BFI that we'd been hoping for.

My inflation projections are basically unchanged. Core and overall inflation rates converge to 2 percent in about a year. Achieving that outcome—that is, keeping the added fiscal stimulus from driving up inflation—is going to require tighter monetary policy. I'm projecting the appropriate funds rate to rise more rapidly than I did in September. We start from a lower base than I had projected for this month, and the net is the same rate at the end of next year as I wrote down in September, but a higher rate at the end of 2018.

For me, uncertainty about the economic outlook in the United States is greater than it was at the previous meeting. Even though the direction might be clear, the range of possible fiscal and regulatory policy outcomes is fairly large. It seems plausible that outcomes will not be quite as beneficial to economic growth and earnings as the move in equity values would imply. So I think it's worth taking the recent outbreak of exuberance with a few grains of salt.

On the other hand, inflation risks seem to be moving in the other direction. Indeed, inflation compensation measures have risen significantly, as several have noted, and even more striking is the movement in the Kirtul–Wright probabilities of high and low inflation that are derived from options markets. Since early October, the estimated probability of 10-year inflation being above 3 percent has risen from about 20 percent to about 40 percent, while the estimated probability of the 10-year inflation being below 1 percent has fallen from about 40 percent to about 20 percent. We have also seen the 10-year Treasury security's term premium move from

negative territory to about zero. This suggests that investors see less value in Treasuries as a hedge against deflation, and they're becoming more concerned about the exposure of nominal Treasuries to the risk of inflation. These developments could just reflect a dissipation of downside inflation risks and a return to the normalcy of a more symmetric inflation outlook. At the same time, they could reflect market expectations that policy rates are not going to respond enough to prevent fiscal stimulus from pushing inflation higher. For me, this implies we should seriously consider whether rate increases will be only gradual.

Finally, I have some comments about the undershooting memo, which I appreciated. It's noteworthy that the only episode identified of a soft landing is 1993–1995. This episode is identified in narrative accounts of postwar U.S. monetary policy as the first instance of preemptive rate increases since the beginning of the Great Inflation in the mid-'60s. The FOMC raised the federal funds rate 300 basis points in one year. I don't expect we will need 300 basis points next year, but I suspect 50 won't be enough. These accounts give credit to our preemptive approach for stabilizing inflation expectations near 2 percent and ushering in the current era of relatively well-behaved, well-anchored inflation expectations. This perspective reflects the extent to which our credibility—that is, expectations about monetary policy—is capable of varying over time. And, in this regard, I wanted to comment on the discussion of the inflation process in the memo. One could be forgiven for thinking of it as an exogenous technological phenomenon, but I know the staff appreciates that it's endogenous. Those parameters embed private-sector expectations about the conduct of policy in the future. For me, the lesson I take from the undershooting memo is that we need to be careful not to miss the opportunity to be appropriately preemptive. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Madam Chair. Moderate economic growth continues in the Ninth District. Retail spending and housing construction have been especially strong. The ag sector in 2016 has seen a record harvest year, and, not surprisingly, farmers are pessimistic about next year. Employment continues to grow modestly despite continued poor labor availability. Twin Cities' daycare providers said that a lot of new families need daycare because they're all going back to work. Wages continue to see pressure, especially on the low end, but price pressures remain subdued. Contacts point to strong online competition in retail, especially in flat food prices. A large online retailer is expanding sharply in the Twin Cities.

Nationally, the moderate pace of expansion continues—solid consumption growth, but, as others have noted, investment remains worryingly weak.

Most important to me is looking at the unemployment situation. As others have noted, the big drop in the headline unemployment rate is something I'm paying close attention to. That sharp decline coupled with a tick down in labor force participation suggests that the labor market is tightening, and the big question is, "Are we there yet or is there more room to run?" I think in future months we'll see. We'll get more data to help determine whether or not this has really run its course. There was welcome evidence of some pickup in productivity. I hope that will continue after Q3.

In terms of inflation, there was no change to core inflation in the intermeeting period. As others noted, 5-to-10-year-ahead TIPS inflation compensation has risen, continuing a rise that started midyear. But let's remind ourselves that this is still low by historical standards, as some others have noted. The markets seem focused on a scenario that fiscal policy becomes more expansionary, which in turn drives up inflation, and oil prices have risen a bit. On the other hand, the dollar continues to strengthen, which will hold down import prices. The

trade-weighted index is up more than 25 percent since mid-2014, when the dollar strengthening began.

Now, the other thing that I think is noteworthy, as others have noted, is financial markets since the election. Ten-year Treasury yields are up about 60 basis points, and this reflects a fairly even split between higher real rates and higher inflation compensation. Markets are expecting a faster pace of firming from us. My view is that we should pay attention to markets, but not overreact to them. They don't have any better idea of what fiscal policy is going to be than we do. Markets and pollsters didn't get Brexit right. They didn't get the election right. I don't have any more confidence that they're going to get fiscal policy right.

By the way, in terms of timing, we're not going to know for quite some time what actual fiscal policy will be. But my guess is that in the first 100 days we'll at least have markers out from the Administration of what it's proposing. It'll take longer for those negotiations to take place. But I think we'll know a lot more in three or four months than we know now.

Higher rates plus a stronger dollar do imply tighter conditions. But when I look at the rates going up—I guess I don't know, President Williams, whether  $r^*$  can move this quickly—it doesn't feel like tighter conditions. It feels like more optimism, and so it isn't obvious how much effect that's going to have. And, as I said earlier, markets could give back these gains as quickly as they acquired them if negotiations go a different direction.

And then uncertainty, as I just touched on, is currently high, due to the policy uncertainty. Global uncertainty remains, with Italy, as we talked about; with South Korea now having some turmoil there politically; and with a large bank in Northern Europe, as we talked about earlier. And uncertainty isn't necessarily bad news. There's a greater chance of good outcomes but also a greater chance of bad outcomes.



In conclusion, we continue to make welcome progress toward our goals. However, I will note in my policy go-round the elevated policy uncertainty. I struggle with not just tomorrow's decision, which I think is fairly straightforward, but how do we communicate the likely future path, in view of this huge uncertainty that we face right now?

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I think where we are and where we're headed in the near term is relatively clear, and there seems to be pretty good agreement around the table. There's also agreement that further out, 2018 and beyond, is less clear and, as many people have recognized, there is a potential for significant fiscal policy stimulus that could collide with an economy that may be operating at or even somewhat beyond what we would characterize as maximum sustainable employment.

Over the near term, I expect the economy to continue to do what it had been doing, growing at a slightly above-trend pace. When I assess the economy, I'm pretty optimistic about household spending, which I expect will be bolstered by further job gains and rising wage compensation. Also, the U.S. consumer does not appear overstretched. The personal saving rate, at 6 percent in October, actually seems to be a bit high relative to what one might expect on the basis of the historical relationship between household net worth and disposable income. And household balance sheets are in good shape. Households did deleverage significantly since the Great Recession, and, over the previous year, household debt has been growing, but it has been growing at a very modest pace.

Business fixed investment is sort of the wild card. It's been the laggard in recent years, but I think it will also do somewhat better. Obviously, we're probably past the drag due to the plunge in oil and gas drilling activity, but I also think that there was probably some negative

consequence from election-year uncertainty. And, now that that's passed, that effect will likely fade as well.

Residential investment, I'm not really sure what's going to happen there. It's been all over the place over the past year and a half, up in 2015, in the first quarter of this year, and then down sharply in Q2 and Q3. I guess I think that higher mortgage rates will restrain housing demand somewhat, similar to what we saw during the taper tantrum, but against that we have the fact that housing supply still seems to be low relative to job growth and the longer-run pace of household formation. So we're not producing houses at a particularly rapid rate right now.

In contrast, I do expect the trade sector will be a drag on growth over the next year or so. The performance during the first three quarters of this year seems to be an anomaly. I did not expect that trade would contribute positively to GDP growth this year, and it does seem to be due mainly to a weakness in imports, primarily of capital goods, and, of course, the often-cited surge in soybean exports. Over the next year, I would expect some modest drag on the trade side as these temporary factors lapse and as the recent strength of the dollar starts to become more relevant again.

Now, the implications of the Trump Administration's goal of better trade deals for the United States are, from my perspective, highly uncertain. So it's not just fiscal policy. Trade deals that are more favorable to U.S. interests, but without any meaningful increase in trade barriers, could evolve in a mostly positive direction, or they could evolve in a very negative one involving higher trade barriers. In that case, the principle of comparative advantage would be challenged with negative consequences for productivity and, presumably, the prices of internationally traded goods and services.

As many of us have noted, another source of uncertainty is the likely trajectory of fiscal policy. While I agree with the general sentiment that fiscal policy is likely to turn more expansive, I'm one of the people who have not put it into their forecast yet because we don't know what it is, when it is, or how big it is, and that's just too many considerations for me to figure out how to parse it into my forecast. I want to see more information, and I think we will have a lot more information in the next three or four months. So by the time we get to the March SEP, I think this will be factoring into my outlook.

In assessing the outlook, one thing that we talked about around the table is, how do you factor in the recent market developments? Since the election, we've had pretty large movements in financial asset prices. Bond yields are up, equity prices are up, and the dollar has appreciated considerably against many different currencies. On balance, if you view it in terms of a financial condition index, it looks to be a tightening of financial market conditions. But I'm not really concerned by this because I do think that this is a tightening that's different than the tightening, for example, that we saw in early 2016. That was an increase in risk aversion. That was an increase in the risk premiums that were embedded in financial asset prices, and I don't think that's happening this time. I think that the tightening of financial market conditions, to the extent there's a tightening at all, reflects greater optimism about the outlook, and it's not even clear to me whether the net effect on real GDP growth is positive or negative. So I'm pretty agnostic about this, and I certainly am not using it to reduce my GDP growth forecast.

In terms of the inflation outlook, I'm more confident that we're going to make progress toward our 2 percent objective. There are a number of things that I take as supportive of that. One is less downside risk to the economy because I do think it's not just that U.S. fiscal policy is likely to turn more stimulative. I think the global economic outlook has improved somewhat.

Also, to the extent that U.S. fiscal policy is more stimulative, that's going to help the rest of the world, too. This gives a real chance for Japan and Europe to get out of their very low inflation traps. If we have more fiscal policy stimulus—not a reason to do the fiscal policy stimulus, necessarily—it will be helpful, potentially, for them. Another is the effect of higher energy prices on headline inflation, and I think that's going to feed into inflation expectations. We're already starting to see the very beginnings of that.

However, longer term on inflation, I'm starting to be worried about the risk that inflation overshoots. This is tied back to the issue of whether fiscal policy is going to be very stimulative. I'm not going to put much weight on this risk over the very near term. In the short run, at least, I don't feel like it will be a particularly bad outcome if inflation is slightly above 2 percent for a time because that would reinforce the notion that our 2 percent inflation objective is symmetric and not a ceiling. But I do think that we could be looking at a situation two to three years from now where the economy was really getting pushed along by this fiscal stimulus, and if we were late—to President Lacker's comments—inflation could start to get out of hand.

In that vein, I particularly worry a little bit about how the Tealbook models these kinds of risks, because it always assumes that we're going to do the right thing, and it assumes that the Phillips curve is very, very flat. I'm not convinced that we'll necessarily always do the right thing. The Federal Reserve has made serial errors in policy, and as you push the unemployment rate down to very low levels, I think there's enough risk that the Phillips curve becomes steeper. When I read the Tealbook's alternative scenarios, I'm always amazed by how big the shocks are relative to the consequences on economic growth and inflation because the results are so damped by the expectations that, in the end, we'll do the right thing. Everyone knows we'll do the right

thing and, therefore, nothing really bad happens. I think we just have to be a little bit cautious when we think about those alternative scenarios.

Finally, in terms of my interest rate projections, which we'll talk more about tomorrow, I haven't made any changes yet, two 25 basis point moves in 2017 and three for 2018. But if we do get the news on fiscal policy that maybe we'll get before the March meeting, then my forecast of my forecast is that my forecast might move up. Thank you, Madam Chair.

CHAIR YELLEN. My thanks to everyone for an interesting discussion of the outlook and associated risks. What I'd like to do is close out the round with a few comments on incoming data and on the possible implications for the outlook of changes in fiscal policy. To begin: As we expected and intended, labor market conditions have continued to improve. Payroll gains have remained solid at about 180,000 per month since late summer and for the year as a whole. The unemployment rate dropped markedly in November. Like the staff, I expect this decline to be partially reversed in the next month or two, leaving the unemployment rate very close to my estimate of its sustainable longer-run level. The broader U-6 measure of labor utilization, although still somewhat elevated, has fallen more than  $\frac{1}{2}$  percentage point since the start of the year. And the employment-to-population ratio has held steady, despite the downward pressure from demographic trends. On the basis of these and other indicators, I judge that overall utilization in the labor market is more or less back to normal.

That said, I don't think we've fallen "behind the curve." Wage gains are still subdued, and inflation remains below our 2 percent objective. Moreover, the elimination of slack does not mean that the economy has reached some tipping point, with any further tightening triggering widespread shortages of workers, a sharp acceleration in costs, or other destabilizing dynamics. On the basis of the evidence presented in the two, very nicely done, staff memos, I instead expect

that the effects of a further decline in unemployment on inflation or, conceivably, on financial stability will develop only slowly, giving us time to respond if undesirable effects emerge.

Finally, I consider the risk of a marked overheating to be low if we act to remove gradually the modest degree of accommodation that is still in place. Real GDP has been expanding at a fairly moderate pace for some time. And in an environment of rising interest rates, I would expect growth to slow further, all else being equal. With appropriate adjustments to policy, we should be able to prevent the unemployment rate from undershooting its long-run level to an excessive degree.

We've also made good progress on the inflation front, and the data have come in somewhat stronger than I expected a year ago. On a 12-month basis, headline PCE inflation is now running at close to 1½ percent, compared with only ½ percent last year. Moreover, core PCE inflation is now running at 1¾ percent. Survey-based measures of expected inflation remain stable, and market-based measures of inflation compensation, although still low, have risen more than 30 basis points since our previous meeting. These developments have reinforced my confidence that inflation will be back to 2 percent within a couple of years, aided in part by moderately tight labor market conditions.

Ideally, we will succeed in adjusting the stance of monetary policy over time to achieve the desired soft landing. As one of the staff memos discussed, history shows that such an outcome is possible, at least as long as we are not hit with a large adverse shock.

Judging the stance of policy that's most conducive to keeping the economy operating on an even keel is, of course, never easy. But it is particularly tricky in the current environment, because of our large asset holdings and considerable uncertainty about future fiscal policy. Estimates suggest that the neutral level of the real funds rate is currently near zero, more than 1

percentage point higher than its actual value. If so, then achieving a neutral stance would appear to require roughly four 25 basis point hikes in addition to the one that we will presumably announce tomorrow. But in assessing how much and how quickly to raise the funds rate next year, we need to bear in mind that the degree of accommodation provided by our balance sheet is also declining appreciably. According to staff estimates, the downward pressure on longer-term yields from our security holdings will diminish by 16 basis points between now and the end of 2017. Because the restraint imposed by such a shift is roughly equivalent to that associated with two or more hikes in the funds rate, the need to raise the funds rate very quickly may be less than it might appear. Risk-management concerns related to the effective lower bound provide another reason to proceed gradually.

At the same time, the neutral value of the real funds rate is likely to rise over time if residential construction continues to recover from its unusually depressed level, capital spending and productivity growth pick up, and economic activity abroad strengthens. Easier fiscal policy also now appears likely to stimulate real activity over time, thereby placing additional upward pressure on the path of the funds rate consistent with our dual objectives.

But, at this point, we don't know how big a fiscal package may be enacted, let alone the timing or composition of its provisions, so we really can't judge how much stimulus it might impart. In fact, the overall effect of the fiscal proposals under consideration could turn out to be mildly contractionary in 2017 if additional fiscal impetus ends up being delayed until late next year or beyond, as the stronger dollar and the notable increase we have already seen in longer-term yields since the election will likely have a more front-loaded negative effect on economic activity. For these reasons, I think we should be careful not to get too far out ahead of budget

developments in assessing what effect fiscal policy is likely to have on our actions. It may be many months before the situation clarifies.

I think we should be careful not to overstate the implications of easier fiscal policy for the appropriate stance of monetary policy. Empirical studies of historical movements in federal debt and interest rates suggest that an increase in the deficit by 1 percent of GDP for 10 years raises longer-term interest rates roughly 30 to 40 basis points. As the staff notes, a portion of this increase likely occurs via a higher term premium. This means that the enactment of a package such as that penciled into the Tealbook should only modestly alter the path of the federal funds rate and its longer-term normal level.

As for the medium-term policy implications of easier fiscal policy, those will depend on the timing and composition of the package that's passed; market reactions to its provisions; and the net effect of the resulting changes in taxes, government spending, and financial conditions on household and business spending. But, unless the Congress passes something radically different than what seems likely at this point, I anticipate that gradual adjustments in the federal funds rate over time will still be appropriate.

As Don reported in his briefing, roughly half of you incorporated an assumption of greater fiscal stimulus into your SEP submissions this round. On the basis of the comments that you provided and Don's analysis, it appears that anticipated changes in fiscal policy were a factor accounting for some of the revisions to your projected funds rate path. But overall, the revisions are really quite small. I do plan to explain that if I'm asked about it at the press conference. I will also note that many proposals for taxes and spending are currently being discussed, but there is considerable uncertainty about what the Congress may eventually pass,



and that we do not intend to act preemptively based on guesses about future policy even though some of us have incorporated such guesses into our SEP submissions.

Moreover, I will stress that fiscal policy is just one of many factors that influence real activity and inflation and, thus, the course of monetary policy over time. I believe that an important objective in our communications in the months ahead should be to avoid leaving the public with the impression that we simply intend to act to offset any stimulus that fiscal policy may provide. Instead, I hope we will stress that we intend to carry out the task that the Congress has assigned to us—the pursuit of maximum employment and price stability—and we’ll adjust the stance of monetary policy as appropriate in response to all of the factors that affect the economic outlook.

Furthermore, although there may be broad principles pertaining to fiscal policy that we can articulate, such as the need to ensure long-run fiscal sustainability, the potential value of strengthening the automatic stabilizers, or the desirability of policies that would boost productivity growth, I would urge that we avoid commenting on particular tax and spending proposals under discussion, on the grounds that that’s the job of the Congress and the incoming Administration, whereas our job is monetary policy.

Let me stop there. And I think we have time for Thomas to provide his monetary policy briefing.

MR. LAUBACH.<sup>4</sup> Thank you, Madam Chair. I will be referring to the handout labeled “Material for the Briefing on Monetary Policy Alternatives.”

With alternatives B and C, the Committee would announce that the evidence accumulated since the summer on progress toward the Committee’s employment and inflation objectives now makes a sufficiently strong case for an increase in the federal funds rate. By contrast, with alternative A, the Committee would defer an increase today, while waiting to see further progress on its objectives. A decision to maintain the current target range would come as a considerable surprise to financial market

---

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

participants; over the intermeeting period, both the market-implied probability of a rate hike and the probability reported in the Desk surveys rose to above 90 percent.

While tomorrow's decision may be clear, at least to market participants, the outlook for the economy and for monetary policy is now subject to considerable uncertainty stemming from the possibility of greater fiscal stimulus as well as other potential policy changes. The first four panels in my exhibit summarize how market participants' expectations about the future path of the federal funds rate and the probability distribution associated with the expected values have changed since your previous meeting. As shown in the upper-left panel, the expected path of the federal funds rate implied by OIS quotes—the black lines—has steepened noticeably since your November meeting. Of course, part of the shift in the OIS forward rate curve could reflect a rise in the term premium, which is assumed to be zero in this calculation. The red lines show the expected path of the federal funds rate after adjusting it for shifts in the term premium as estimated by the staff's OIS term structure model that takes the effective lower bound into account. That path has also revised up over the intermeeting period but by somewhat less than the OIS forward path. Investors thus generally appear to expect that the Committee will increase rates a bit faster—albeit still at a gradual pace—over the next two years than they thought earlier, and they are not likely to be surprised by the modest upward revision in the median SEP path.

The black line in the panel to the right presents the evolution of the expected pace of tightening over the year starting tomorrow on the basis of market quotes, again not adjusted for term premiums. Expectations for the pace of tightening turned up noticeably following the elections and now stand just short of 50 basis points. That roughly matches the pace of tightening over 2016 that markets expected at the time of last December's meeting. Then, as now, expectations are for a gradual pace of tightening over the coming year—two rate hikes—compared with expectations for eight hikes over the year following the initial increase in the funds rate in June 2004.

The middle two panels offer some perspective on how market participants' views about potential outcomes for the federal funds rate over the next two years have changed since the time of your November meeting. As is the case for the responses from the Desk surveys that Simon discussed earlier, the market-based probability distribution for the level of the funds rate at the end of 2017 has shifted to the right. The red line in the middle-right panel indicates that uncertainty about the level of the federal funds rate further out has increased, suggesting that investors' views about outcomes for the economy—likely including, but not limited to, fiscal policy outcomes—have become more diffuse. The responses to the Desk surveys also indicated that market participants' views about the outlook for fiscal policy cover a wide range of possibilities, and we have only a rough idea of what assumptions about fiscal policy and possibly other policies underlie recent movements in asset prices.

Notwithstanding how speculative any assumption about the fiscal outlook has to be at this point, it is instructive to try to gauge the possible monetary policy implications of the greater fiscal stimulus assumed in the staff baseline projection.

An alternative scenario in the “Risks and Uncertainty” section of Tealbook A provided one perspective on this question. The bottom-left panel looks at the same question through the lens of the optimal control exercises that we presented in Tealbook B. There, we showed a range of exercises reflecting monetary policy responses to fiscal scenarios under different policymaker strategies. In this panel, the solid line plots the path of the federal funds rate under optimal control using the staff baseline assumptions about fiscal policy and a loss function in which policymakers place equal weights on keeping inflation close to 2 percent, keeping the unemployment rate close to the staff’s estimate of the natural rate, and minimizing changes in the funds rate. This policy calls for a somewhat faster pace of tightening than the staff’s baseline assumption. For comparison, the dashed green line plots the optimal control simulation of the “No Fiscal Stimulus” scenario, which essentially tracks the optimal control simulation using the October staff projection as the baseline. The distance between the two lines shows the additional tightening that would have the effect of keeping the unemployment rate and inflation on roughly the same paths that we showed in the October baseline forecast. The federal funds rate in the optimal control simulation using the current staff projection as the baseline is 2½ percent at the end of 2017—36 basis points above the rate in the optimal control simulation based on the “No Fiscal Stimulus” scenario. By 2020, when the funds rate peaks at 5¼ percent, it is about 1 percentage point above the “No Fiscal Stimulus” scenario.

The bottom-right panel summarizes a number of important caveats associated with this analysis. First, the prescriptions from optimal control are quite sensitive to the timing and other details of any fiscal package; the baseline assumptions are, no doubt, just one of a range of possibilities. In addition, as we show in Tealbook B, the federal funds rate path depends importantly on which loss function is assumed. Another consideration is whether financial conditions will respond to fiscal policy changes as assumed in FRB/US. We can’t be sure what revisions to the economic outlook underlie the adjustments in yields and asset prices since the election. As the staff noted in the memo to the Committee on the “Market Reactions to the U.S. Election Outcome,” some of the financial market responses seem to be broadly consistent with what we would have expected, in view of the changes to fiscal policy assumed in the staff projection, while others are more difficult to square. Finally, the optimal control simulations omit risk-management considerations near the effective lower bound, on the one hand, and potential risks associated with a possible nonlinear response to a substantial undershooting of the unemployment rate on the other.

The broader message seems to be that there is heightened uncertainty about the outlook for the federal funds rate. In these circumstances, the absence of revisions to paragraphs 2 and 4 in alternative B will likely be understood as the Committee sensibly withholding judgment on how the outlook for monetary policy may be affected.

Thank you, Madam Chair. That completes my prepared remarks. The November statement and the draft alternatives and implementation notes are on pages 2 to 12 of the handout.

CHAIR YELLEN. Questions for Thomas? President Bullard.

MR. BULLARD. Thank you, Madam Chair. I'm looking at panel 2 here. I'm trying to understand the graph. This looks like there would be a surprise due to our announcement tomorrow because this suggests that there would be three rate increases, is that right? Am I reading this correctly?

MR. LAUBACH. The first thing I would note is that these are based on—I'll give the technical term—"risk-neutral probabilities," that is, there is no term premium adjustment. So the levels are little hard to interpret. The point I tried to make is that the expectations obtained using this measure seem to be in a place similar to where they were a year ago.

MR. BULLARD. Well, your comment was that in 2004, at the time of the tightening, they expected 200 basis points, eight moves.

MR. LAUBACH. Yes, if you take this exactly.

MR. BULLARD. And now they're expecting 50 basis points, two moves.

MR. LAUBACH. According to this metric.

MR. BULLARD. And the SEP says three moves.

MR. LAUBACH. Yes.

MR. FISCHER. They haven't seen the December SEP.

CHAIR YELLEN. But, President Bullard, you're saying it will be a surprise.

MR. BULLARD. It would be a surprise. That's what I'm saying.

VICE CHAIR DUDLEY. Last year we showed four, and it stayed at 50, though. So it wasn't like they moved.

MR. EVANS. And they were surprised; they came down.

MR. LAUBACH. I'd like to reemphasize the difficulty about term premiums. We are looking here at term premiums at the one-year-ahead horizon, basically. I think in 2004 we would have probably said these would be small and positive. At this point, there is a great deal of uncertainty on this. Nonetheless, both term structure models and surveys indicate that actually there are negative term premiums, even at short horizons. That would mean that if you corrected for that, as I do in the upper-left panel, if you take those estimates at face value, you really would think that what you read here as 50 basis points might well be 75 or more. So I'd be cautious in interpreting the level as meaning that their expectation is too high.

MR. BULLARD. Okay. I have one other question on the bottom-left panel, "Federal Funds Rate Paths under Optimal Control." The black line never goes below the green dotted line. If I simulate this out 10 or 15 years, do they eventually cross, so that the effect is eventually neutral? Or is this just a permanent effect coming from fiscal policy?

MR. LAUBACH. Eventually, they would converge. They would not reverse the order, so the integral under the black line will be larger than the integral under the green dotted line.

MR. BULLARD. I noted that it takes quite a while.

MR. LAUBACH. True. This is, again, the FRB/US model, with slow-moving dynamics and a lot of foresight built in.

MR. BULLARD. Thank you.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. Thomas, do you calculate what  $r^*$  is at each point along these paths?

MR. LAUBACH. Along which paths?

MR. FISCHER. Let's look at the bottom left, at the fifth panel.

MR. LAUBACH. We can always take two paths and compute the difference in the real federal funds rate that would keep the output gap closed at a point in time. For example, in Tealbook B, we reported this time around that, by that metric,  $r^*$  has been revised up about 30 basis points from last time.

MR. FISCHER. In this chart?

MR. LAUBACH. This here is a little different because here we are applying optimal control to two different baselines. But basically the calculation is very similar, yes.

MR. FISCHER. Along these paths, are we at 2 percent inflation?

MR. LAUBACH. The deviation of inflation from baseline under any of these paths is very small—which means that inflation converges to 2 percent in a very similar way to how it does in the baseline.

MR. FISCHER. And we're at full employment?

MR. LAUBACH. Optimal control, as you know, with the equal weights loss function basically allows for much less undershooting of the unemployment rate than the baseline does. So that's what we show in Tealbook B—the standard loss function. The reason why these paths are higher than in the Tealbook baseline is that optimal control is, if you want, fighting the unemployment undershooting much more strongly.

MR. FISCHER. Okay. Thank you.

CHAIR YELLEN. Other questions? Okay. Seeing none, why don't we adjourn and resume our deliberations at 9:00 a.m.

[Meeting recessed]

**December 14 Session**

CHAIR YELLEN. Let's get started. Before we start our go-round, I'd first like to call on Thomas to follow up on a point from yesterday.

MR. LAUBACH. Thank you, Madam Chair. President Lacker asked yesterday about the consistency between the staff's estimate of the unrealized gain position in the SOMA portfolio at the end of November, which was reported on page 57 of Tealbook B as \$121 billion, and the data Simon showed in panel 14 of his handout. As mentioned in Tealbook B, the number reported there was a preliminary estimate. And, in the period since the Tealbook closed, we have received new data that show that the unrealized gain position at the end of November was \$81 billion—\$40 billion lower than the preliminary estimate recorded in Tealbook B.

MR. LACKER. Great. Thanks, I appreciate that.

CHAIR YELLEN. Let me next call on David Wilcox to discuss data.

MR. WILCOX.<sup>5</sup> Thank you. First, I'd like to call to your attention briefly the sheet of additional labor market statistics that are in front of you. Last night, President Kashkari usefully called to my own attention the fact that, through a series of inadvertent circumstances, we hadn't provided information on a demographic breakdown until now. With regard to unemployment rates by race or ethnicity, it's interesting to note that the unemployment rates for blacks, Hispanics, and whites are all back, essentially, where they were in the fourth quarter of 2007. However, in level terms, of course, there remain wide differences in unemployment rates across these groups.

With regard to this morning's retail sales release, our preliminary assessment is that the news is just a little softer than we had expected. The portion of retail sales that the BEA uses for

---

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

estimating real PCE increased 0.2 percent in November, which was one-tenth less than we had expected, and there was a downward revision of one-tenth to this category of sales in October. All told, though, this is a small forecast error. And, relative to our expectation, we would take about one-tenth off our estimate of real GDP growth in the fourth quarter, leaving our estimate of fourth-quarter GDP growth at about 1½ percent.

CHAIR YELLEN. Are there any questions for David? [No response] Okay. Then why don't we begin our go-round on policy, starting with President Rosengren?

MR. ROSENGREN. Thank you, Madam Chair. I support alternative B. The market fully expects an increase at this meeting, and our statement at the November meeting set the stage for an increase. Failure to proceed to take action at this meeting would seriously undermine our efforts to communicate clearly our intentions and the rationale for policy action.

As I noted yesterday, my SEP submission has four increases in the federal funds rate in 2017, giving a pattern quite similar to the Tealbook's federal funds rate path for next year. With the unemployment rate falling well below my estimate of full employment and inflation only somewhat below our 2 percent target, we should be indicating that the baseline case for monetary policy will be for normalizing at a gradual but more regular pace. At this time, my preferred path would involve tightening at every other meeting. Indeed, while fiscal stimulus would have been much preferred earlier in the cycle, positive fiscal surprises will likely require us to normalize monetary policy even more quickly. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I support alternative B as written. As I noted yesterday, it seems likely that greater fiscal stimulus will boost aggregate demand and inflation toward the end of next year and beyond. Of course, there remains a great deal of



uncertainty about the size, the composition and timing, and the effects of fiscal stimulus. In addition, there are potential changes for trade, immigration, and regulatory policies.

But all of that can be set aside. Today's decision stands on its own. On the basis of past progress on our goals and the intermeeting data, there's already compelling evidence in hand to support this move. We've reached full employment with continued solid momentum, and we're poised to run a hot labor market for the next couple of years at least. Inflation has also picked up and is closing in on our target. Against this background, the rate increase in alternative B is an appropriate small step in the process of removing monetary accommodation.

In light of the uncertainty about future fiscal and other policy actions by the next Congress and the incoming Administration, we should stand pat for the time being in terms of the forward-guidance language in paragraph 4. If fiscal policy ends up being appreciably more expansionary, at future meetings, we may need to modify the "only gradual" phrase describing the likely pace of rate increases. In that regard, I found the proposed language in alternative C replacing "only gradual" with "additional gradual" unsatisfactory and potentially confusing, especially since "additional" may sound like a continuation of our practice of one rate hike per year. This discussion of how best to modify the language can wait until we have greater clarity on fiscal and other policies next year. Thank you.

CHAIR YELLEN. Thank you very much. President Lacker.

MR. LACKER. Thank you, Madam Chair. I support an increase in the funds rate target and alternative B. I expect that'll be the consensus view, so I'm going to talk about the future path of policy. The current draft of alternative B continues to predict only gradual increases in the federal funds rate. I think there are now good reasons to question whether we should continue to have as much confidence that rate increases will be gradual.

For some time now, I've argued that we should pay heed to the fact that our policy benchmarks are so far above the current level of the funds rate target. I applaud inclusion of the Taylor rule prescriptions in the handout yesterday and hope we can include Taylor rule calculations, such as appear in the Tealbook, in the *Monetary Policy Report* to the Congress next time we draft that. Those benchmarks continue to rise, and increasing the funds rate target at a pace as gradual as two or three quarter points a year is unlikely to close the gap at a satisfactory rate, in my view.

There's little doubt we're at full employment, and, as a result, I think it's increasingly important for us to pick up the pace of tightening. This argument is reinforced by the memo on unemployment-rate undershooting. As I noted yesterday, in the only domestic episode featuring a soft landing, the FOMC raised the funds rate 300 basis points. The four previous undershoots in the historical record resulted in inflation increasing, sometimes quite sharply. I think it's noteworthy that the 1994 episode has been identified as the first instance of preemptive rate increases. Another factor establishing our credibility in 1994, arguably, was that the new Administration at the time chose to respect the Fed's monetary policy independence. This was something of a break from the practice of previous Administrations, going back to Lyndon Johnson's in 1965, of being willing to exert pressure on the Federal Reserve to adopt more stimulative policies.

I thought Vice Chairman Dudley was right yesterday to point out that our risks are likely to involve compromises to our credibility, and that we're not really modeling those in a coherent way. Those are outside our usual modeling practice. An Administration that's willing to discard the 25-year-old precedent of White House respect for the Federal Reserve's monetary policy independence strikes me as capable of contributing to a loss of credibility. The abrupt shift in

circumstances since our November meeting suggests skepticism about gradualism as well.

While the details of fiscal policy are obviously pretty uncertain, the indications are that fiscal policy will be, if anything, more expansionary, perhaps significantly more than we expected at the November meeting.

There's no question that greater fiscal stimulus implies higher real interest rates. There was some discussion of that yesterday. Indeed, in the Tealbook, the staff has marked up its assumed path of  $r^*$ . And if the fiscal policy outlook leads to expected higher real interest rates, which I think are clearly warranted, then our estimates of  $r^*$  should increase. That implies we'll have an even larger policy gap to close over time, so we will need to move even more rapidly.

The post-election movement in market readings on future inflation also argues for less gradual rate increases. Of course, these market reactions aren't independent of anticipated fiscal policy. But our expectation that rate increases would be only gradual was grounded in part on low readings on inflation and inflation expectations and the sense that the downside risks were elevated. Inflation has moved up over the course of the year, and, since the election, there's been a significant increase in financial market measures of expected inflation. As I noted yesterday, evidence from options and term premiums indicates that investors believe the downside risks to inflation are diminishing and the risks to the upside are becoming more salient. It's as if the inflation outlook is in the process of "coming about," to use a nautical term.

So I think a strong case can be made that we may soon need increases in our policy rate that do not qualify as gradual. And, if so, I support President Williams's suggestion that we start thinking about how to back away from the "gradual" language in our statement. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I favor alternative B. As I tried to explain yesterday, my views on labor markets have evolved over the past several months because of what I've seen happening in labor markets. I think a number of metrics assessed individually—and, certainly, labor market conditions as a whole—suggest that we're fairly far along in the process of removing slack. I think some slack probably does remain in the labor market, but, even after today's rate increase, we will still have an accommodative monetary policy, which I think will appropriately continue to support further increases in jobs and wages.

I'm a little less certain about the inflation target. My SEP actually doesn't get to 2 percent during the course of the next four years. But, as I indicated yesterday, conditional on that projection, I think the risks are on the upside. So I should say that I'm not today going along reluctantly. I actually am convinced that this is the right policy move.

As we go forward, I think that, for now, a continued posture of gradualism is the right position for us to take. Continuing considerations include the fact that we are still relatively close to the effective lower bound. And, as many of us have been saying for some time now, the resulting asymmetry in the tools available to us pushes me a little bit, at least, toward being cautious about rate increases, because anything that would increase the likelihood of a recession seems to me to present more problems.

On external risks, I think President Williams said yesterday that there are some upside risks internationally, with a prospect of somewhat better economic growth in some countries. But those will be pretty incremental upside risks, if they are realized. I think the downside risks that are out there would be risks of something substantially more negative—whether it be European banking problems, which produce stress in financial markets around the world; China facing significant problems because of its debt overhang; or any number of geopolitical

circumstances that could go negative over the course of the next year or so. Those seem to me to pose negative risks of a magnitude that is substantially greater than the nontrivial likelihood of some upside surprises on underlying economic growth trends.

Moreover, as Governor Fischer and others explained in some detail yesterday, the uncertainty on what will happen—not just with fiscal policy, but also with the policies of the incoming Administration and the Congress more generally—seems to me to counsel some patience before we decide that there’s going to be fiscal stimulus and therefore, in an anticipatory fashion, a need to act on it.

With respect to the memo by Aaronson and others, I’ll just say again that I think a fair reading of that memo suggests only two strong conclusions: first, it depends a lot on underlying circumstances; and, second, it depends a lot on the luck of the external shock, if I can put it that way. And I would have loved to have drawn the conclusions that I was leaning toward 6, 8, and 10 months ago. I don’t think it fairly supports that. I don’t think it supports conclusions in the other direction, either—that the risks of overshooting are high, and that we have to move in a very strong preemptive fashion.

Having said all of that, I do think the decisions we’ll have before us could get more difficult fairly quickly. While the lower-bound and external risk considerations may remain, we may see a continued tightening of labor markets and may see some pickup in inflation, which just, in the internal considerations of the economy as we’re currently observing it, might counsel further rate increases. And, obviously, if we see some clarification of policy directions that would suggest further stimulus, I do think the effort to balance those two sets of considerations will, for me at least, become more difficult and might—and I underline “might”—require at

some point the change in the language that President Williams was referring to. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. I support alternative B. The unemployment rate will likely reach the Committee's estimate of its longer-run level this quarter, and core PCE inflation has moved up. With tightening labor market conditions and rising inflation, achieving a sustainable pace of employment growth and stable prices requires gradually raising the federal funds rate.

Soft landings are uncommon. In the few successful examples noted by the Board staff's analysis, monetary policy acted preemptively, beginning to tighten before the unemployment rate fell below the natural level. Today the unemployment rate has already reached most estimates of the natural rate, with a negative real federal funds rate and extremely gradual moves to normalize monetary policy.

As we look to our policy choices next year, the risk that a more expansionary fiscal policy could necessitate a faster-than-expected pace of policy tightening warrants consideration in two ways, I think. First, thinking about the March SEP, I wonder if we should consider adopting a common assumption for fiscal policy. This could help the public interpret the projections and could make it easier to explain changes in the SEP at the press conference. Along these lines, adding some measure of uncertainty, as the subcommittee on communications discussed in its recent memo, might also be helpful.

Second, we might have to reframe our strategies regarding the balance sheet. Under current fiscal policy, we project a gradual path of the federal funds rate and have associated it with a large balance sheet. However, a higher path would bring forward the time when policy

normalization is well under way. To better manage expectations, the Committee might clarify what “well under way” means. In my view, we will be well under way when the target range of the funds rate reaches between 1 and 1¼ percent. The views of other participants could be captured by including a question in the next SEP about the appropriate level of the federal funds rate to cease reinvestments. This would be similar to the previous special question about the date at which participants judged that an increase in the funds rate would first become appropriate.

Thank you.

CHAIR YELLEN. Thank you. President Harker.

MR. HARKER. Thank you, Madam Chair. Reflecting my view that there remains, essentially, no slack in the labor market and the observation that inflation continues to move closer to target, I am very supportive of alternative B. Financial markets are expecting an increase in rates and have essentially priced in a removal of policy accommodation.

Regarding the forward-guidance language, I worry that markets have come to interpret “gradual” as meaning one or perhaps two rate hikes per year. A look at the federal funds futures market lends some credence to my concern, and I think it would be useful to start contemplating a different characterization of future policy, as others have said. In light of the overall weakness of trend growth that I alluded to yesterday, as well as the increased economic uncertainty, I am in favor of removing accommodation quite gradually. But I am worried that our language may suggest that this means fewer rate hikes than many of us view as appropriate. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. I support alternative B. I think a 25 basis point move today is appropriate in light of the continued gains in labor markets, the modest

improvement in the inflation outlook, and our communications that virtually promised a rate increase this year unless there was a clear softening in economic activity. I also believe it best that we continue to communicate our view that conditions are likely to evolve in a manner that will warrant only gradual increases in the funds rate. Paragraph 4, as written, still works for me.

Although I believe the odds of returning to the effective lower bound have diminished somewhat, these risks are still notable and likely to remain so for some time. So the zero-lower-bound risk management still argues for a shallow policy rate path and instilling strong confidence that the FOMC will live up to our symmetric inflation objective. As I mentioned yesterday, my current appropriate policy rate path has two 25 basis point increases in 2017. I hope, as we move through next year, that private-sector fundamentals will remain sound and we will have a better idea about the fiscal policy picture. And, down the road, we could see changes in the outlook that would dictate a steeper path of rates that I would readily support, but that's for future meetings. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Mester.

MS. MESTER. Thank you, Madam Chair. It's December, and it's an FOMC meeting. Am I the only one who has a sense of déjà vu around the table? [Laughter]

In light of the progress made toward our goals and the medium-run outlook as well as the risks associated with the outlook, I support a 25 basis point increase of the federal funds rate target at this meeting, and I believe economic developments make a compelling case for this change even apart from a higher likelihood of some fiscal policy stimulus to come.

I can support alternative B as written. At this point, it seems sensible to make few changes in the statement. Indeed, on that score, I'd make one suggestion. In the penultimate line in paragraph 1, why not just add the word "considerably" rather than also changing "but remain



low” to “but still are low”? So that part of the sentence would read “Market-based measures of inflation compensation have moved up considerably but remain low.”

In paragraph 3, I am interpreting the change from “further improvement” to “further strengthening” as a change from a normative locution to a positive one. That makes sense at this point, with the unemployment rate near, or even below, many estimates of the full-employment rate. This language acknowledges that if the labor market gets too overheated, this shouldn’t be interpreted as an improvement. But I do think this change is pretty subtle, so I’m not sure how it’ll be interpreted.

As I said, I understand the argument for making few changes in the statement today, but I do think there are looming policy and communications challenges we’ll need to confront sooner rather than later. Like some others, I think we do need to find a way to step back from the “gradual path” language. As I recall, the language was introduced to signal that, when normalization started, we didn’t anticipate raising rates at each and every meeting, as we did from mid-2004 to mid-2006. That’s still true, but I don’t think “gradual” is necessarily being interpreted in the same way anymore. Indeed, the issue has been that the market has been anticipating a much shallower path of policy than we are. If the public’s new interpretation of “gradual” is one hike per year, as we did for the past two years, then the path we anticipate is no longer gradual.

Moreover, there are a number of risks that, if realized, might entail a different policy rate path from that we currently anticipate. I suspect that over the next two years, we may need to change our forecasts and our anticipated policy rate path more frequently than we’ve done in the past couple of years. For one thing, some clarity concerning fiscal and other economic policies will likely be forthcoming. We will need to incorporate that information into our outlook for the

medium run. We'll also need to assess what, if any, effect these policy changes might have on longer-run structural aspects of the economy, including productivity growth and the equilibrium interest rate.

Like others, I found the Board staff's memo on soft landings quite interesting. They were able to find a couple of examples, but the common characteristics were, one, that monetary policy was preemptive and began to tighten before the unemployment rate fell below real-time estimates of the natural rate; and, two, that the shocks that hit the economy once it slowed were either small or beneficial. The unemployment rate is now below most estimates of the natural rate. So, arguably, it is difficult to characterize our current policy stance as necessarily preemptive, and I don't think we can or should count on positive shocks. This suggests we need to remain vigilant against falling "behind the curve." We may need to be less inertial than we've been. We need to be open to 50 basis point increases if necessary and to ending reinvestments sooner than currently anticipated.

At the same time, there are downside risks, too, including the prospect that financial market participants' expectations could swiftly shift if they're disappointed by the set of policies coming from the Administration and the Congress, as well as the possibility of increased geopolitical tensions.

The aim is not to offset fiscal policy. Instead, the aim is to position monetary policy to achieve our dual-mandate goals. This necessarily means taking into account how the economic environment, including fiscal policy, is changing to the extent that those changes affect our ability to achieve our goals. For us, it seems important to me that we continue to de-emphasize discussion of short-run fluctuations in our communications and emphasize that our policy choices are driven by our assessment of what policy is appropriate to achieve our dual-mandate

goals. If I'm right that our anticipated policy rate path may need to change more often, then we face a challenge in communicating that these changes are being driven by a systematic assessment of progress relative to our goals and not because we are reacting to short-run fluctuations in the data and behaving in a discretionary manner without a framework, of which we are increasingly being accused. It'll be helpful for us to continue to work toward clarifying the degree of uncertainty regarding our current assessment of the likely future path of policy, in view of the uncertainty associated with the forecast and the inevitable shocks that will hit the economy.

Now, because I've stopped reading and watching the news [laughter]—that happened about a month ago—I have some time on my hands, so I've been reading a bit of Federal Reserve history. Let me continue by pointing out something that former Chairman Alan Greenspan once said about monetary policy: “There is no alternative to basing actions on forecasts, at least implicitly. It means that often we need to tighten or ease before the need for action is evident to the public at large, and that policy may have to reverse course from time to time as the underlying forces acting on the economy shift. This process is not easy to get right at all times, and it is often difficult to convey to the American people, whose support is essential to our mission.”

Greenspan made these remarks 20 years ago, almost to the day, and they strike me as just as relevant today as they were then. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I believe that it's appropriate for the Committee to raise the target range for the federal funds rate at this meeting, and I support alternative B as written.

Employment growth continues strong, unemployment is at or below the natural rate, and output is expanding moderately and above potential. Inflation is gradually increasing a little faster than forecast. Market-based measures of inflation expectations have moved up, and we haven't been this close to our dual-mandate target since the mid-2000s and, before that, the mid-1990s.

I revised up my SEP path of the federal funds target slightly, with three increases next year instead of two. That seems to me to be justified by the strengthening of the unemployment gap and the performance of inflation. The expectation of more accommodative fiscal policy should also support economic growth and ensure against weaker outcomes.

My SEP path is still a gradual one that accommodates an extended period of unemployment in the mid- and low 4s, a bit below current estimates of the natural rate—what I would call a warm labor market. I see this as appropriate, and, in fact, I had hoped that we would get to this point. But getting here now means that the risks are two sided. Depending on their size and other characteristics, fiscal easing measures could put further downward pressure on unemployment and upward pressure on inflation and economic growth.

We've also had extraordinary changes in asset prices and significant improvements in survey measures of business and household confidence, and it may well be that all of these factors come together to make a case for a faster pace of tightening and appropriate language changes in the statement. That case is yet to be made, but it's certainly plausible that it may be made. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. I support the policy action in alternative B and the suggested statement with its minimal changes in guidance. In view of

uncertainty about the timing of the next step, I think it would be a good idea not to provide much forward guidance at this stage. Lying low is, in my opinion, the right communications posture coming out of this meeting.

However, as I prefaced in my comments in the economics go-round, there could be communications dilemmas building. At some point over the coming months, the Committee will likely have to consider alternative scenarios along the lines of the “Larger Fiscal Stimulus” scenarios presented in the Tealbook. There are, of course, many “what-ifs” at this point, but, with a little more clarity, I’m thinking it would be a good idea to discuss and anticipate how the Committee might respond under various circumstances. A steeper path of the policy rate, at least steeper than reflected in this meeting’s SEP, may be called for because of realized or projected fiscal policy effects. There is a realistic chance a steeper path of the policy rate will be interpreted, perhaps appropriately, as offsetting fiscal policy. Much could be made of this seemingly adversarial stance of policy.

The Chair commented yesterday on how she plans to deal with questions in the press conference. For my part, I think it would be wise to get ahead of this contingency and to make efforts to explain the FOMC’s and monetary policy’s relationship to fiscal policy. In light of the difficulty that the Committee has experienced with crafting a statement that adequately captures the consensus thinking about future policy, this anticipatory communication probably would best be done in speeches and the Chair’s subsequent press conferences.

As I leave the Committee, I’d like to offer one more piece of free advice for your future assessments of the economy. It seems to me that a lesson of the recent electoral cycle and the outcome of the election is the public’s differential experiencing of the economy across geography, the urban–rural spectrum, and cohorts defined by educational attainment. I applaud

the addition of the content in the staff briefing for these meetings that shows employment and unemployment differences by ethnicity, as we got this morning. It strikes me that this reporting can go further in order to ensure the Committee has a good grasp of the ground-level effects of its policies in several dimensions. This is not to suggest that monetary policy can or should take on distributional questions—it's just to suggest that knowing more about the texture of economic experience across the population would be constructive. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. When I started writing this, I was sure it would be two paragraphs, but, unfortunately, it turns out to be much more. I, too, support alternative B, which I think is the first time I've ever said that, because I assumed it was taken for granted each time in the past.

Now, before I start, I'd also like to introduce an almost irrelevant footnote. Dan emphasized the fact that, when pushing a high-pressure economy succeeded, it was other things that happened that made for the success. There's a very famous book among development economists written by Albert Hirschman, who was asked to evaluate projects of the World Bank. He was given 10 of their large projects—this was a long time ago—to evaluate. The result was that a little over half of them were successful. The other result was that almost none of them went according to plan, and the successes didn't have much to do with the plan but had to do with the improvisation that happened in the course of the project when it started going off track. And I think that tells us that you've got to be alive to changing circumstances. So the fact that things happened elsewhere could have led to success or, if they'd been ignored, would probably have led to failure. That, too, needs attention.

I'll now turn to this topic. If the incoming Administration changes economic policy in several areas as radically as promised during the election campaign, we will, in retrospect, view today's interest rate decision as the last of an era. And, if so, we will have to develop an approach to making monetary policy in a setting of much greater nonmonetary policy uncertainty than we've had to deal with in recent years.

The decision to raise the federal funds rate 25 basis points is appropriate for the current state of the economy and in light of policy decisions and statements we've made in the period leading up to this meeting. And yesterday's discussion made a compelling case for implementing the decision that the markets and the public expect. The argument can be put very simply: Both inflation and unemployment are very close to their dual-mandate targets. We may be somewhat overshooting, by which I mean undershooting the natural rate of unemployment, and we expect very gradually to reach our 2 percent PCE inflation target.

Further, it was clear yesterday that most of us believe there is a serious risk we might overshoot both targets, and that the time has therefore come to raise the federal funds rate. Well, that's it with respect to this decision, but we need also to send signals about future FOMC policy. At the certainty of repeating myself, the main message we need to send is that our monetary policy decisions will be made with the goal of achieving and maintaining the dual mandate. Well, that's easy to say, but it's not sufficient guidance to spell out the path that we expect the federal funds rate to follow.

Tealbook B gives us a rich choice among alternative policies, so let me highlight a few of the results shown in the "Monetary Policy Strategies" section of Tealbook B and ask a few questions. First, in terms of the charts on page 2 of Tealbook B, the staff projection shows large changes in interest rates by 2022. These changes make much less difference to inflation in the

next two years than they do over the longer period—that is, the Phillips curve is very flat. There was an appeal yesterday for further work on whether the Phillips curve remains flat even as unemployment falls very low, and that is an important request.

Second, the GDP gap seems quite sensitive to fiscal policy, which also means that the staff projection is very Keynesian. Well, that follows from the flat Phillips curve. The simple policy rule simulations on page 4 show that the different policy rules have a much greater effect on unemployment than they do on inflation, in accordance with the way a Keynesian model works.

Third, we do not, in practice, follow the interest rate paths shown for five years out. Starting three months from now, we'll have moved on to a new set of projections. That means we must be using the staff's projections mainly for interest rates in the relatively near future. Or am I wrong, and do the projections five years out make much difference to what we do today?

Fourth, I was struck by the box on page 2, which shows the projected medium-term equilibrium real federal funds rate. In the second bullet point on page 3, the staff draws attention to the fact that, at 1.16 percent, FRB/US  $r^*$  is well above the average level of the real federal funds rate in the 12 quarters of the projection that it takes to get the output gap to zero. The average level of the real federal funds rate in the 12 quarters is 10 basis points. That's quite a large difference, because there are certainly some interest rates on that path that are well below 10 basis points. What is the significance of that—that we really aren't planning on or should plan on moving the real funds rate around a lot more than we think we should? A question.

Fifth, the optimal control simulations show just how important are the relative weights we put on inflation and unemployment in the loss function, which leads to my final question for today. If the alternative simulations are a basis for choosing policy rates, what should guide that



choice? Is it how much we like the charts? Or, to put the question differently, do we compute the value of the utility function on each path we examine, which is fairly difficult because we change the utility function among some of the paths? But if we don't compute the value of the utility function, why not?

Finally, what should we tell the markets and the public? Well, early this morning, I was thinking, "Gee, I wonder if I can reproduce what the Chair said yesterday." And then the following thought struck me: "Well, there is e-mail, and the Chair reads her e-mail 24 hours a day [laughter], so I'll send her a note." And she agreed that I could quote her. So I will conclude by quoting what the Chair said yesterday—with her permission, she says. [Laughter]

CHAIR YELLEN. It's true. You have my permission.

MR. FISCHER. She said, "I will. . . note that many proposals for taxes and spending are currently being discussed, but there is considerable uncertainty about what the Congress may eventually pass, and that we do not intend to act preemptively based on guesses about future policy. . . . Moreover, I will stress that fiscal policy is just one of many factors that influence real activity and inflation and, thus, the course of monetary policy over time. Instead I hope we will stress that we intend to carry out the task that the Congress has assigned to us, the pursuit of maximum employment and price stability, and we'll adjust the stance of monetary policy as appropriate in response to all of the factors that affect the economic outlook." Thank you, Madam Chair. And thank you.

CHAIR YELLEN. Thank you very much. And, Governor Fischer, regarding the questions that you posed, did you want to have a response?

MR. FISCHER. I think they're questions we need to discuss at more length as we think through the policymaking process and what relationship there is between what's in Tealbook B and what we actually decide.

CHAIR YELLEN. Okay. Thank you very much. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. I support alternative B as written. I continue to believe that removal of accommodation should be done gradually. I submitted three increases in the federal funds rate in my SEP submission for 2017. Having said that, I think the risk of undershooting our unemployment objective and overshooting our inflation goals has increased. And if this materialized, it's going to have implications for monetary policy in 2017, including not just the federal funds rate, but also decisions about how we manage our balance sheet.

As we head into 2017, I intend to be patient and careful not to prejudge what nonmonetary policies might be enacted, instead allowing these policies to unfold and assessing them as the process moves forward. I am struck by the breadth of the potential policy actions that could happen in the next year—changes to the Affordable Care Act; changes to taxes, both individual and corporate; changes to infrastructure spending policy; regulatory changes; changes in fiscal policy management decisions, including decisions involving potentially terming out Treasury maturities; and changes in trade policy, immigration policy, and foreign policy generally. I think the ultimate mix and timing of these policy actions may lead to some unpredictable and surprising outcomes.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I support alternative B for today. I think we met our goals in a statistical sense long ago. I think our policy rate is only slightly below where it needs to be to be consistent with our policy goals.

There's not much evidence so far that the recent election will alter the current regime, which is characterized by low productivity growth in the United States and low real rates on government paper globally, the so-called  $r^*$ . Several people said they were disappointed in me yesterday because I didn't mention  $r^*$ , so I've sprinkled it throughout this commentary.

[Laughter] The fact that we're not really leaving a regime, at least so far, may mean that the policy rate should remain fairly low over the forecast horizon. That continues to be our projection, based on the information we have today.

There has been some change since the election—in particular, a major equity rally. Many are interpreting that as reflecting expectations of faster economic growth. I think that's the wrong interpretation. I think it's reflecting expectations of lower corporate tax rates, which, all by themselves, would lead to revaluation of the U.S. corporate sector. And if you look at projections of economic growth, a few people have marked them up, but most people have them still around 2 percent, which is what we have for the St. Louis Federal Reserve forecast. So, as of today, I don't see the equity rally, so far, as reflecting changing fundamentals. However, it is possible that a regime change is in the offing. The list of possible policy changes just rattled off by President Kaplan is astonishing, and it could mean a much different economy in the future. So, obviously, I'll be watching this very closely.

To get the regime change, we would need higher medium-term productivity growth. And, as I was saying yesterday, a case could be made that some of the proposed fiscal policies will affect medium-term productivity growth: possibly deregulation—you could make a case there; possibly tax changes—if they affect investment in the United States, that could change productivity; and possibly infrastructure programs. All of these could have an effect. All of these also could go the other way and be detrimental. So I think we just don't know at this point.

I will say that I think the way a lot of people are talking about fiscal policy around the table is not the way I would think about it. Temporary increases in real GDP driven by higher government spending, which is backed by future taxes, would be insufficient to change a regime, in my view. In a standard New Keynesian model, which often informs a lot of the thinking here, fiscal policy of that type would have no role to play at all. Those interested in my views on this could check out an essay I wrote a few years ago called “Death of a Theory.”

Another way the regime could be altered would be if the very large liquidity premium on government paper globally was to lessen over the forecast horizon. So-called  $r^*$  would rise then, and that would rationalize a higher policy rate for this Committee. And, indeed, since the election, the 10-year yield has increased substantially. Some of this was inflation expectations. As I explained yesterday, at the St. Louis Bank we were already expecting or maybe hoping for a bounceback in market-based measures of inflation expectations. So, seeing that actually happen was gratifying but didn’t change our outlook. The rest of the increase in the 10-year has been in the real rate, and we did take some of this on board in our forecast. It’s not a regime change, but it is a somewhat higher real rate. Accordingly, we now have one policy-rate increase in 2017, on top of today’s increase. And, indeed, that’s the only increase for the forecast horizon as we sit here today, according to the St. Louis Federal Reserve forecast.

I’ll make three further comments, Madam Chair. I see today’s decision as likely to be interpreted as hawkish, because the dots are indicating three increases in 2017, whereas markets have that at two. I see it as somewhat above current market expectations. I am concerned that markets get ahead of themselves and start to think that the Committee is more hawkish than it probably really is. I would prefer to stress that we will react to market circumstances and incoming data. If we do raise rates faster, it will be because there’s good news coming in on the

U.S. economy and not just because we decided all of a sudden to raise rates faster. So I think in the period ahead that's an important point to emphasize.

I see allowing some minor runoff in the balance sheet as a policy move that we should consider in the near future. This is obviously not reflected in my rate path projection, but this would be another way to make a mild tightening move without altering the policy rate path. This is something that has been pushed to the back burner and should come back on the table. As some of you remember, I was actually an advocate of allowing runoff of the balance sheet first and then raising the policy rate later. I now think that we should reconsider a policy move that would go in this direction. Another possibility would be to reallocate toward shorter-term securities when we reinvest and undo the twist operation that was done several years ago. I think that's something that we could consider in the near future, possibly during 2017.

Finally, I prefer that we not use the rhetoric about running the economy hot. Maybe it's just a sense of how I think about macroeconomics, but, to me, it suggests departing from planned policy or departing from an existing policy rule. It sounds discretionary. I think we should emphasize that we're reacting to real data that are coming in on the economy and that we're setting the policy rate according to that. And even if we don't write a policy rule down, we have a policy rule in mind that might have many more factors in it than the typical policy rules that are studied in the research literature. But once you have that rule in mind, you would not arbitrarily depart from that rule to try to achieve some outcome, because the reason you chose the rule in the first place is, you think that's the optimal policy. So I think that my preference would be to retire the rhetoric about running hot. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. The past few months have seen important progress toward our goals. The labor market has continued to strengthen, and maximum employment is in sight. The 12-month change in core PCE prices has moved up noticeably over the past year, to 1.7 percent most recently, as the effects of past dollar appreciation and oil price declines have faded. Although further progress is needed if our 2 percent target is to remain credible following eight years of falling short, importantly, measures of inflation compensation have also improved of late. These are all welcome signs that are consistent with a modest removal of policy accommodation.

Even with a 25 basis point increase in the funds rate, monetary policy will remain accommodative. This is appropriate because of how flat the Phillips curve has been and the fact that inflation is still below our target against a backdrop of persistent underperformance, as well as risk-management considerations in the vicinity of the effective lower bound. While the neutral rate remains low, the ability of monetary policy to respond to shocks will be asymmetric. As a result, we need to remain alert to downside risks, such as those I discussed yesterday arising from foreign economies. The persistent underperformance of inflation, the low neutral rate, the presence of downside risks associated with developments abroad, and risk-management considerations in the vicinity of the lower bound together counsel a gradual approach for the time being.

However, the advent of unified government could herald a very significant shift in the policy mix. While it's premature to assess with any precision the size, composition, or duration of these fiscal policy changes, it seems prudent to put some probability on a moderate increase in fiscal deficits starting late next year. At a minimum, it poses upside risks to aggregate demand and makes the overall risks more balanced.

The change in the fiscal policy outlook could have important implications for monetary policy, including for reinvestment policy. Moreover, the observed elevated sensitivity of the dollar to any anticipated divergence could reasonably lead us to expect the exchange rate to continue to do some of this work preemptively. I support alternative B.

CHAIR YELLEN. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Madam Chair. I support alternative B. I've been highlighting three metrics that I've been focused on in looking at how the economy is unfolding: core PCE inflation, inflation expectations, and the headline unemployment rate. Since we last met, we've seen positive developments in two of those three—some upward movement in market-based inflation expectations and a decline in the headline unemployment rate, signaling a tightening labor market. In this context, I support raising the federal funds rate today.

I will continue to monitor inflation, inflation expectations, and unemployment closely. In particular, I'm looking for evidence to see whether the labor force participation story of the past year or so has run its course or whether there's more "room to run." I also want to see the rise in inflation expectations translate into actual higher inflation, because, as Governor Brainard just noted, we are still below our inflation target, and we have a symmetric target, not a ceiling. And the strengthening dollar, as the Governor said, is going to make achieving our inflation target a little bit harder.

Now, as many of us have said, in the future, nonmonetary policy is unusually uncertain. Dramatic changes seem possible, but we don't know how they're going to affect the economy. The biggest challenge we have, as I see it, is how we communicate about the future. As others have said, I think we should focus on our dual mandate and communicate a rationale that our policy choices are going to come back to achieving those objectives. People may not find that

very satisfying, because the truth is, we don't know a lot about how the future is going to unfold. But it is what it is. We can't promise something that we don't have. In the new year, we're going to know a lot more, and that will inform our decisions.

I want to add one comment. Several folks around the table made a comment about the word "gradual" and whether that word is what markets are anchoring their expectations to. I don't see it that way, because the SEP has been much more hawkish over the past several years and markets have been basically ignoring that. I have a hard time seeing them ignoring the SEP but then anchoring to the word "gradual." I think markets are rendering their own judgments about the future path of policy and how they see the economy evolving. Language obviously matters, but I don't think that one word, "gradual," explains the markets' outlook. Thank you.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you. I support alternative B as written. A few months ago, I thought that our first rate hike in a year might be an opportunity for a major "refresh" of the statement. But I changed my mind about that after the election, because of concerns that a major rewrite might be misconstrued as motivated by the election outcome or taken as a major shift in policy direction. We don't want the statement to be viewed in that way, so I think a statement with minimal changes, except for the decision to raise the federal funds rate target, seems appropriate to me.

The major focus coming out of this meeting is going to be how the statement has changed in terms of language and how the SEP numbers have evolved since the September FOMC meeting. The minimal changes in the statement language should be reassuring to people that the election outcome has not yet provoked a radical rethink of the policy outlook. In terms of the SEP, I expect that market participants will be mainly focused on what happens to the median



federal funds rate path. The path did show two hikes in 2017 and three hikes in 2018 at the September meeting, and people are generally not expecting the path to move up very much at all at this point. I think the fact that the path has moved up slightly may be a slight surprise to people, but I think the movements are small enough that it's not going to be a big event for market participants.

Before I finish, I had a couple of further thoughts. I want to build on this issue of the reinvestment of our Treasury and agency MBS portfolio. My thinking for some time has been that the timing of stopping or beginning to taper down our reinvestment should be motivated by the risk of an early return to the effective lower bound. That implies that if we were to become more optimistic that that's less likely, then we might decide to begin this process at a lower federal funds rate target. In other words, I had two variables in my timing function: distance from the lower bound—the level of the federal funds rate—and the risk of a near-term economic downturn. So if we do get significant fiscal stimulus in the years ahead, in my mind, this would bring the reinvestment decision potentially much closer in terms of time, because we might lower the federal funds rate at which we felt comfortable beginning to end reinvestment. We might get to that given federal funds rate earlier in time.

So I think it really is time for the staff and the Committee to start to do the prep work on how we might actually end reinvestment. There are a lot of issues here—tapering versus stopping, how long a taper should be, how to treat MBS versus Treasury securities, et cetera. So I think I would very much encourage the staff to get going on this, because I can imagine that, under a feasible set of circumstances, we could be having this conversation maybe by the middle of next year.

I also encourage the staff in this work to give us their views on, how do we match the equivalence of ending reinvestment or tapering reinvestment with federal funds rate changes—say, some sort of notion of equivalency? I know that’s going to be very difficult to do with any great precision, because it’s not just the decision to change the reinvestment path. It’s also the fact that this is viewed as another major regime shift, one similar to the regime shift that we made a year ago. But we still need to have a rough estimate so we can figure out how we should trade off these two things?

Finally, before I conclude, because we have plenty of time, I’ve been thinking a lot about the election outcome and what we should think about it. I’m very much in the camp of thinking that the generally free labor of goods and services in the global economy has been hugely beneficial to hundreds of millions of people, in lifting them out of poverty. But, at the same time, I think the election result shows that there are a lot of people in the United States that have been left behind by globalization. We’ve had weak productivity growth, so the pie is not growing very fast. We’ve had a decline in the labor share of income over the past 20 or 30 years. We’ve had an increase in the skew of income distribution, and we’ve had poor income mobility. When you put those four things together, there are a lot of people who actually haven’t benefited from globalization.

I think this is important, because monetary policy can’t really do that much about this. We can try to keep the economy at maximum sustainable employment and price stability, but we really fundamentally can’t do much about these things. And I think we need to talk about them a little bit more, because if the country doesn’t make progress in helping more people benefit from globalization, the support for globalization and for trade is going to fracture—maybe it already is

starting to fracture—and, with that, we'll lose a lot, I think, as a country and a society. So I think it's something that we collectively need to talk about.

In this vein, Raj Chetty and a whole bunch of other authors published a paper last week that I think is really interesting. Basically, what they did is, they looked at how the year of your birth affects your likelihood of earning more than your parents, based on the income decile of your parents. What they found is that if you were born in 1940, your chances of doing better than your parents were really good. But as you move down the cohorts from 1940, '50, '60, '70, and '80, the chances of outdoing your parents decline markedly. So, for example, if you were born in 1980, it looks like you're not going to do as well as your parents if your parents were at 50 percent of the income distribution. I really encourage you to look at this paper. I think it's really very interesting empirical work, but it also underscores a little bit what we just saw in terms of the election outcome.

Finally, I just want to bookend the Chair's comments about our colleague President Lockhart, who's stepping down. You've been a terrific colleague on this Committee. It just shows that the diversity of this Committee benefits all of us—your background as a banker and your international experience. You've shown great care and skill as a colleague. You're a very collegial person to work with. I'm going to miss you, and I wish you all the best of luck in your new endeavors.

MR. LOCKHART. Thank you, Bill.

MR. FISCHER. Could I raise a question? Bill, I think there's an important question about whether it's globalization or modernization that lies behind what's happened to relative incomes. And I'm not sure that it's globalization.

VICE CHAIRMAN DUDLEY. I think there are a lot of factors. I'm using that as a shorthand, so I don't disagree that it's more complicated than that. But, clearly, the support for globalization in the United States is really in danger, and I guess that's why I emphasize the globalization aspect of it.

MR. FISCHER. And, second, what will be the effect of the signal that we are starting to roll off the portfolio, just by itself? We know how much of an addition to the supply of assets that the market has to absorb. But we're also sending a signal, which is, we think the economy is strong enough to enable us to do this. That'll reduce the effect to some extent, won't it?

VICE CHAIRMAN DUDLEY. I think the market would take it as a judgment that we're more confident that the economy has sufficient momentum that we're not going to go back to the effective lower bound in the very near future. Our original motivation for not ending the reinvestment was, we wanted to get a little bit of room away from the lower bound, and we wanted to have some confidence that we weren't going to go back to the lower bound in the very short run.

MR. FISCHER. Right.

CHAIR YELLEN. Okay. Now, I did hear considerable support for alternative B as written, but I also heard a suggestion from President Mester, and I want to put that in front of you and make sure I understood it properly. At the end of the first paragraph of alternative B—President Mester, please correct me if I didn't get this right—President Mester suggested changing the words where it says “but still are low,” to “but remain low.”

MS. MESTER. Yes. And leave the “considerably” in there. So, basically, just add a word, as opposed to changing it.

CHAIR YELLEN. So, essentially, the sentence would be more black ink than we currently have.

MS. MESTER. Yes.

CHAIR YELLEN. You would be taking the old sentence and just adding the word “considerably,” so it would read “Market-based measures of inflation compensation have moved up considerably but remain low.”

VICE CHAIRMAN DUDLEY. I don’t think this is a big deal one way or the other, but I guess when I originally thought about this question, I thought that, on the one hand, you’re saying something is moving. On the other hand, you’re saying something is remaining, and that seems a little bit in opposition to one another.

MS. MESTER. Oh, I thought they were synonyms, but I defer.

VICE CHAIRMAN DUDLEY. And that’s why I was more in the camp of “still are low.” I guess I favor the way it’s written now, because if you say something has moved and then say something remains, was it at rest, or is it moving? It just seems a little contradictory.

MS. MESTER. I think of “remain” and “still are” as synonyms, but I’m happy to defer and leave it the way it is.

CHAIR YELLEN. Are there strong views about this?

VICE CHAIRMAN DUDLEY. I don’t think it matters.

CHAIR YELLEN. Should we leave it the way it is then? Okay.

Now, because it has been a year since our previous policy action, I thought it might be helpful if I remind you of the procedure we follow for Board decisions on interest rates on reserves and discount rates taken in association with FOMC monetary policy decisions. First, the FOMC will vote as usual on the monetary policy statement and the directive to the Desk.

Second, the Board only, and not the FOMC, will vote on corresponding changes to the interest rates on reserves. And, finally, the Board only will vote on changes to discount rates. So let's now first vote on the FOMC statement and directive, and let me ask Brian to make clear what it is we're voting on and to call the roll.

MR. MADIGAN. Thank you, Madam Chair. This vote will be on the policy statement for alternative B as given on pages 6 and 7 of Thomas Laubach's briefing materials—that is, without any change from what was included in those briefing materials. It will also include the directive to the Desk as that is included in the draft implementation note, which is on pages 10 and 11 of those briefing materials.

Chair Yellen	Yes
Vice Chairman Dudley	Yes
Governor Brainard	Yes
President Bullard	Yes
Governor Fischer	Yes
President George	Yes
President Mester	Yes
Governor Powell	Yes
President Rosengren	Yes
Governor Tarullo	Yes

MR. MADIGAN. Thank you.

CHAIR YELLEN. Okay. As I mentioned, the next vote will be a vote of the Board of Governors only and will be on an increase, to 75 basis points from 50 basis points, in the interest rates paid on required and excess reserve balances, effective December 15, 2016. Do I have a motion?

MR. FISCHER. So moved.

CHAIR YELLEN. And a second?

MR. TARULLO. Second.

CHAIR YELLEN. Without objection. Okay. The final vote will also be a vote of the Board of Governors only and will cover three discount rate actions, so bear with me. First, it will be to approve the requests of the Federal Reserve Banks of Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Kansas City, Dallas, and San Francisco to increase the primary credit rate to 1¼ percent from 1 percent, effective December 15, 2016.

Second, it will also encompass approval by the Board of Governors of the establishment of a 1¼ percent primary credit rate by the remaining Federal Reserve Bank, effective on the later of December 15, 2016, and the date such Reserve Bank informs the secretary of the Board of such a request. The secretary of the Board would be authorized to inform such Reserve Bank of the approval of the Board of Governors on such notification by the Reserve Bank.

Finally, this vote will also encompass approval by the Board of Governors of the renewal by all 12 Federal Reserve Banks of the existing formulas for calculating the rates applicable to discounts and advances under the secondary and seasonal credit programs. As specified by the formula for the secondary credit rate, the secondary credit rate would be set 50 basis points above the primary credit rate. And, as specified by the formula for the seasonal credit rate, the seasonal credit rate would continue to be reset every two weeks as the average of the daily effective federal funds rate and the rate on three-month CDs over the previous 14 days, rounded to the nearest 5 basis points. Do I have a motion?

MR. FISCHER. So moved.

CHAIR YELLEN. A second?

MR. TARULLO. Second.

CHAIR YELLEN. Without objection. Okay. That's it. Let me mention that the date of our next meeting is Tuesday and Wednesday, January 31 and February 1. At this point, there are

boxed lunches that are available in the anteroom. And, as usual, there will be a TV set up in the Special Library, if anybody is interested in watching my press conference. Thanks, everybody.

END OF MEETING