

**Meeting of the Federal Open Market Committee on  
December 16–17, 2014**

A meeting of the Federal Open Market Committee was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, December 16, 2014, at 1:00 p.m. and continued on Wednesday, December 17, 2014, at 9:00 a.m. Those present were the following:

Janet L. Yellen, Chair  
William C. Dudley, Vice Chairman  
Lael Brainard  
Stanley Fischer  
Richard W. Fisher  
Narayana Kocherlakota  
Loretta J. Mester  
Charles I. Plosser  
Jerome H. Powell  
Daniel K. Tarullo

Christine Cumming, Charles L. Evans, Jeffrey M. Lacker, Dennis P. Lockhart, and John C. Williams, Alternate Members of the Federal Open Market Committee

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

William B. English, Secretary and Economist  
Matthew M. Luecke, Deputy Secretary  
Michelle A. Smith, Assistant Secretary  
Scott G. Alvarez, General Counsel  
Steven B. Kamin, Economist  
David W. Wilcox, Economist

James A. Clouse, Thomas A. Connors, Evan F. Koenig, Thomas Laubach, Michael P. Leahy, Paolo A. Pesenti, Samuel Schulhofer-Wohl, Mark E. Schweitzer, and William Wascher, Associate Economists

Simon Potter, Manager, System Open Market Account

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

Robert deV. Frierson,<sup>1</sup> Secretary of the Board, Office of the Secretary, Board of Governors

Michael S. Gibson, Director, Division of Banking Supervision and Regulation, Board of Governors

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<sup>1</sup> Attended the joint session of the Federal Open Market Committee and the Board of Governors.

Stephen A. Meyer and William R. Nelson, Deputy Directors, Division of Monetary Affairs, Board of Governors

Andreas Lehnert, Deputy Director, Office of Financial Stability Policy and Research, Board of Governors

Andrew Figura, David Reifschneider, and Stacey Tevlin, Special Advisers to the Board, Office of Board Members, Board of Governors

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

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

Christopher J. Erceg, Senior Associate Director, Division of International Finance, Board of Governors

Michael T. Kiley, Senior Adviser, Division of Research and Statistics, and Senior Associate Director, Office of Financial Stability Policy and Research, Board of Governors

Ellen E. Meade and Joyce K. Zickler, Senior Advisers, Division of Monetary Affairs, Board of Governors

Daniel M. Covitz, Eric M. Engen, and Diana Hancock, Associate Directors, Division of Research and Statistics, Board of Governors

David Lopez-Salido, Deputy Associate Director, Division of Monetary Affairs, Board of Governors; John J. Stevens, Deputy Associate Director, Division of Research and Statistics, Board of Governors

Stephanie R. Aaronson, Assistant Director, Division of Research and Statistics, Board of Governors

Robert J. Tetlow, Adviser, Division of Monetary Affairs, Board of Governors

Elizabeth Klee, Section Chief, Division of Monetary Affairs, Board of Governors

Katie Ross,<sup>1</sup> Manager, Office of the Secretary, Board of Governors

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

Kelly J. Dubbert, First Vice President, Federal Reserve Bank of Kansas City

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<sup>1</sup> Attended the joint session of the Federal Open Market Committee and the Board of Governors.

David Altig and Alberto G. Musalem, Executive Vice Presidents, Federal Reserve Banks of Atlanta and New York, respectively

Michael Dotsey, Geoffrey Tootell, and Christopher J. Waller, Senior Vice Presidents, Federal Reserve Banks of Philadelphia, Boston, and St. Louis, respectively

Hesna Genay, Douglas Tillett, Robert G. Valletta, and Alexander L. Wolman, Vice Presidents, Federal Reserve Banks of Chicago, Chicago, 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  
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**December 16 Session**

CHAIR YELLEN. Good afternoon, everyone. I think we are ready to begin. The first item we are going to consider is in a joint Board and FOMC meeting, so I need a motion to close the Board meeting.

MR. FISCHER. So moved.

CHAIR YELLEN. Without objection, thank you. I'm going to start off by calling on Simon to give us his report on market developments.

MR. POTTER.<sup>1</sup> Thank you, Madam Chair. Lorie and I will be splitting the Desk briefing into two parts. I will discuss financial market developments and some issues related to open market operations. After questions and answers on this section, Lorie will discuss testing and some related issues with supplementary normalization tools.

Over the intermeeting period, U.S. economic data were generally viewed as positive and changes in financial conditions were mixed. International developments were in focus with more-accommodative policy adopted or communicated by major central banks, driven by concerns over low inflation and weak growth. Low inflation concerns were amplified by sharp declines in oil prices. These declines weighed on prices of risk assets linked to energy amid a broad reassessment of the possibility for structurally lower oil prices due to supply-side developments as well as ongoing global growth concerns. These factors also contributed to an increase in realized and implied volatility across markets late in the intermeeting period.

I thought it would be helpful to look back over the year, as price moves across some major asset classes have been meaningfully different from market expectations at the end of last year. While large errors in forecasting asset prices should be expected, the constellation of forecast errors for 2014, shown in the top-left panel, is consistent with easier monetary policy abroad than previously anticipated, a positive oil supply shock, and a relative outperformance of the U.S. economy. The size of the unexpected decline in Treasury yields is particularly striking, given that most believe the Federal Reserve is nearing the start of policy normalization around mid-2015.

Over the remainder of this exhibit, I will focus on two aspects of domestic markets: the market-implied path of the target federal funds rate and declines in measures of longer-dated inflation compensation.

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

The top-right panel shows the market-implied federal funds rate path. Despite better-than-expected U.S. economic data and some Federal Reserve communications that were perceived as less accommodative than anticipated, market-implied rates changed little on net over the intermeeting period. Looking back further, the curve has shifted down and flattened substantially since the end of 2013 despite ongoing improvements in domestic labor market conditions and notable upward revisions in Committee participants' SEP federal funds rate paths. This has resulted in a sizable divergence between the market-implied and SEP-projected rate paths.

This divergence can be seen in the middle-left panel, which shows the spreads between median SEP rate projections as of the September meeting and corresponding market-implied rates. These spreads widened over the course of the year, especially after the September meeting, and are around their widest levels since rate projections were added to the SEP.

The Desk's most recent surveys asked respondents to rate the importance of various factors in explaining the difference between the SEP median dots and the market-implied path. Dealers and buy-side survey respondents generally assigned the highest importance to different outlooks for the U.S. economy, the view that the SEP median does not represent the Committee's forecast, and the possibility of remaining at the zero lower bound. Negative term premiums and technical factors were assigned a lower importance.

The middle-right panel uses responses to a range of survey questions, along with the SEP numbers and market-implied rates, to help further identify the importance of these factors. The dark blue bars represent the difference between the median SEP dot and the median of the fourth- to seventh-lowest SEP dots, which many market participants believe most closely align with the likely path of the policy rate. These dark blue bars are relatively large, which suggests that a key fact in understanding the spread between the median SEP dot and the market-implied path might be that market participants do not view the median dot as representing the future path of the policy rate. The light blue bars represent the difference between the median of the fourth to seventh dots and the median of Desk survey respondents' modal path for the target rate. These differences are quite small, which may indicate that market participants close to the Desk survey median have a similar view as to the outlook for the economy and its implications for the target rate as the FOMC participants underlying the median of the fourth to seventh dots. The dark red bars represent the difference between the mean expectation and the modal expectation for the target rate from the Desk's surveys, which incorporates the perceived possibility of remaining at or returning to the zero lower bound along with other downside risks. In 2016 and 2017, this accounts for around 30 to 35 basis points of the difference between the median SEP dot and the market-implied rate. Finally, the light red bars represent the difference between the mean of respondents' federal funds rate probability distributions and the market-implied rate, a measure of risk premiums in futures rates. These differences are very small at earlier horizons but increase substantially in 2017 to a negative term premium of around 55 basis points.

In sum, this panel indicates that the spread between the median SEP forecast and the market-implied rate in 2015 and 2016 may be largely due to differences in the perception of the mapping between the SEP dots and the likely path of policy, along with downside risks to modal federal funds rate forecasts. While the more substantial divergence in 2017 might be of less concern because of the uncertainty around three-year-ahead forecasts, it does line up with the continued decline in medium- and long-dated forward rates. One explanation for this decline is an increase in the market price associated with certain types of adverse economic shocks, as described in a memo from the staff at the Minneapolis Fed.

The fall in forward rates has been more pronounced in nominal than real rates, producing large declines in market-based measures of inflation compensation. The Board staff's measures of 5- and 10-year inflation compensation have declined roughly 25 to 30 basis points over the period. Both the 5- and 10-year breakeven rates, at roughly 1.33 percent and 1.62 percent, respectively, are now at their lowest levels since the height of the euro-area crisis in mid-2010. In addition, the Board staff's measure of five-year, five-year-forward inflation compensation, shown in the bottom-left panel, is at its lowest level since late 2008, when TIPS market liquidity was highly strained. As we noted at the previous meeting, the sharp declines in these market-based inflation measures contrasts with the relative stability of primary dealers' longer-term inflation expectations, also shown in this panel, and with other survey-based measures. While not all market measures of forward inflation compensation are as low as the one estimated by Board staff, many of them suggest longer-dated inflation risk premiums are negative under the assumption that long forward inflation expectations remain well anchored near the FOMC's longer-run inflation objective.

Amid the relative stability of survey-based inflation measures, the Desk surveys again asked respondents to decompose the decline in the market-based five-year, five-year-forward breakeven inflation rate since early September, in an attempt to capture views about sentiments underlying market pricing. The bottom-right panel shows that dealer and buy-side respondents, on average, attributed roughly half of the decline to lower expected CPI inflation, while the other half was attributed to changes in the inflation risk premium and other risk premiums. This decomposition is similar to that for the October surveys.

Factors cited in the surveys as contributing to lower market inflation expectations include declines in energy prices, appreciation of the U.S. dollar, and concerns about global growth and inflation. More marginally, some market participants have cited concerns that the Federal Reserve may tighten policy before the economy is sufficiently resilient to withstand higher interest rates. Some have also suggested that the deteriorating TIPS market liquidity may be a factor behind the narrowing in breakeven inflation rates. However, Desk analysis suggests there was relatively little change in market functioning over most of the intermeeting period, though poor liquidity may have exacerbated the particularly pronounced drop in breakeven inflation rates late last week.

The top-left panel of your next exhibit shows that measures of forward inflation compensation declined in other developed economies over the course of this year, though Japanese measures are little changed. Forward inflation compensation declines in the United States are larger than in the euro area over the past year, which may reflect greater sensitivity of domestic inflation to declines in oil prices among other factors. Low inflation, along with declining inflation expectations and weak economic growth abroad, has motivated a variety of more-accommodative monetary policy actions or communications outside of the United States. This has furthered the divergence in the expected policy rate paths between the Federal Reserve and other central banks in developed countries.

To encourage inflation and stimulate the economy in Japan, the BOJ unexpectedly announced an expansion of its Quantitative and Qualitative Monetary Easing, or QQE, program to limit deflationary risks, and Prime Minister Abe took steps to postpone the second planned consumption tax increase. Both the size and timing of the BOJ announcement surprised market participants, leading to a sharp depreciation of the yen, increase in Japanese equity prices, and decline in 30-year Japanese government bond yields, as shown in the top-right panel.

The BOJ decision coincided with an announcement from the Government Pension Investment Fund (GPIF) indicating that it would reduce its portfolio allocation to domestic bonds and increase its allocation to equities and international fixed-income assets by more than expected. Most market participants expect other Japanese pensions to follow the GPIF strategy, which could result in roughly \$90 billion and \$175 billion being reallocated toward U.S. Treasury securities and U.S. equities, respectively, over the next year.

Concerns over low inflation in the euro area also motivated more-accommodative communications from the ECB Governing Council. At its November meeting, the Governing Council explicitly stated its intention to increase the size of the ECB balance sheet toward early 2012 levels, which will require a roughly 1 trillion euro expansion, as shown in the middle-left panel. A subsequent speech from President Draghi bolstered expectations that the ECB will purchase sovereign bonds. Many market participants continue to believe that the current suite of ECB measures is insufficient to increase the balance sheet toward early 2012 levels or sufficiently raise inflation expectations. Indeed, take-up in the ECB's recently announced targeted longer-term refinancing operations has been toward the lower end of market expectations. In response, market participants have increased the probability they attach to a sovereign bond purchase program in the first quarter of next year.

Over the intermeeting period, front-month crude oil futures prices declined around 30 percent and longer-dated oil futures prices declined 15 to 20 percent. Market participants believe that the price declines have been driven primarily by supply dynamics, particularly the recent OPEC decision to maintain current production levels amid faster-than-expected growth in U.S. shale output. As shown in the middle-right panel, in contrast to the decline in oil prices, industrial metals prices—one potential proxy for global economic activity—have been relatively

stable, suggesting that oil price declines are likely only secondarily due to demand dynamics.

The oil price declines are squeezing the profit margins of many U.S. energy-related firms and contributing to a widening in the high-yield corporate credit spread index, also shown in the middle-right panel, which has a relatively high energy weighting. This spread widening may also reflect recent elevated high-yield issuance and a reported increase in credit differentiation as domestic policy normalization approaches.

The bottom-left panel shows U.S. dollar appreciation against major developed economies and large non-dollarized oil exporting countries over the intermeeting period and year-to-date. The U.S. dollar appreciation against major developed economy currencies, shown in solid shades of blue, is largely due to diverging monetary policy expectations and growth outlooks. U.S. dollar appreciation against large petroleum exporting countries, shown in dashed shades of blue, largely reflects the impact of lower oil prices on these local economies.

The Russian ruble, not shown in the chart due to its extremely large moves, has depreciated significantly, especially over the past couple of days. The depreciation reflects a combination of low oil prices and the effect of western sanctions and ongoing tensions in Ukraine. This, along with the increased possibility of defaults on the large stock of foreign-currency-denominated corporate debt, is leading to increased financial-stability risk in Russia. In response to the recent depreciation, the Russian central bank increased its main policy rate from 10.5 percent to 17 percent on Monday night.

The recent declines in oil prices and concerns over global growth have weighed on emerging market risk assets, as shown in the bottom-right panel, and declines in EM asset prices accelerated late in the intermeeting period. In contrast, there has recently been a meteoric rise in the Shanghai Composite Index, also shown in this panel. The Shanghai index has risen nearly 20 percent following an interest rate cut by the PBOC in mid-November. This rate cut increased market expectations for further PBOC easing amid the subdued mainland inflation prints and activity data.

Turning to Desk operations, negative interest rates on eligible euro-area investments continue to present challenges to the management of the SOMA euro foreign reserves portfolio. The approach taken to reduce the influence of negative interest rates on the portfolio's return has resulted in an increase in the duration of the portfolio, as shown in the top-left panel of your next exhibit. As discussed in a memo distributed before the meeting, the Desk would like to make some changes to the euro portfolio investment strategy to better balance the tradeoff between maintaining maturity liquidity and earning interest income in a negative interest rate environment. Assuming the rate structure in France and Germany doesn't move lower, this revised investment strategy would likely allow us to keep the duration of the portfolio below the FOMC-authorized limit of 18 months. However, that 18-month limit will constrain our ability to implement the revised strategy if French and German interest



rates fall further. To avoid a situation in which the current duration limit becomes a binding constraint on the investment strategy in the negative interest rate environment, we plan to recommend that the FOMC increase the duration limit from 18 to 24 months. The Desk views the reauthorization of the foreign operations at the January 2015 FOMC meeting as an opportune time to make such a change.

Turning to the top-right panel, with the end of the asset purchase program in October, the SOMA currently stands at just under \$4.3 trillion, including about \$2.5 trillion in Treasury securities and about \$1.8 trillion in MBS. Rollovers of Treasury securities and reinvestments of agency principal payments will maintain the par value of the portfolio at its current level until these policies are ended. For context, only about \$3 billion in Treasury holdings will mature in 2015, but the staff estimates that principal paydowns on MBS and maturing agency debt will total almost \$300 billion next year. MBS reinvestment operations have generally gone smoothly, although in mid-November the Desk cancelled an MBS operation due to a technical glitch. The problem was subsequently resolved, and the operation was successfully completed a few days later.

Additionally, the Desk began trading today with the three small firms that are participating in the Mortgage Operations Counterparty Pilot Program, as part of our ongoing efforts to explore ways to broaden access to open market operations and improve operational capacity and resiliency.

The Desk continues to take other steps to enhance our operational readiness. We plan to conduct small-value sales of MBS early next year. In addition, with tremendous support from the management and staff at FRB Chicago, the Markets Group has replicated the infrastructure and human capital necessary to ensure the implementation of all operations, market monitoring, and associated analytical work deemed critical should the New York Fed and its staff be affected by a serious contingency event.

At the previous meeting I discussed a new service the Federal Reserve could offer known as segregated balance accounts (SBAs). The discussion of this service in the October minutes generated considerable interest amongst Fed watchers. As you recall, SBAs are designed to improve competition in the deposit market. The mechanism through which they would improve competition is similar to, but different in important respects from, the use of RRP. Many market participants interpreted the discussion in the minutes as suggesting SBAs would receive important regulatory relief which would substantially lower the balance sheet costs of attracting funds into such accounts. As you know, such relief was not part of the plan for the service, although some other types of regulatory decisions were required for SBAs to be viable. In addition, various system changes would be required. The staff currently judges that in light of the competing priorities related to normalization and the small marginal effect SBAs would likely have on interest rate control given the readiness of other tools, further work on implementing SBAs should be shelved for now. This judgment is supported by the reaction to a request for feedback on continuing work on SBAs in a memo that Bill English and I sent to the Committee.

Madam Chair, this completes my part of the Desk briefing. We would be happy to answer questions before moving on to Lorie's part.

CHAIR YELLEN. Questions for Simon? President Fisher.

MR. FISHER. Thank you, Madam Chair. I have a short question, and I also have a clarification which will require a longer question. On slide number 10, you have the high yield OAS. And if I did my numbers right, just looking at the red line, the broad index is off 22 percent. If memory serves, energy is off about 68 percent. You mentioned it's about 18 percent of the index, I think—it's a heavy weight. I just wanted to clarify that. The index altogether is off by 22 percent, and, excluding energy, it would be something around 15 or 16 percent. I just want to clarify that. So it's mainly energy-driven.

MR. POTTER. I'm not as good with numbers in my head as you are. That sounds about right.

MR. FISHER. Well, you're much better with bigger numbers than I am, but just for clarification I think that's correct.

So we read about panic—which we have been warning about, Madam Chair, at this table—at least I have, for quite some time. I believe we are beginning to see that, but it is heavily concentrated with marginal energy operators. I think that needs to be understood, and I'm going to talk a little bit about oil during the economic go-round. I just want to put that in context.

And then, with regard to numbers, you did send around to the research directors an excellent, very insightful memo which gives more background to your slide number 14. And these are numbers I know you're familiar with, so I just want to make sure I understand them, because you referenced them just now.

MR. POTTER. Okay.

MR. FISHER. So you just said we have \$2.3 trillion in Treasuries and about \$1.8 trillion in mortgage-backed securities. Is that correct?

MR. POTTER. It's \$2.5 trillion in Treasuries, I thought.

MR. FISHER. Okay, \$2.5 trillion. That's even better. We have only about \$3 billion in Treasury redemptions in 2015, so nothing to speak of—

MR. POTTER. That's correct.

MR. FISHER. —until 2016. And then, in this memo, which, again, was superb as far as I'm concerned, but here is where I get into the stuff I just want to make sure I understand and my colleagues understand. So we estimate paydown reinvestments from mortgage-backed securities for 2015 will be approximately \$20 billion per month.

MR. POTTER. Maybe a little bit higher, but about that level.

MR. FISHER. And your memo says that's 25 percent of gross issuance and three times net issuance.

MR. POTTER. Correct.

MR. FISHER. That's as long as we keep our mortgage-backed securities at about \$1.8 trillion, until we change our reinvestment policy. Then, in the memo you use the prepayment speed projections of BlackRock Solutions, and we project that by August 2021, we will have an MBS portfolio of \$980 billion and a 90 percent confidence band around that of \$700 billion to \$1.16 trillion. So, in other words, we'd halve our mortgage-backed security portfolio in a period of five years.

The stated intention of the Committee right now is to not let these reinvestments roll off until after we have raised rates, whenever that is going to be, whenever we begin to normalize.

So it's really taking five years, and, therefore, we would reduce by \$900 billion over that five-year period. Correct?

MR. POTTER. Yes. That's the point estimate, with a lot of uncertainty around it.

MR. FISHER. Right. But you illustrated that, and you have a 90 percent confidence band around that. Then, concomitantly, on excess reserves, you noted that they will be reduced from their current level. We thought at the peak it would be \$2.95 trillion, but it's \$2.5 trillion, whatever the number is. Where is it now?

MR. POTTER. It depends on the take-up in the TDF and the overnight RRP. So because the \$400 billion TDF rolled off, we should add probably \$400 billion to that number. So it's around \$2.8 trillion to \$2.9 trillion.

MR. FISHER. Okay. And we expect to reduce it to what you call the normal level of \$100 billion by mid-2021. So over a six-year period, we will have gone from \$2.9 trillion to \$100 billion in excess reserves. I just want to make sure I understand the numbers. That's a lot.

MR. POTTER. Yes.

MR. FISHER. Thank you. I hope the Committee realizes all these numbers. This is very important to me. That's asking a lot. To reduce by that size over that short of a time period, it's going to require our successors, meaning President Plosser's and my successors, and you all and your successors, to be very artful—and I'm trying to think through, how are those excess reserves going to be reduced by 95 percent? That's a big number. I would like the Committee just to start thinking about that.

I would urge everybody to read this research-director memo. It's one of the most enlightening documents I have read yet. Simon has written a lot of enlightening documents, but this one is particularly good because it puts this all in perspective. We're talking about big

swings, and I think we just need to realize the order of difficulty and the art form it is going to require to pull it off. And that's why I mentioned it to you. Thank you.

CHAIR YELLEN. Thank you. Other questions or comments? President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I had a comment on slide 4, which I thought was quite interesting. I would be interested in seeing this for other meetings beyond the current one. I think it would help make the point that markets are focusing on other aspects of the SEP than the median. So what would this chart look like if we went back to September and to June, that kind of thing?

MR. POTTER. If you look at chart 3, you can see that it is really in July that this divergence starts. So the chart is going to be less interesting or require us to have positive term premiums or something else to produce these results.

MR. KOCHERLAKOTA. So the problem I was having with understanding slide 4 is that there's lots of different stories I can construct to explain—

MR. POTTER. That's right. This is just one way of taking a number and splitting it up into four parts. There are many ways you could split a number into four parts.

MR. KOCHERLAKOTA. Right. And I thought it would be more compelling if it actually worked for other meetings beyond this one.

MR. POTTER. Again, what I was trying to focus on is—

MR. KOCHERLAKOTA. Just this divergence.

MR. POTTER. —there's this big divergence recently. And we could go back and look at the history of the fourth to seventh versus the median dot—what was definitely true and striking to me is that until recently, if I took the mean of the PDF for the federal funds rate

distributions, then that lined up pretty well with the market-implied path. Sometime in late September they started to move further apart, particularly for the 2017 contract and further out.

MR. KOCHERLAKOTA. Right. I'll note, Madam Chair, just for your amusement, that the implied federal funds rate for the end of 2017 is 2 percent, which corresponds to the lowest number, I think, on the SEP, in fact. Thank you.

MR. POTTER. Not adjusting for term premiums and the other stuff.

MR. KOCHERLAKOTA. No. That's right.

MR. POTTER. But then, when you adjust it, you get back to that.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. My question is on exhibit 1, panels 5 and 6, which are about U.S. inflation expectations. I'm looking at panel 5, and it shows that the primary dealer inflation expectation, five-year, five-year-forward, is 2.2 percent. And then I look at panel 6 and it says, if I'm interpreting this correctly, that the primary dealers are saying that their expectations went down 17 basis points on expected inflation. No? Is that not right?

MR. POTTER. This is a question that came up last time. We asked them for their view of what CPI inflation will be five years forward, over the next five years after that. Then we asked them to explain what the market pricing is. So we are trying to get their beliefs or understanding of what in market sentiment is driving the drop in inflation compensation.

MR. BULLARD. Okay. But, you know, panel 5 says none of the primary dealers changed any of their expectations about inflation. That's what that light blue line says, I guess.

MR. POTTER. That is correct.

MR. BULLARD. But, nevertheless, there are other traders in the market whose expectations—so that sounds like a money-making arbitrage opportunity for primary dealers.

MR. POTTER. They could go and talk to their trading desks and see if they wanted to put on such a trade. It would seem that they would have to be pretty confident about the source to do that.

MR. EVANS. It's not risk-free.

MR. POTTER. No, it's far from risk-free. It's not a risk-free arbitrage.

MR. BULLARD. Well, it speaks to how seriously you want to take the idea that they haven't changed their inflation expectations. They tell you in a survey, "I haven't changed my inflation expectations, but I'm not willing to go bet against the market."

MR. POTTER. That's right.

MR. BULLARD. Yes. Thank you.

MR. ENGLISH. I think that this gets back to something that we learned during the taper tantrum—that what we mean by "market expectations" isn't really clear. There isn't a person who is the market who has a set of expectations. There are a bunch of diverse market participants who each have their own expectations, and you can have a situation in which the average market participant has a set of expectations, but the marginal investor has a different set of expectations. And that is something that we try to tease out with these surveys and in conversations with people and by reading newsletters. But it just is a complicated problem.

MR. BULLARD. Well, I think it's a point well taken. Obviously, there is a diverse set of expectations out there, but I think, from the Committee's point of view—sometimes we look at our primary dealer survey and we say, "Well, this is kind of the authoritative judgment on whether these expectations are really changing or not." And I don't think that's necessarily the way that we want to interpret the data.

MR. POTTER. One of the things we did is add more participants in the surveys, just to see. And you can see a slight difference in focus between the buy-side and the dealers here. But they are both pretty consistent in thinking half of this, in the market's mind—whatever that is—has to do with a fall in inflation expectations. It's the same as in the October one.

MR. BULLARD. Thank you.

CHAIR YELLEN. President Evans.

MR. EVANS. Thank you, Madam Chair. I'm a little embarrassed to ask this question. I'm going to blame it on the very interesting charts on the SEP dots four through seven that distracted me as I tried to extract a little bit of what that was. So I might have missed the explanation later on.

You started off in chart 1 describing how the 10-year rates had gone down so much more than anybody was expecting at the beginning of the year, and I don't quite recall the explanation offered as to why they have gone down so much. I think at one point you mentioned anticipated easier monetary policy. You probably mentioned lower inflation and oil supply, weak demand was mentioned in another case. Do you want to give me an executive summary of that?

MR. POTTER. The forecast error for the U.S. 10-year is not that big. The absolute error over the past 10 years is about 93 basis points. For the bund, I think it is more like 80 basis points, and that is consistent with thinking something will change in the euro area. So one of the reasons to show this is to remind ourselves that forecasting the future is really hard, and even if we get these experts, they are going to be wrong a lot. The second one is to show that there is a distinct pattern here, which is easier policy probably in Germany and Japan than people thought was going to happen at the start of the year, a big drop in the price of oil, and the U.S. doing relatively better. So if I told you everything except the top line on the list and said, "Guess



where the U.S. 10-year rate would be,” you’d probably say, “Well, I’m going to take my estimate of 3.23 percent and make it a little bit higher than that.” That’s the part that is somewhat surprising.

MR. EVANS. But if I think the long-term rates are low because the world economy is not so well, it becomes—

MR. POTTER. Well, that’s one portion of it, yes.

MR. EVANS. —a decoupling type of hypothesis. I’m not sure I would have—

MR. POTTER. So that’s one hypothesis.

MR. EVANS. Yes. Thank you.

CHAIR YELLEN. Further questions for Simon? Okay. Seeing none, let me turn to Lorie, who is going to discuss normalization-related topics.

MS. LOGAN. Thank you, Madam Chair. I’ll begin again on exhibit 3 with a summary of the recent testing of the term deposit facility and reverse repos, and a staff proposal to continue ON RRP testing in 2015. These items were discussed in two of the staff memos you received ahead of the meeting.

Over the intermeeting period, the staff completed a series of eight TDF test operations that included an early withdrawal option. Including an early withdrawal option allowed banks to count term deposits as HQLA for purposes of the Liquidity Coverage Ratio. The first few operations in the series provided a test of the attractiveness of an early withdrawal option, as the maximum award amount and TDF rate were the same as in previous operations. Consistent with the feedback from banks before the series was initiated, allotment amounts in these operations with the option increased notably.

Subsequent operations in the series, shown in the dark blue line in the middle-left panel, also incorporated a higher maximum award amount and incremental increases in the TDF rate. Take-up in these operations rose, on average, by an increase of \$35 billion per basis point in the TDF rate. More broadly, the increased participation in these operations relative to those without the early withdrawal option, shown in the light blue line, was driven by both the introduction of the early withdrawal option and the higher maximum award amounts. The staff will continue to evaluate the results of the most recent series of operations in developing options for additional TDF testing next year.

Over the intermeeting period, the Desk proceeded with testing of both term and overnight reverse repos as directed by the Committee. The details of these operations are shown in the middle-right panel for your reference. So far, operations have proceeded smoothly. The announcement and conduct of term RRP operations to date provide a preliminary indication that term RRPs could be an effective supplementary tool for mitigating the effects of year-end dynamics on money market rates. Additionally, recent overnight RRP testing has reinforced the idea that increases in the ON RRP offering rate put upward pressure on both secured and unsecured overnight rates. The coming weeks will provide a useful test of how these supplementary tools could work in combination to support interest rate control over year- and quarter-ends.

With respect to the term RRP operations, the Desk conducted two of the four announced operations. As shown in the bottom-left panel, counterparties placed \$102 billion and \$75 billion in bids in the first two operations, respectively. Participants generally viewed the award rates for the two operations, which were 8 basis points and 7 basis points, respectively, as roughly equivalent to their expectations for ON RRP rates through January 5, plus a small term premium to compensate for locking up liquidity. Dealers and money market funds expect the award rate to fall further as operations approach year-end.

Based on the operations conducted so far, some firms appear to be substituting funds that they would otherwise invest in ON RRP operations into the term operations. Looking at the bottom-right panel, prime and government money funds decreased their participation in the ON RRP operations that followed each of the term operations—shown by the red bars—by an amount that was roughly similar to their allotment in the term operations, which are represented by the blue bars. As a result of this substitution, the total amount of reverse repos outstanding, including both term and ON RRPs, is currently \$135 billion, which is actually a bit lower than the take-up in ON RRPs just before the term operations began.

While we will learn more in coming weeks, the term RRP operation results to date, combined with anecdotal reports and the relatively benign expectations for year-end stress implied by market-based measures currently, together suggest that the use of term RRP operations over year-end may moderate some of the volatility in money market rates that we observed around the September quarter-end.

The Desk also completed the directed series of ON RRP operations that involved modest, pre-announced changes in the offering rate. While several other factors also affected money market rates during the testing period, the tests provided further indication that ON RRPs provide a soft floor for both secured and unsecured money market rates.

As shown in the top-left panel of your last exhibit, the increases in the ON RRP offering rate to 7 basis points and 10 basis points corresponded with increases in secured and unsecured rates, including the federal funds effective rate.

The distribution of rates on federal funds trades, shown in the top-right panel, also shifted higher with each increase in the overnight RRP rate. For example, when the overnight RRP rate was 5 basis points, as shown in the dark blue line, less than 1 percent of brokered federal funds trades occurred below the overnight RRP rate. As the overnight RRP offering rate was increased to 10 basis points, the distribution shifted higher, and again only about 1 percent of trades took place below the new overnight RRP offering rate.

Market participants believe that the increase in the federal funds effective rate during the testing period was primarily due to increased bargaining power by FHLBs. Moreover, it does not appear as if FHLBs had to change their behavior meaningfully in order to obtain higher rates. Participation by FHLBs in overnight RRP operations—the dark blue line in the middle-left panel—was largely unchanged during the testing period. More broadly, federal funds trading volumes—the red line in the same panel—also remained stable. Stable federal funds volumes alongside a higher federal funds effective rate could also indicate that foreign banking organizations are still willing to participate in IOER arbitrage at a spread to the IOER rate that is narrower than its level prior to the changes in the overnight RRP rate. This suggests that balance sheet costs may not be the primary factor currently affecting the rate at which FBOs borrow federal funds outside of key financial reporting dates. Imperfect competition among banks may also play a role in determining the rates at which they borrow funds in order to conduct IOER arbitrage.

Secured rates, including the triparty repo rates, shown in the middle-right panel, also shifted up in response to the move in the overnight RRP rate. This rise in rates partially reflected the increased bargaining power of a broader set of cash lenders. However, other factors, such as changes in collateral supply and GSE cash management needs, also reportedly put upward pressure on repo rates, particularly early in the testing period when the overnight RRP rate was 5 basis points.

While these changes to the overnight RRP rate have been informative, additional testing of overnight RRP could further improve our understanding of this supplementary tool. As outlined in the bottom-left panel, the staff recommends extending overnight RRP testing through January 2016. Doing so would provide continuity in the usage of the tool, particularly given investors' reported emphasis on developing relationships so as to ensure ongoing access to their counterparties' balance sheets. If the operations were to cease in January, it is possible that, at the beginning of normalization, frictions in reestablishing these relationships could temporarily hamper the efficacy of an overnight RRP facility. Additionally, ending overnight RRP testing could be read by some investors as suggesting that normalization remains a longer way off or that the Committee might be reconsidering the use of overnight RRP during normalization. Further, since we have conducted relatively few operations at rates above 5 basis points, it may be instructive to continue testing the tool at overnight rates between 5 and 10 basis points to learn more about the size and durability of the resulting market effects, or to test at even higher rates to see if similar effects hold. For these reasons, along with the continued

benefits of promoting operational readiness, we recommend extending the overnight RRP exercise for another year.

As discussed in the revised memo sent to the Committee on Friday, we would like to do so at this meeting, since the current resolution expires only two days after the January 2015 FOMC meeting. The draft resolution is in a separate handout titled “Overnight Reverse Repurchase Resolution.”<sup>2</sup> Apart from the change in the terminal date, the draft resolution reflects minor wording changes from the resolution adopted by the Committee at its September 2014 meeting, and maintains the 0 to 5 basis point range in the overnight RRP offering rate. If the change in the resolution is approved, the FOMC minutes would inform the public of the extension. Additionally, if the change is approved, the staff will recommend some additional tests at upcoming meetings, after we have had a chance to fully assess the results of the current tests.

Lastly, as discussed at the October meeting, the Desk reopened the overnight RRP counterparty process for firms meeting the existing eligibility requirements, and we wanted to provide a brief update on the results. As shown in the bottom-right panel, 25 eligible firms submitted applications, including 12 money market funds, 7 banks, 5 FHLBs, and Farmer Mac. If the legal, credit, and compliance assessments of all applicants prove satisfactory, the total number of expanded RRP counterparties will increase to 142. This number incorporates the fact that we had one firm withdraw as a counterparty during the intermeeting period. It was a fairly idiosyncratic circumstance that prompted the withdrawal and is unlikely to be an indication of a broader trend. We plan to announce the new set of counterparties in mid-January and begin operating with them shortly thereafter. Thank you, Madam Chair. That concludes my prepared remarks.

CHAIR YELLEN. Thank you. Are there questions for Lorie? President Mester.

MS. MESTER. Lorie, I know you revised the memo, and I still don’t fully understand why we need to extend the resolutions for the testing until January 2016. I think it could be confusing because we are thinking about lifting off in that time period, and I’m just wondering whether it might be better to do a sequence of resolutions so that we don’t confuse markets about what our intention is with liftoff. Can you explain that a little bit more for me?

MS. LOGAN. I think certainly another option could be to vote at each meeting or to move this decision into the directive. We thought that keeping it as a testing operation and doing it for a year was the most neutral way to proceed. That’s what we had done previously, and we

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<sup>2</sup> The draft resolution is appended to this transcript (appendix 2).

thought that the market would be less likely to read any policy intent with that plan. But there are certainly other avenues you could take.

MR. ENGLISH. I think the calculus we went through was to start by saying, gee, if it really seemed like we wanted to lift off, and if things go as expected until midyear, maybe you just extend it until midyear. But then it kind of does look like maybe you're signaling something about the timing of liftoff. So we thought by just making it a calendar year, that makes it seem basically mechanical. We're just extending this thing for a year, and we can say, if asked, "Of course this is a tool we're going to use during normalization." Whenever normalization happens, we'll be changing the terms on which we're going to be doing overnight RRP, but—

MS. MESTER. Could you write the resolution that says we'll do this until liftoff or through January 2016?

MR. POTTER. I think that's probably not consistent with the testing rationale we're trying to put in there. This is just to give the authority to the Desk to continue the tests. Your suggestion has a little bit of policy content in it. Because what does it mean, "until" in that sense.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Yes, let me follow up on President Mester's suggestion, that perhaps we could just say the resolution does not have an end date at all and simply allow for testing until such time as the Committee deems that testing is no longer required.

MR. ENGLISH. We thought about that, too. But we remembered that there were some around this table who were worried about giving the idea that overnight RRP is forever.

MR. KOCHERLAKOTA. That's true.

MR. ENGLISH. So we thought that having an end date was actually useful for at least some of you to be comfortable with this. So we wanted to have an end date.

MR. FISHER. Bill, do you think we're migrating toward making this a permanent tool?

MR. ENGLISH. No, I don't think so. I think the Policy Normalization Principles and Plans document was very clear that this would be as small as possible during normalization and will be wound down as soon as it's not needed.

MR. FISHER. Yes.

CHAIR YELLEN. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. There's always some risk of people inferring a signal when one is not intended, but I think the way that Bill and Lorie and Simon have phrased this, it does seem sort of mechanical, number one. And, number two, it's coming out at the same time as the SEP, and I don't think there's going to be much confusion on markets' part that somehow the 2016 test date is overriding the SEP. So I think it's probably a good time to do it precisely for that reason.

MS. LOGAN. I agree with that sentiment, and I just wanted to make sure that everyone understood that this wouldn't be announced until the minutes are released.

MR. TARULLO. Right, but the SEP would already—

MR. POTTER. The SEP would be there and you'd have to extend the discussion.

MR. TARULLO. That's right.

MS. LOGAN. I just wanted to make sure.

MR. TARULLO. The action would have been taken at the same meeting as the SEP.

CHAIR YELLEN. Any further questions or comments for Lorie? [No response] Okay. If not, we'll need to vote on the resolution to permit continued testing of overnight RRP agreements. Do I have a motion?

MR. FISCHER. Yes.

CHAIR YELLEN. Thank you. All in favor? [Chorus of ayes] Any opposed? [No response] Okay, that passes. And then we will also need to ratify open market operations for the System Open Market Account since the October meeting. Do I have a motion?

MR. FISCHER. So moved.

CHAIR YELLEN. All in favor? [Chorus of ayes] Any opposed? [No response] Okay, great.

MR. FISCHER. What would happen if we didn't ratify?

CHAIR YELLEN. I think Simon would be in very deep trouble. [Laughter] So let me say at this point our Board meeting is over, and we're back to an FOMC meeting only. And now we'll continue with the chart show on the economic and financial situation. Let me turn things over to John Stevens.

MR. STEVENS.<sup>3</sup> Thank you, Madam Chair. I will be referring to the handout titled "Staff Presentation on the Economic and Financial Situation."

The first exhibit summarizes recent information on the labor market. The two employment reports that we have received since the October meeting were stronger than we had expected. As shown in panel 1, payroll employment gains averaged 278,000 per month over the past three months, 44,000 more per month than we had projected in the October Tealbook. In response, we have marked up our payroll forecast to 250,000 in December and 220,000 per month in the first quarter. The unemployment rate, plotted in panel 2, held steady at 5.8 percent in November but has fallen more than 1 percentage point over the past 12 months and, by our estimation, is currently about ½ percentage point above its natural rate. We expect the unemployment rate to edge down in December and to average 5.5 percent in the first quarter.

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<sup>3</sup> The materials used by Messrs. Stevens and Erceg are appended to this transcript (appendix 3).

The middle panels display two labor market indicators that, in our judgment, point to some recent improvement but also suggest more slack than is indicated by the unemployment rate. As shown in panel 3, the labor force participation rate (the black line) is below both the staff's estimate of its trend (the green line) and the level predicted by a simple regression of the participation rate on the current and lagged values of the output gap (the red line). Similarly, panel 4 indicates that the share of workers reporting that they are working part time for economic reasons remains considerably above the level we might expect given the output gap.

Other labor market indicators also suggest that conditions are continuing to improve. As shown by the black line in panel 5, the rate of job openings in the JOLTS has risen sharply this year. Meanwhile, both the hiring rate (the red line) and the quits rate (the blue line) have moved up as well. Panel 6 provides results from a recent inquiry conducted by the Reserve Banks about the hiring plans of their business contacts. As noted on the first row of the table, the average share of firms planning to increase hiring over the next 12 months moved up to 52 percent, the highest reading since we started asking this question several years ago. Among firms planning to increase hiring, more than one-fourth plan to raise starting pay to help with recruiting, a noticeably higher share than in early 2013. The reported willingness to raise starting pay may, as shown in the last line of the table, reflect increases in the share of firms reporting difficulties finding workers with the required skills. As noted in a box in the Tealbook, "Indicators of Labor Shortages," other evidence also points to increasing instances of skill shortages, but the extent to which such shortages are restraining hiring and production appears to be about in line with what one would expect given measures of labor market and product market slack.

The next exhibit summarizes other recent economic developments and provides an update to our near-term GDP forecast based on information received after we closed the Tealbook projection. As shown in the inset box in panel 1, the PCE-relevant portion of retail sales for November was stronger than we had expected, and the gains for earlier months were revised up. In addition, households' consumption of health-care services during the third quarter looks set to be revised up as well. All told, as shown by the blue bars, we now estimate that real PCE rose at an annual rate of 2¾ percent in the third quarter and forecast that it will increase about 4 percent this quarter. The projected pickup this quarter reflects the stronger retail sales data, higher-than-expected motor vehicle sales, and a rebound in energy services spending, which had been held down in the third quarter by unusually cool summer weather. We continue to expect real PCE to increase about 3½ percent in the first quarter, supported by ongoing improvements in employment, household wealth, and consumer sentiment, as well as by the boost to real incomes from the drop in energy prices.

In the housing market, panel 2, this morning's data on single-family starts (the red lines) edged down, and adjusted permits (the black lines) were about unchanged. On net, the data we have received over the past few months have continued to disappoint and are consistent with only gradual increases in housing construction over the near term. Nonetheless, we remain steadfast in our assessment that the current low level



of construction activity will not be sustained as the strengthening job market and diminishing concerns about the economic outlook eventually fuel a recovery in household formation that will boost the demand for new housing.

As shown in panel 3, shipments of nondefense capital goods (the black line) were little changed, on net, over the past three months, while orders (the red line) declined. However, with orders running above shipments, we continue to expect investment in equipment and intangibles to rise modestly in the near term.

As shown in the inset box in panel 4, mining output was little changed in November and is projected to increase at an average annual rate of only 2½ percent in the fourth and first quarters after having risen at a 13 percent pace during the preceding three quarters. This sharp deceleration reflects slower gains in oil and gas extraction and a projected decline in drilling activity. Manufacturing production jumped more than 1 percent in November, which was stronger than we had been anticipating, and we now expect manufacturing output to increase at a robust average pace of more than 5 percent per quarter in the fourth and first quarters. These projected gains are consistent both with a step-up in automakers' assembly schedules in the first quarter (not shown) and with the new orders diffusion indexes plotted in panel 5. Although the range of readings on new orders in November was unusually wide, all of the indexes were in positive territory, and the central tendency of these indexes points to solid increases in production over the next few months.

As indicated on line 1 of panel 6, after folding in the recent information for PCE received following the close of the Tealbook projection, we now estimate that real GDP increased at an annual rate of 4½ percent in the third quarter and that growth will step down to an average pace of 2½ percent this quarter and next. Relative to the December Tealbook, line 2, this forecast is about ½ percentage point higher in the third and fourth quarters but little revised in the first quarter. The step-down in growth this quarter continues to largely reflect a swing in the contributions from net exports and from federal defense spending. Excluding these volatile spending categories, the rate of increase in private domestic final purchases (PDFP), line 4, averages about 3½ percent throughout the near term and does not show the slowdown from the third quarter that we see for real GDP.

Exhibit 3 describes our medium-term forecast and, for a longer perspective, reviews how that forecast has changed from one year ago. As shown in panel 1, our current Tealbook projection is for real GDP growth (the black line) to average 2½ percent per year from 2015 to 2017. Compared with our forecast from this time last year (the red dashed line), this projection is about ¾ percentage point weaker per year on average.

At the same time, as shown in panel 2, the unemployment rate fell more rapidly over the past year than we had projected in December 2013, and we have marked down the projected path. This change, in an environment of still relatively lackluster GDP growth, led us to mark down our estimates of potential output growth. Indeed, as shown in panel 3, the growth of potential in the current Tealbook (the red bars) is

projected to be noticeably slower than in last December's Tealbook (the gray bars). Accordingly, the path for the real GDP gap (panel 4) is narrower than it was a year ago, and we currently expect it to close in mid-2016, a little later than the unemployment rate gap, reflecting the additional cyclical slack that we judge to be present in the labor force participation rate.

As shown in panel 5, an important negative influence on the GDP projection relative to last December has been the sharply higher path over the past year for the real exchange value of the dollar. In addition, a weaker outlook for foreign growth (not shown) also holds down our projection, while oil prices and equity prices have become more supportive. All told, with an unchanged projection for inflation (which I will discuss in a moment) and a little tighter resource utilization, one might expect the path for the federal funds rate—shown in panel 6—to be higher than it was a year ago. However, we also made a small reduction in our estimate of the equilibrium real interest rate, which left our projection for the federal funds rate essentially unrevised.

Our inflation projection is described in the next exhibit. As shown on line 3 of panel 1, we expect core PCE prices to rise at an annual rate of 1½ percent this quarter. This forecast is somewhat higher than in the October Tealbook, reflecting surprises in the price data for October in some volatile categories, particularly the non-market-based component of the index, from which we take little signal for near-term inflation. We expect core inflation to remain at 1½ percent in the first quarter, unrevised from the October Tealbook. Overall PCE prices, line 1, are projected to be about unchanged in the fourth quarter and to decline around ½ percent in the first quarter, reflecting the recent and expected declines in consumer energy prices. We will provide you with an update to this forecast tomorrow morning after we receive the consumer price index for November.

As shown by the blue lines in panel 2, crude oil prices have continued to move down since the previous meeting. Consistent with readings from futures markets, we expect the decline in crude oil prices to stop around the turn of the year and that oil prices will drift up gradually thereafter. The path for retail gasoline prices—the black lines—has revised in a similar fashion, but because of the usual lag between changes in oil and gasoline prices, we do not expect retail gasoline prices to stop declining until sometime in the first quarter.

Recent readings on inflation compensation and expectations, panel 3, have been mixed. The SPF measure of 10-year PCE price expectations (the blue dashed line) was unchanged in the fourth quarter, and the preliminary reading on longer-term inflation expectations in December from the Michigan survey (the black line) moved back into the narrow range that has prevailed in recent years after an unusually low reading in November. TIPS-based inflation compensation 5-to-10 years ahead (the red line) has declined noticeably, although staff models suggest that much of the decline likely reflected changes in term and liquidity premiums.

The black lines in panels 4 and 5 give our medium-term projections for total and core PCE price inflation, and the red dashed lines show our projections last

December. As can be seen, our forecasts for inflation have generally revised little over the past year apart from the recent energy-related drop in headline inflation. All told, we expect core PCE inflation of 1.5 percent in 2015, 1.6 percent in 2016, and 1.8 percent in 2017. As energy prices stabilize, total PCE inflation moves back closer to core inflation in the second quarter of 2015.

Panel 6 summarizes recent indicators of labor compensation. These indicators have been mixed recently but generally continue to point to gains over the past year in the vicinity of 2 percent. The employment cost index—the black line—last quarter posted its largest four-quarter change in several years, but the volatile measure of hourly compensation in the business sector—the blue line—was weaker than we had expected last quarter. Finally, average hourly earnings—the red line—were, on net, about as expected in October and November. On balance, we view the recent gains in compensation as modest, and we continue to expect a gradual acceleration in labor compensation over the next few years as the labor market tightens further. Chris Erceg will now continue our presentation.

MR. ERCEG. As indicated in line 1 of the table in exhibit 5, foreign GDP growth appears to have been quite subdued in the second half of the year and well below what we were projecting at the time of your last chart show in June. We expect that foreign growth will pick up next year and remain just above 3 percent over the forecast period. This outlook is little changed from our projection six months ago. Although the underlying momentum of the foreign economy is weaker, several factors—in part engendered by this weakness—should boost growth in the period ahead: greater monetary policy stimulus, substantial currency depreciation—panel 2—and the dramatic fall in oil prices since midsummer. These factors also have important consequences for the U.S. economy, as I will examine later in my briefing.

A good deal of the current weakness and forecast uncertainty is centered in the euro area and Japan. Euro-area GDP, line 3, is currently rising at a less than 1 percent pace, consistent with the declines in PMIs shown in panel 3, and we have growth picking up only gradually. Monetary policy stimulus measures announced this year—including the targeted longer-term refinancing operations, or TLTRO, in June and the September commitment to employ asset purchases to expand the balance sheet to 2012 levels—have helped push down bond yields and the euro. Given the usual lags in monetary transmission, we project that the effects of these measures will become more apparent next year: We estimate that they will boost euro-area GDP growth by nearly  $\frac{1}{2}$  percentage point on average in 2015 and 2016, when the stimulus from a lower euro is factored in. This estimate assumes that the ECB will announce additional asset purchases in January amounting to 200 billion euros. The ECB is currently considering more-aggressive measures, but we have not yet built these into our baseline outlook. In addition to the stimulus from monetary easing and a weaker currency, we also see euro-area GDP as getting a significant boost from lower oil prices and waning fiscal and financial headwinds.

Japan, line 4, will also be happy to celebrate the end of 2014. Although we expect Japan to move out of recession in the fourth quarter, GDP is likely to have

flatlined in the second half of the year. Due to the potent effect of the April VAT tax hike on domestic demand—consumption, panel 5, remains below its level prior to the start of “Abenomics”—the second installment of the tax hike was deferred until the spring of 2017. Amid growing concern that the weak economy was undermining progress in boosting inflation to 2 percent, the BOJ decided in late October to step up its pace of JGB purchases under its Quantitative and Qualitative Monetary Easing Program, QQE—to about 16 percent of GDP at an annual rate, panel 6—and the government pension fund simultaneously announced a large shift in its portfolio holdings toward domestic and foreign equity. We see GDP growth picking up next year as the lower yen boosts exports and as increased monetary accommodation feeds through to domestic demand.

Turning to your next exhibit, real GDP growth in the EMEs in the third and fourth quarters looks to be well below what we projected in June. The weakness is concentrated in Latin America. GDP growth in Mexico, line 2, was a dismal 2 percent in the third quarter, although most recent indicators—including manufacturing PMIs, panel 2—suggest greater underlying strength, and we see growth recovering to nearly 3½ percent next year. By contrast, we are much less optimistic about Brazil. Brazil’s overly expansive policies following the global financial crisis have led to persistently high inflation, panel 3. With monetary and fiscal policy likely to be tight, Brazil’s growth prospects will depend on its ability to implement structural reforms and rebuild confidence.

Skipping halfway across the globe, real GDP growth in China, line 4 of the table, appears to have moderated a bit from its robust third-quarter pace. Falling property prices this year, panel 4, have contributed to some slowing in residential investment from its previous very rapid pace, and recent indicators suggest some deceleration in manufacturing. Even so, China’s slowdown appears to be in line with what we have been expecting for some time, and retail sales, panel 5, remain reasonably strong. We expect that policy stimulus—including increased lending to the banking sector by the PBOC as well as steps to support the property sector—will allow GDP growth to continue to top 7 percent. Of course, there are many downside risks, especially given the weakness in property markets.

While I have already indicated that we see lower oil prices as likely to boost growth in oil-importing economies, your next exhibit provides a closer look at how the large fall in oil prices since June, panel 1, has affected the outlook. As best as we can tell, most of the decline reflects favorable supply surprises, including to U.S. and Libyan oil production, and from OPEC’s decision to not curtail production. Even so, slow growth in the global economy has also played an important role.

A fall in the price of oil affects net oil importers, such as the United States, through several channels (panel 2). First, by reducing transfers to oil exporters, a lower oil price effectively acts as a tax cut to oil-importing countries. Second, lower oil prices raise potential output both through boosting oil usage in production and through capital deepening. Of course, for major energy producers such as the United

States, this effect will be partly offset by lower oil production. Third, lower oil prices reduce inflation. Finally, the output response depends on monetary policy.

Although oil-importing economies should benefit from declining oil prices, observers have raised concerns that these declines may exacerbate disinflationary pressures and potentially even harm the economy. Such a risk seems particularly relevant for the euro area and Japan. To explore this possibility, we used the staff's general-equilibrium, perfect-foresight SIGMA model to gauge the effect of a 20 percent permanent decline in the oil price—caused by a favorable supply shock—from its current level. The responses we will report later for the United States differ somewhat from those of the staff's judgmental assessment, which is based on the FRB/US model.

The middle panels show the response of euro-area GDP growth, headline inflation, and the policy rate, while the bottom panels show the corresponding variables for the United States. A key difference between the two economies is that our baseline assumes that liftoff of the policy rate occurs in the second quarter of 2015 in the United States, but not until early 2018 in the euro area.

If inflation expectations are anchored, as we assume in our baseline projections, the shock has fairly similar effects in the euro area and the United States. Real GDP growth in this scenario—the red dashed lines in panels 3a and 4a—rises persistently above baseline—the solid black lines. Total inflation, panels 3b and 4b, falls because of the relatively direct effect of lower oil prices and because core inflation falls a little as the lower oil prices reduce cost pressures. Because inflation and output move in opposite directions, monetary policy is little affected in either economy.

We next consider the effects of the same 20 percent decline in oil prices in a scenario in which inflation expectations are not fully anchored and decline as actual inflation falls. The decline in inflation expectations has very adverse effects on the euro area. Given that the zero bound is expected to bind for a very long time even in the baseline, real interest rates rise substantially and cause euro-area GDP growth to fall below baseline, the green line in panel 3a. By contrast, U.S. GDP in this case—the green line in panel 4a—is very similar to when inflation expectations are anchored, reflecting that monetary policy, panel 4c, cushions the shock by simply lifting off more slowly. To sum up, the fall in oil prices this year is likely to be a net positive for the global economy. However, for economies in which disinflation has been acute and the stability of inflation expectations is uncertain, lower oil prices pose some special challenges.

Your next exhibit considers how the dollar's sharp appreciation since June is expected to affect the U.S. economy. Our forecast for the path of the dollar over the next two years, panel 1, is about 7 percent higher than we projected in June. On the one hand, we expect the dollar to appreciate a bit further against the AFE currencies, panel 2, as markets are surprised by a modestly faster removal of U.S. policy accommodation than they seem to envision. On the other hand, we continue to

project that the dollar will depreciate against the EME currencies, panel 3, as the Asian economies, especially China, rebalance toward domestic demand.

The stronger path for the dollar and modest weakening of the outlook for foreign growth are likely to translate into much weaker U.S. export growth. We now expect export growth, the blue bars in panel 4, to average only about 2 to 3 percent in 2015 and 2016, about half the pace we projected in June (the red bars). Our forecast for import growth is only a tad higher than in June, as the effects of the stronger dollar are partly counterbalanced by downward revisions to the U.S. outlook.

All told, as shown in panel 6, we estimate that real net exports will make a contribution to U.S. GDP growth of about minus 0.4 percentage point in both 2015 and 2016, in sharp contrast to the roughly neutral contribution we had expected in June. Most of the revision in the net export contribution is due to the stronger dollar.

Your next exhibit examines the external sector of the U.S. economy during three previous episodes of monetary tightening—those beginning in 1994, 1999, and 2004—and compares them with our forecast for 2015. The dashed vertical lines show the quarter in which a monetary policy tightening sequence began, while the shaded blue regions extend one year before and after this date.

Two interesting features are apparent from these episodes. First, the broad real dollar, panel 1, shows no tendency to rise during or shortly before past monetary tightenings and, in fact, depreciated substantially around the 2004 episode. Second, U.S. exports, panel 2, also grew robustly during each of these tightening episodes.

Thus, the dollar's recent sharp appreciation appears a bit unusual and helps account for our forecast of relatively weak export growth in this current episode—the far-right shaded bar in panel 2. Even so, the positive gap between foreign and U.S. GDP growth over the forecast period, panel 3, provides some comfort for our forecast that the dollar will not appreciate a good deal more. Moreover, the relatively modest gap between expected U.S. and foreign policy rates—panel 4—at least seems consistent with limited upward pressure on the dollar.

All told, we do not see our projection for the dollar and U.S. external performance as being markedly at variance with the record of past Fed tightening. Export growth is likely to be noticeably weaker but still positive.

Nonetheless, turning to exhibit 6, overall foreign growth is considerably weaker than in past monetary tightening, and there are serious downside risks in Europe, China, and many other EMEs that—if they materialize—could weigh heavily on the dollar and the U.S. external sector. To judge the impact if these risks materialize and, thus, to conclude this briefing on a perky note, I revisit the SIGMA simulation that was featured in the December Tealbook. The scenario assumes that total foreign GDP growth weakens by 1 percentage point over the forecast period per year, and that the broad dollar appreciates 10 percent relative to its baseline path. Our scenario

suggests that such a weakening would push U.S. GDP growth well below 2 percent next year and core inflation below 1 percent. I will now turn it over to Beth.

MS. KLEE.<sup>4</sup> Thank you. I will be referring to the packet labeled “Material for Briefing on the Summary of Economic Projections.”

Exhibit 1 shows the broad trajectories of your forecasts under your individual assessments of appropriate monetary policy. As shown in the top panel, you project slower growth this year than in 2013, and all but one of you see a pickup in GDP growth next year, with most of you anticipating real growth moving back toward its longer-run pace over 2016 and 2017. Most of you project that the unemployment rate, shown in the second panel, will decline through 2016, and all of you project that, by the fourth quarter of 2017, the unemployment rate will be at or below your individual judgments of the longer-run normal rate of unemployment. The bottom two panels indicate that all of you see inflation rising gradually on balance over the forecast period, with only two of you expecting inflation above the Committee’s 2 percent goal in 2017. Notably, your views on headline inflation in 2015 span a range from 1 to 2.2 percent.

Exhibit 2 compares your current projections with those in the September Summary of Economic Projections and the December Tealbook. As reflected in the top panel, in general, the revisions to your forecasts for real GDP growth were modest. Although all of you revised up your projections for the second half of this year (not shown), the central tendencies of your projections for subsequent years were essentially unchanged. As shown in the second panel, the central tendencies of your forecasts for the unemployment rate shifted down by roughly two-tenths each year through 2016, with many of you noting that recent data regarding labor market conditions shaped your revisions. Notably, six of you lowered your projections for the longer-run normal rate of unemployment, narrowing the range to 5.0 to 5.8 percent, although the central tendency was unchanged at 5.2 to 5.5 percent. As the bottom panels indicate, nearly all of you marked down your projections for headline PCE inflation this year and next, although most of your projections for 2016 and 2017 were little changed. A majority of you revised down a bit your projections for near-term core inflation as well. Many of you pointed to the recent substantial decline in energy prices as a reason for your downward revisions.

The Tealbook forecast for economic growth is generally near the bottom of your central tendencies over the projection period, and the staff’s projections for the unemployment rate are about at the lower end of your central tendencies over the period. Similarly, for headline and core inflation, the Tealbook projections are generally near the bottom of your central tendencies throughout the projection period.

Exhibit 3 provides an overview of your assessments of the year and quarter in which you currently judge that economic conditions will make it appropriate to increase the target range for the federal funds rate and the economic conditions you

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

anticipate at that time. As shown in the top panel, a substantial majority of you view the first half of 2015 as the most likely time of liftoff, with five of you projecting liftoff in the first quarter and seven in the second quarter. Two of you anticipate that it will be appropriate to raise rates for the first time in 2016. The bottom panel plots your views on the unemployment rate and core inflation in the quarter of liftoff. (Comparable scatterplots in previous briefings have employed headline inflation instead of core, but given the large transitory effects on inflation from changes in energy prices, core inflation seems more useful in this case.) As shown in the plot, your projections for the unemployment rate at the time of liftoff range mostly between 5.3 and 5.7 percent, while your core inflation projections are mostly clustered between 1½ and 1¾ percent. All but two of you project that the unemployment rate at the time of liftoff will still be above its longer-run normal level, and all but one of you project that core inflation will be below the Committee's longer-run objective for headline inflation of 2 percent.

Exhibit 4 provides an overview of your assessments of the appropriate path for the federal funds rate at the end of each year of the forecast period and over the longer run. The median assessment of the appropriate funds rate path now stands at 1.13 percent at the end of 2015, 2.5 percent at the end of 2016, and 3.63 percent at the end of 2017. Eight of you revised down your view of the appropriate funds rate in 2015 and 2016, with the median federal funds rate down 25 basis points in 2015 and 38 basis points in 2016. Many of you noted that increases to the federal funds rate would likely be gradual, and almost all currently anticipate that it will likely be appropriate to increase the target range at a pace no greater than 25 basis points per meeting in the year of liftoff. A couple of you noted that the uncertain effects of rate increases on financial markets suggested that a relatively slow pace of rate hikes would be preferable. In addition, a few of you specifically noted that the inflation outlook indicated that a slow pace of tightening would be appropriate.

All of you project levels of the federal funds rate over the next couple of years that are below the prescriptions of a noninertial Taylor (1999) rule given your economic projections. However, the revisions to your projections for the federal funds rate over 2015 and 2016 are broadly consistent with those prescribed by that rule, especially if the rule uses core, rather than headline, inflation.

As shown in the final exhibit, your assessments of the uncertainty and risks surrounding your economic projections have changed little since September. The top two panels in the column on the left show that nearly all of you judge the current level of uncertainty about real GDP growth and unemployment to be broadly similar to the average level of the past 20 years. A substantial majority of you also judge the level of uncertainty about inflation, shown in the lower two panels in the column on the left, to be broadly similar to the average level of the past 20 years. However, a couple more of you now view uncertainty about headline inflation as higher than the average level of the past 20 years than was the case in September.

As shown in the top two panels in the column on the right, most of you continue to see the risks to real GDP growth and the unemployment rate as broadly balanced;



offsetting risks for real GDP growth include, on the upside, stronger fundamentals, and, on the downside, a weaker international outlook than currently embedded in your forecasts. As reported in third panel on the right, six of you now see risks to headline inflation as weighted to the downside, while only one of you sees inflation risks as weighted to the upside; declines in oil prices and the appreciation of the dollar were noted as factors that could place greater downward pressure on prices than currently in your forecasts. Thank you, Madam Chair. This concludes the staff presentations.

CHAIR YELLEN. Thank you very much. The floor is open for questions to any of our briefers. Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a question and I have an observation. The question concerns the core PCE forecast on exhibit 4. Since October we've seen a stronger dollar, weaker oil prices, and probably a slightly weaker foreign economic outlook, yet our core inflation forecasts are actually higher now than they were then. I'm not saying that I disagree with the current forecast, but how do you reconcile the evolution of the forecast of core inflation with the developments of the stronger dollar and weaker oil prices? I just want to understand the staff thinking on this, and then I want to make an observation or suggestion to the staff.

There's very good stuff on oil prices here, but I'd be very interested now in seeing the consequences of the fall in oil prices in terms of international capital flows, demand for U.S. Treasuries, and foreign exchange reserve accumulation. Another consequence of this is going to be a big effect on current account balances around the world and potentially the demand for U.S. Treasury securities. So I think it would be nice, at some future meeting, not only to take the real consequences of oil prices, but also to translate them into a financial dimension.

MR. KAMIN. We've been focusing both on the real implications and on the financial-stability implications. You've brought up yet another set of issues that we also would be very interested in working on.

VICE CHAIRMAN DUDLEY. Think about the Treasury market. We've had very strong demand for Treasury securities from us through the LSAP program and very strong

demand for Treasury securities from oil-producing countries in terms of their accumulation of foreign exchange reserves, and we're sort of losing both of those.

MR. KAMIN. Yes, I think we believe that the net effect is certainly going to be to reduce external imbalances—smaller deficits for us, smaller surpluses for oil producers.

VICE CHAIRMAN DUDLEY. And is that a good thing? Is that the end of the saving glut? There are a lot of interesting questions, I think, embedded.

MR. STEVENS. On your question about core inflation—over the medium term, we do have some upward pressure on prices from the unemployment rate path being marked down, and so that's offsetting some of what we're seeing on the exchange rate, oil prices, and some of these other factors. In the end, it's a wash for core prices. We do end up with a lower rate in 2015 for total PCE price inflation because of the weaker energy prices, of course, but the main factor in there for core, I think, is really the markdown in the unemployment-rate path.

VICE CHAIRMAN DUDLEY. Thank you.

CHAIR YELLEN. President Evans.

MR. EVANS. Thank you, Madam Chair. On page 4, exhibit 3, you talk about inflation compensation, and a chart that we've all seen is the TIPS five-year, five-year-forward, which is declining. It looks like it's about 2 percent here, and I think I heard you say that a good chunk of the decline is term and liquidity premiums. My question is, if it were to stabilize at this level through June, would we still be thinking it's term and liquidity premiums—I don't know what the short- and medium-run properties of these objects are likely to be—are there any refutable implications here from saying it's inflation expectations or I think it ought to go away?

MR. ENGLISH. I don't think there's an immediate sense that those are factors that should reverse themselves in short order, if that's your question, that we shouldn't necessarily expect these term and liquidity premiums to move.

MR. EVANS. These are durable explanations.

MR. ENGLISH. I think my intuition, like yours, is that if it were just a decline in the actual and expected inflation that was permanent, that should ultimately show up in the model, and so in that sense you'd see a shift from the term premiums and liquidity premiums to expected inflation coming out of the models. But I don't think that's something that I necessarily would expect to see in the next few months.

MR. EVANS. So we're looking for a pretty bright economic outlook next year, and the international situation seems to be relatively optimistic compared with other things you might write down. That's not likely to also have implications for the term premiums or the liquidity premiums?

MR. ENGLISH. It certainly could, but what we've tried to do in the Tealbook kind of regression exercise is, looking at the term premiums or other premiums in this model, what are they functions of? You get something out of volatility. You get something out of some particular market factors in these markets, but they're hard to explain, I think. What the model is telling us is that there are specific factors in the TIPS market and the nominals market that are moving around the TIPS-based inflation compensation independent of movements in inflation expectations, and I think that could be true for a while depending on how durable those factors are that are moving around the numbers in the TIPS yields.

MR. POTTER. I think it would be good to get more direct evidence on that. Some of the direct measures we have of the swap basis and nominal versus real asset swaps haven't changed that much. So it's harder to do it if it lasts for one year, say.

MR. EVANS. Let me take one more crack at this. If there are really no identifiable differences across these three objects—inflation expectations, term premiums, or liquidity premiums—I don't know how much confidence I have in any of the explanations. I mean, identification from some additional series that we're looking at ought to provide some information. I'm sympathetic to what Simon was saying—it's another way of saying that, I guess.

MR. POTTER. But the models are pretty consistent right now. It's just that none of us have 100 percent confidence in any model.

MR. ENGLISH. I think that's right, but to the point you were making, President Evans, the models are using, in the case of the Board model, nominal and real yields and survey measures of inflation expectations, and a no-arbitrage yield curve model to try to pick these things apart, and this is where the models end up.

MR. EVANS. Yes, it's just that usually there are differential time-series implications from them that you can draw out. Now, I understand the uncertainty and how much confidence you have around those estimates, but that's fine. I'll give up on that.

If I could ask one more question, the international outlook seems to be maybe a little better than I might have expected. Now, the imponderable question: How important is the ECB follow-through on their balance sheet expansion for the way we're viewing Europe and the rest of the world? What if they don't get there? Any commentary along those lines would be helpful.

MR. ERCEG. Sure. We think that their commitment to reflating the balance sheet back to 2012 levels played a substantial role in reducing term premiums and risk spreads—so those came down for periphery relative to core economies—and, finally, in the substantial depreciation of the euro. All those forces are an important part of our assumption that growth will pick up to an admittedly not very torrid pace next year.

MR. EVANS. No, I understand.

MR. ERCEG. But those are quite important. In terms of follow-through, we think that it is very important. They laid down a commitment in September, and markets are expecting them to deliver at least that, if not more.

MR. EVANS. Thank you.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Yes. Thank you, Madam Chair. I have a comment on the line of questioning that President Evans had about the term premiums and liquidity premiums. My intuition is that if you looked at the zero-coupon inflation swaps as opposed to TIPS breakevens, you should typically not see as much liquidity movements in those zero-coupon inflation swaps. But the relative liquidity effects on TIPS versus Treasuries are much more pronounced than on the different sides of a zero-coupon inflation swap position. So that should help on the liquidity part. On the risk premium part, I think that as the memo from the Minneapolis Fed indicated, those are reflective, in our view, of actual fundamentals. And so there is no reason to see those unwind relatively rapidly.

I had a question about the exercise in SIGMA on exhibit 7. I am puzzling over this, and I can't quite figure it out. If you go to the U.S. case, number 4, "Effects of a 20% Fall in Oil Prices on U.S. Economy in SIGMA," it seems in the unanchored case that inflation runs

noticeably below what happens in the anchored case, which is what you'd expect, but it doesn't seem to have material growth consequences. I would have thought that in this "perfect foresight" model, that would affect the real interest rate, and, therefore, have an effect on growth. But obviously I'm wrong, so—

MR. ERCEG. I think it's helpful to think about it abstracting from the zero bound. If an economy faces an unwanted fall in long-run inflation expectations, then the central bank would take aggressive actions, lowering real interest rates, to undo that. And, at least in the prism of our models, that would actually be stimulative. So you lower long-term interest rates across the maturity spectrum for some time, and that would be stimulative.

It is kind of the flip side of what happened in the 1970s, when long-term inflation expectations became unanchored. Then we eventually had to raise real interest rates and cause the economy to contract. So what happens with the zero bound is, it matters crucially how long the constraint lasts and how big the shock is. Those are two key factors.

The shock we're considering is pretty modest in size, but big enough that you can see it. I think long-term inflation expectations come down  $\frac{1}{4}$  percentage point, and that's more than what you would think would occur in response to a fall in oil prices, most likely. But still, we wanted it to show up.

But the key thing is that, in the U.S. case, with the zero-bound constraint and relatively small shocks, you get lower inflation in the very short term, so that raises the very near-term real interest rate. But then you lower the whole path of interest rates thereafter because you raise rates more gradually, and that lowers real long rates going out for quite a long time. And so it becomes balanced—practically zero in our simulation. Conversely, in the ECB's case, they're

constrained for a long time, real interest rates go up for several years, and then the economy really gets walloped.

MR. KOCHERLAKOTA. All right. Thanks a lot. So you're basically just offsetting the decline in anticipated inflation with a decline in the policy rate, and that—

MR. ERCEG. That's right.

MR. KOCHERLAKOTA. Okay. Thanks.

MR. ENGLISH. President Kocherlakota, if I can turn back just for a moment to the inflation swaps versus TIPS-based measures of inflation compensation, the Cleveland Fed has a model that uses inflation swaps to extract long-term expected inflation and inflation risk premiums. That model shows broadly similar results in the sense that it also shows 10-year expected inflation hasn't declined a lot, at least based on their decomposition.

MR. KOCHERLAKOTA. Yes. I'm not as familiar with that model as I should be. Maybe I'm misremembering, but I thought in the actual data on the five-year, five-year-forward that you get out of the zero-coupon inflation swaps, you see that expected inflation has fallen, but not as much as what you get off breakevens.

MR. POTTER. So it's chart 7. But what you'd usually expect is that there would be some disconnect between the fall in the swap-implied measure and the TIPS-implied measure, the cash market. We're not seeing a large movement there. That doesn't mean that it isn't the liquidity features, because if you talk to the swap traders, a lot of how they price this is what has happened in the cash market. So we want to be a little bit careful—

MR. KOCHERLAKOTA. That's absolutely fair.

MR. POTTER. Thanks.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I have a question on exhibit 2, panel 6, which is on the near-term outlook for real GDP. So Q3 in the October Tealbook was 2.7 percent at an annual rate, and Q3 currently is 4.6 percent. My question is, is that much of a difference consistent with historical norms in these kinds of revisions? Or would you say that that's an outsized surprise to the upside?

MR. STEVENS. I think this is on the larger side, so a big part of this—that last ½ percentage point since the December Tealbook—is the Quarterly Services Survey, which, this entire year, has been surprising us in different directions. We got a larger-than-expected reading on federal defense spending. That was a bit anomalous for some seasonal adjustment reasons, so we had some surprising readings. I think it's more useful to take a look at, as on line 4 there, domestic final purchases. That revision is much smaller since the October Tealbook. I wouldn't pay as much attention to the revision on GDP.

MR. BULLARD. Okay. And I have another question, also on oil prices, exhibit 7. In parts 3 and 4, we're comparing euro-area GDP and U.S. GDP in the aftermath of a 20 percent fall in oil prices. I thought the conventional wisdom was that Europe is less sensitive to oil price movements because they have higher taxes on oil prices, so that the percent change in actual gasoline prices and so on is smaller. There might be other effects as well, so that Europe was less sensitive. But I'm looking at these two GDP pictures. They look like they're the same. So what's the story there?

MR. ERCEG. It's certainly true for headline inflation that, because oil is heavily taxed, the share of energy in the overall consumption basket is somewhat smaller, and so you see smaller declines in headline inflation when comparing 3b and 4b. But for output, essentially we have the view that transfers are much larger, basically in the case of an oil price decline like



we're considering, and they benefit the euro area much more because they don't produce any of their own oil.

Essentially their net oil imports are something like 3 percent of GDP, whereas in the United States it is now much smaller. A few years ago, that would have been the case. But now we've become a major producer, and so our net oil import bill is on the order of 1½ percent of GDP. The transfer effect is much larger in the euro area, and it kind of acts as a stimulus to aggregate demand. They get more money in their pocket, and they spend it. So you get a more front-loaded impact in consumption in the euro area. It's not hugely larger, because there are other factors at play, but it shows up in the simulation.

MR. BULLARD. Okay. And just a follow-up to that, for Europe you have the unanchored case leading to slower GDP growth in 2016. I know you said something about this, but I want to hear more about why that is, because that doesn't occur in the U.S. case, according to this.

MR. ERCEG. That's right. In the unanchored case in Europe, the decline in inflation expectations pushes up real interest rates going out for several years. And that has a pretty contractionary effect on the economy, whereas in the U.S. case, we are just constrained by the zero bound in this baseline for a couple of quarters. There is a very near-term effect of pushing downward the real interest rate, but going further out, we can simply allow the path of interest rates to run up more slowly, so the net effect on the real interest rate is going to be essentially zero. You see very little difference.

MR. BULLARD. So what about QE in Europe? You would think that there would be a substantial monetary policy response.

MR. ERCEG. That's right, exactly. Because you get the fall in term premiums, and you don't get the offsetting adjustments in the policy rate that would damp that effect.

MR. KAMIN. President Bullard, to that question, implicit in these scenarios is that the central bank is just using policy interest rates, so that if you thought that unconventional monetary policy or QE was entirely interchangeable with the conventional policy of altering the policy rate—

MR. BULLARD. Which it clearly is.

MR. KAMIN: —well, which it clearly is, so then the scenario doesn't quite work. But obviously the use of QE is a little bit more uncertain, both in the United States and particularly abroad, than the use of policy rates. That is clearly an attitude that is shared by the ECB itself, which is actively considering QE, but will be dragged into it with some members less happy about it than others.

In some sense, one response to this scenario, if you were on the ECB board, might be to say, "Okay. Well, we don't want to get into that situation, so why don't we use more unconventional monetary policy stimulus so that we could lift off our policy rate earlier, so that we could buy the policy flexibility that the United States has?"

MR. BULLARD. Okay. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. I'd like to continue on the subject of Europe. Starting with exhibit 10, the point to me of that exhibit is, if we have weaker foreign growth than we expect in our baseline, it could have a pretty significant effect on some of the assumptions we have as we get toward liftoff. And your picture of Europe is reasonably sanguine, it strikes me, in the fairly near term. And that is a combination of extraordinary monetary policy and lower oil prices.

The question I have on the oil price effect is that they are buying oil in dollars, but they run their economy in euros. You would have to combine the exchange rate effect with the oil price in dollars to get the true cost effect to their economy, the benefit to their economy. Have you calculated that?

And then, in the relative near term—this is a guess—a good part of their oil supplies would be under contract, which would have been contracts set before the decline in oil prices. So there would be a lag before their dollar price of oil actually is as cheap as we perceive it in dollar terms. Have you calculated that? And if you have done all of that, then how are you as sanguine as you are in the near term about the European economy?

MR. KAMIN. Sort of leading the witness. [Laughter]

MR. ERCEG. I'm not sure I would want to characterize our forecast as "sanguine." I think our growth outlook goes up from a very low level, so we essentially have euro-area GDP this year likely to come in at a snail's pace of below 1 percent, rising to about 1½ percent next year. Oil does play a material role in that, although there are many factors that we think provide a boost. The monetary easing and the exchange rate depreciation really provide the lion's share in just getting you up there to 1½ percent from 1 percent. That's roughly ½ percentage point right there. We think that fiscal pressures, which were very much toward consolidation until the last year or two, are going to also contribute favorably to growth and give you probably another couple of tenths.

Now, on the oil side, we do calculate the euro area price, and we feed that in. I think that that has moved a little over 20 percent since June. Steve looks like he has the chart—

MR. KAMIN. We have our little parsing table that suggests, looking at movements since June in oil prices and the dollar and taking into account these exchange rate effects that, in that

sense, mute the effect of the decline in oil prices in local currency, that the fall in oil prices will, over the next couple of years, boost euro-area GDP by around  $\frac{1}{3}$  percentage point, and the depreciation of their currency against the dollar maybe another tenth. So, all told, that rounds up to what Chris mentioned, which is about  $\frac{1}{2}$  percentage point of additional stimulus over the next couple of years coming from oil and the exchange rate.

MR. ERCEG. And we think that, given that this is quite persistent, the fact that there might be lags in transmission to prices probably wouldn't have too big of an effect, though we still get in the ballpark of the assessments that Steve mentioned.

I think it is also worth adding that we do perceive, as does the ECB, a lot of downside risk to this forecast. It's possible that even favorable developments could go badly, as we illustrated in the alternative scenario, and that very low wage growth coming in at well below 2 percent could interact with low oil prices and really help bring down inflation. There are a lot of risks. It's an environment in which most of the ECB participants in their Survey of Professional Forecasters are projecting that the unemployment rate will be in double digits, basically over 50 percent of the forecasters four years ahead, and something like 40 percent of them five years ahead. So there's a lot of risk in the period ahead.

CHAIR YELLEN. Okay. Any further questions? Well, I suggest we take a 20-minute break.

[Coffee break]

CHAIR YELLEN. I think we're ready now to begin our economic go-round. President Lacker is going to start us off.

MR. LACKER. Thank you, Madam Chair. For this meeting, I have again written down a somewhat restrained projection with real GDP growth of around  $2\frac{1}{4}$  percent for the next couple

of years. That rate is in line with the average rate we have seen over the past several years since the recession. We have seen short spurts of stronger growth from time to time, like the one we are seeing this year, but these have been followed by periods of slower growth that bring down the medium-term average growth rate.

That pattern has left me generally very hesitant to project that a surge in growth that we see is going to be sustained in general. Indeed, over the course of the past year or so, the magnitude of the acceleration in growth we've seen has been tempered in both the Tealbook and the SEP. The last few months of data are starting to shift my thinking significantly, however. Some recent developments that were largely absent during previous growth spurts have led me to believe that the probability of a sustained increase in growth has risen.

At the previous meeting, we recognized the substantial improvements that we had seen in labor markets, and the staff described those nicely this afternoon. The most recent numbers show continued improvement. The November employment report brought average monthly payroll employment gains over the past 12 months to 228,000, a notable increase over the pace shown in the previous years.

The behavior in the JOLTS data this year, I think, is particularly striking. We've seen a substantial increase in job openings this year, a 20 percent gain year-over-year, and hiring has increased significantly as well. Moreover, quits are up 20 percent year-over-year, suggesting that workers are becoming more confident in their job prospects.

The fact that these flow indicators seem to have broken away from the path that has characterized their behavior since the recession is significant, I think. At various points in this expansion, some of us—Governor Tarullo, for example—have noted that measures of labor market fluidity or dynamism appear to be depressed relative to historical standards. In that

context, the JOLTS data may be signaling something more fundamental by way of improvement in activity ahead.

The continuing improvement in labor market conditions has also been reflected in the unemployment rate, which has declined by 1.2 percentage points over the past year, faster than many of us expected and faster than in previous years. This decline has been accompanied by substantial changes in labor force participation and an unusually high rate of workers reporting that they are working part time for economic reasons, two factors the staff singled out in their presentation.

Given these conditions, there has been an ongoing debate about whether the narrowly defined unemployment rate U-3 continues to be an accurate measure of labor resource utilization. For example, relative to broader measures of unemployment, such as U-6, the current U-3 appears to be significantly below the rate that would be expected based on the relationship between U-3 and U-6 prior to 2007.

At past meetings, I have reported on the work of Richmond Fed economists on other measures of labor underutilization that are both broader and take a more differentiated view of the labor market and labor market attachment than does U-6. These so-called nonemployment indexes weight individuals by their relative propensities to flow into employment. In contrast, measures like U-3 or U-6 give everyone without a full-time job a weight of either zero or one. It turns out that, based on the relationship between these nonemployment indexes and U-3 prior to 2007, U-3 is now right in line with what we would expect. So this analysis says that the signal we are getting from the standard unemployment rate neither understates nor overstates the improvement in labor markets.

One recurring motif in our discussions about labor market conditions this year has been the idea that the labor market can't be back to normal if we haven't yet seen a significant acceleration in wage rates. I'm not sure whether this is a reasonable hypothesis or not, but I do know that wages and unemployment are not tightly correlated in the data. And, moreover, wage acceleration typically lags rather than leads price acceleration. So the lack of apparent wage acceleration—apart from the last couple of quarters for the ECI—does not, in my view, provide much information regarding the degree of slack in the labor market.

A strengthening labor market could help bring about a more persistent increase in consumption, and consumption growth in particular. In the past, I have been doubtful about prospects for a sustained increase in consumer spending growth because I felt we lacked evidence of more optimistic household expectations regarding job market prospects that I thought were fundamental to an acceleration in spending growth. But I think that evidence is starting to emerge. Both of the consumer confidence indexes have registered significant gains in recent months. Drilling down into the Michigan survey, readings on current economic conditions, expected economic conditions 12 months ahead, and expected income growth have all shown sizable gains in the last few months. One should generally be skeptical about blips in these consumer survey measures because they typically don't improve consumer spending forecasts by much, conditioning on other variables. But these recent moves are striking, and they are well aligned with what is going on in labor market data. So I take them as confirming signals that a meaningful pickup in the consumption growth trend could be ahead.

A third area that suggests upside potential, to me, is manufacturing. The ISM and most of the regional diffusion indexes have been elevated in recent months. Manufacturing employment growth has been significantly more rapid this year than last. Monday's industrial

production report showed especially robust growth in manufacturing production in November, and it was across a broad array of industries as well. And investment in equipment and intangibles was strong in the past two quarters.

Last month we heard an interesting report from a longtime contact of ours at the Association for Manufacturing Technology. He said that the association's annual trade show this fall saw record attendance, which resulted in double the usual volume of orders. He described the growth in orders as driven by some dramatic improvements in technology that were on display at the show. He cited equipment that incorporates multiple functions—additive, subtractive, and bending—that used to require separate machines to be performed. His association is forecasting continued growth in orders, on the order of 5 to 10 percent, attributable to strength in automotive, aerospace, and industrial sectors. Taken together, these developments suggest to me that this growth spurt is more likely to be sustained than previous growth spurts.

Turning now to inflation, the persistence of inflation around 1½ percent has had people worried about our 2 percent inflation goal. The huge relative price shock from the decline in oil prices and the dollar's appreciation are going to make it difficult to discern changes in longer-term inflation trends from incoming data on inflation over the next several months. However, the decline in gasoline prices can't go on forever. What we're facing in the coming months is just a transitory dip in headline inflation. We can look through that to the core indexes to assess inflation trends, but big energy price moves tend to bleed through to core indexes to some extent as well, with a lag of a couple of months. So the core indexes might be cloudy, too. Thus, I'd avoid putting too much weight on incoming inflation data for the next few months. But I don't think that means policy should be on hold until energy price changes settle down.



Survey measures of inflation expectations have been stable. TIPS spreads have declined but are still near levels associated with the last several years of trading. So I still believe we have good reason to be reasonably confident that inflation will trend back toward our 2 percent goal.

Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. Thank you, Madam Chair. Building on what President Lacker discussed, I believe that highly-accommodative monetary policy, improved household finances, reduced fiscal drag, and tame non-oil commodity prices as well as oil prices have resulted in strong growth and an improving labor market.

Wage growth has gradually increased and is likely to rise at an increasing rate with further reductions in unemployment. And as I have mentioned before, we are seeing a little laboratory in my Federal Reserve District of some 27 million people, in which unemployment is now 5.1 percent and wage-price inflation is running at 3.7 percent, the highest since 2008.

I was interested in exhibit 1, panel 6, and also in John's presentation, exhibit 4, panel 6, with regard to the different Federal Reserve Banks' surveys of who is going to be raising pay, et cetera. I would suggest that we certainly have an issue of pay and total compensation and inflation in the highly skilled areas. If you look at Mercer data, for example, that is where they typically concentrate. If you broaden out and talk to people, such as Manpower, their CEO, and so on, they do note that it may not be quite as aggressive at the lower income levels, but you are beginning to see about a 1 percent rate of wage-price inflation on the shop floor.

Looking ahead, from my perspective, faster wage gains and lower consumer energy prices will boost real household incomes and spending, contributing to a cycle of rising demand

and employment. So I think we're in a good dynamic here, and I believe that was the point that you were making, President Lacker.

My projection for the real economy isn't very different from the Tealbook baseline forecast, as updated December 11. And for those that are "dot-ologists," I am number 15. I won't say much more than that. I have GDP growing slightly more rapidly in 2015 than does the Tealbook and slightly less rapidly in 2016. Consistent with that pattern of output growth, I have the unemployment rate drop a little further next year than shown in the Tealbook and have it hold steady in 2016. But we end up pretty much in the same place.

I have revised my estimate of the longer-run sustainable unemployment rate downward a few tenths based partly on the good work done at the Chicago Fed by Dan Sullivan, which carefully controls for changes in the demographic composition of the population as well as its education and skills attainment. I thought that was quite good work. My natural rate estimate is now roughly equal to that of the Tealbook. My inflation projection is quite different from that of the Tealbook, and I noted on panel 5 in the presentation made by Simon, the Board's five-year, five-year-forward inflation compensation reminded me of the old joke about the dyslexic agnostic that doesn't believe in dog. You'll get that in just a second. I may be transposing things here, or I may just be too agnostic, but—you got it. Good. Williams, way to go. [Laughter] I continue to believe that longer-term inflation expectations are anchored at a rate consistent with our inflation objective.

I note that since we last met—and this was mentioned in one of the presentations—the 5-to-10-year-ahead inflation expectations in the University of Michigan survey are up slightly, about 10 basis points. The New York Fed Survey of Consumer Expectations' median three-year-ahead inflation is up 1 basis point. The Philly Fed Survey of Professional Forecasters'

median 10-year inflation expectation is unchanged. And according to a note I read by Morgan Stanley, the implied risk of deflation from the options market is 1 percent. That's unchanged over the last six months. So I'm convinced in the near term that inflation responds to changes in slack, as well as levels of slack, and I'd prefer to use the trimmed mean as my measure of core inflation rather than strip out food and energy prices. And for all those reasons, I see inflation rising on a pretty consistent pace toward our 2 percent objective.

I also continue to believe that increases in the unemployment rate are difficult to contain once they begin, so the risks of misestimating slack are asymmetric. I have talked about this before. I consider it substantially more risky to overestimate slack than to underestimate it. But because I anticipate a higher inflation path than does the Tealbook, and because I see both substantially less benefit from overshooting full employment and substantially greater risk, I believe it's appropriate for monetary policy to move quite a bit more rapidly to a neutral policy stance than is called for in the Tealbook baseline forecast.

In setting policy, I maintain that progress toward full employment is best gauged using the unemployment rate. We have talked about that before. I did note that of the 14 alternative indicators of slack examined in the Board staff memo distributed prior to this meeting, 11 had a strong pre-financial-crisis link to the unemployment rate. Of these 11 indicators, 10 now show less comparative slack than does the unemployment rate. The sole exception is the involuntary part-time employment gap. Additionally, the unemployment rate remains a reliable guide, in my view, to wage and salary growth as measured by the employment cost index.

My view, Madam Chair, is that progress toward price stability is best measured by recent history and the near-term trajectory of the core inflation measures, such as the Dallas Fed's trimmed mean PCE inflation gauge. Fluctuations in headline inflation in response to supply-side

shocks are inevitable, and indeed, I would argue, desirable. They can be persistent. After all, even a fair coin will sometimes come up heads eight times in a row. Low headline inflation that is supply-driven should not be a concern as long as nominal demand is projected to remain on a track consistent over the long term with our 2 percent inflation objective. And I believe that's where we are.

The Dallas Fed trimmed mean PCE inflation has averaged 1.65 percent over the past year. It has been very steady for the past seven months. Our forecasting model suggests that it will rise to just shy of 2 percent in 2015. So if we haven't quite yet achieved our intermediate-term target, as we define price stability, I think we are getting pretty close.

I also note that in table 2 of the appendix of the SEP and exhibit 3, which was summarized when we went through the projections of the SEP, five individuals sitting at this table feel liftoff should occur in the first quarter of 2015, while another seven feel it should occur in the second quarter of 2015. So the dots tell us—or tell me, at least—that the time frame for liftoff has shifted forward.

With regard to my interlocutors in the corporate sector—and I want to touch particularly on the subject of oil because Bill has twice, at the previous meeting and at this meeting, really drilled down—no pun intended—on that subject matter. The net effect, except for the marginal oil operators, is viewed as very positive. Obviously, if you're in the transportation business, you're happy. The airlines are seeing this drop directly to the bottom line.

My favorite retailer to look at, other than the largest one in the United States, would have to be 7-Eleven, because they're a huge retailer of gas, as well as a seller of snacks and beer and cigarettes to construction workers. Their average demography is about \$48,500 in terms of income level. It's the second and third income quartile. Their same-store sales are running at

4½ percent November over November. That's up from 3.5 percent year-to-date before energy prices or gasoline prices at the pump began to come down, and that is versus 1.7 percent for last year. And yet they still are massive retailers of gasoline. So that's net of that figure.

And then, the manufacturers I talk to in various sectors are also quite happy. I'll give you an example, with permission from the CEO. A complex product line that uses a great deal of petroleum input and pulp input—Kimberly-Clark—had budgeted 40 cents per share of inflation costs due to energy. They just redid their budget, and now they expect to have 40 cents per share savings by virtue of the decline in oil prices.

I would say from the telecoms that I speak to, it does confirm very much what we have heard in terms of the most recent numbers for capacity utilization and cap-ex. What they in the telecom business call “large enterprise investing” has been increasing for the last few months, and it was quite fallow for many months before. And, finally, I would say that the National Federation of Independent Business is also indicating much more active interest in terms of their future capital commitments and hiring plans.

Vice Chairman Dudley may remember that the last time we talked, we had a long conversation. You asked me where energy prices might go, and I mentioned that the expectation was that the price of oil would dip down to \$70 or below, according to practitioners in the business, and that it was likely to stay in the \$70 to \$80 range for a prolonged period of up to two years, but we might have dips down further. So I've gone back to the same group. The price basket of OPEC oil crude dipped to just a fraction below \$60 yesterday—that is the reference point. Brent was \$61.06. So with that, I asked whether or not this would have a significant effect on cap-ex.

What's interesting in my District is I have 900 of the 1,900 operating wells in the country. We have actually seen permits surge since October; we still are at 900 operating wells, but permits have increased. Remember, prices began to come down in June. So the expectation is that cap-ex adjustment will take place, but it will be less than people expect—the budgets have already been set over the next year—and could have an effect of about 5 percent, in answer to the question you asked me at the October meeting.

The real issue here is that the Saudis are basically engaging in an exercise of price discovery, and they just didn't take seriously, nor did their colleagues—particularly the Kuwaitis and the Emirati—that this was a real development that would be lasting. They now believe it will be, and they want to test the market to see how far it will go. And, by the way, I know that King Abdullah rather enjoys poking it to the Iranians in the process. But this is really a price-discovery exercise. No one I talked to in the business believes this will be a sharp V-shape, which may mean that they are completely wrong. Instead they claim—particularly the big ones that operate in Saudi Arabia and know the Saudis well—that these prices are likely to be staying very low, \$70 to \$80, maybe in the mid-\$60s, for a period that could last up to two years. I wanted to give you a little more background on that.

The other thing I would conclude with, Madam Chair—if you remember at the previous meeting, there was some concern that we would be signaling by the language that we added to the statement that we were becoming a little bit more hawkish or less dovish. I do note that across the yield curve, rates really have not backed up at all. The two-year is up 6 basis points, everything else is down 6 to 30 basis points, depending on how far out you go. I also note that the 15-year fixed mortgage rate is actually down, even though the 30-year mortgage rate is up 4 basis points. So there is not much change.

As I mentioned before, the real angst in the marketplace right now is in the junk bond market, and that is driven largely by the 18 percent that are marginal energy operators. The expectation is that they will fail or have problems, as will their suppliers. And then the big ones will come pick them up at cheap prices, those that actually have real properties that they should exploit.

So I would say in summary, Madam Chair, that the data continue to indicate that the economy is improving. I believe they indicate that it's improving at a faster pace than we had previously assumed. I'm in accord with President Lacker on that front, although I didn't get as pessimistic as he did. And I believe that the net effect of these lower energy prices is a huge boost in a society that is 70 percent consumption driven and 30 percent service driven. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. As we began expanding our balance sheet in 2008 and 2009, one of the biggest concerns raised was that such a policy would be inflationary. Yet six years later, one of the major problems confronting the economy remains an inflation rate that is too low, and this even at a time when the unemployment rate is approaching some estimates of the natural rate.

In fact, if one focused on the consistently strong payroll employment growth over the past six months, the unemployment rate at 5.8 percent, and the forecast of real GDP growth in excess of potential growth, one might feel policy should lift off relatively soon. However, such an analysis would ignore the critical facts that current wage and price growth are significantly below levels consistent with our announced 2 percent inflation target. Moreover, my own forecast does not have us reaching a core PCE inflation rate of 2 percent any time soon.

One possible explanation for the weakness in wages and prices is that labor markets have more slack than a cursory assessment would indicate. Because of the disruptions that occurred during the recession, it is quite possible that a U-3 unemployment rate, by itself, underestimates the amount of labor market slack. With U-6 and long-term unemployment still elevated, defining full employment with U-3 historical estimates may be why we are still seeing unusually low wage and price inflation, even as U-3 approaches a value that many deem to be consistent with full employment.

Another possibility is that the U-3 rate consistent with full employment is lower than our current estimates. My own estimate of full employment is 5¼ percent. Before the recession, my estimate was a shade under 5 percent. If the past 40 years have taught us anything, it is that the natural rate moves around. Even relative to 2007, the labor force has become older and more educated. Older and more educated workers tend to experience lower unemployment rates. Other things being equal, this would be consistent with a slightly lower level of the equilibrium unemployment rate than my current estimate of 5¼ percent. Thus, as the unemployment rate declines with little evidence of wage and price pressure, in aggregate or by occupational grouping, I am likely to soon reduce my estimate of full employment to make it more consistent with the absence of wage and price pressures we are experiencing.

It is quite possible that even if there are developing price pressures, they will not be obvious in the data by the middle of next year. The Tealbook forecast has total and core PCE inflation for the second quarter of next year at 1.4 percent and the ECI at 2.8 percent for all four quarters of 2015. If this is close to the actual outcomes, we will have little evidence of progress toward our 2 percent inflation goal based on wage and price data even by the middle of next year.



The very low wage and price pressures pose a challenge for deciding when liftoff should occur. One reason is that downward nominal wage rigidity may be complicating the signal that one can reasonably draw about labor market slack from current wage developments. Because many businesses did not cut nominal wages outright during the recession or in the earlier part of the recovery as equilibrium wages declined, we may now be observing slower wage growth to compensate for the earlier lack of downward adjustment.

One way to overcome this difficulty is to look at the wages of new hires, which are typically more sensitive to business cycle conditions than the wages of existing employees. New-hire wages could potentially be a leading indicator of emerging labor market tightness. My staff has been analyzing the monthly wage file from the CPS. After controlling for demographic features of the data, they find that in previous recoveries, new-hire wages did grow significantly faster than existing employee wages. However, to date in the current recovery, that pattern has yet to emerge strongly in the data. Thus, unlike previous recoveries, they are not yet seeing much evidence of wage pressures and that is consistent with there still being significant labor market slack.

Needless to say, it is important not to focus solely on one indicator when assessing price and wage pressures and their relationship with the extent of slack in the economy. Prices are affected by variables other than past wage movements. Hence, they can move before wages. Furthermore, the statistical relationship between aggregate wages and most real measures of labor market slack is not always stable. Finally, because of recent exchange rate and oil price shocks, it may be particularly difficult to determine underlying wage and price trends. Still, at least so far, the bulk of evidence appears consistent with little incipient inflationary pressures.

In this context, there appears to be ample reason for patience. That is particularly true given the disinflation in Europe and Japan and the recent turbulence generated by sharply lower oil prices, which calls into question the robustness of a global recovery. However, it would be important to parse incoming wage and price data carefully. The very low breakevens and five-year Treasury rates well below 2 percent, even though most investors expect us to tighten starting next year, indicate that we are still in danger of undermining our credibility on our inflation target. The European quandary highlights why we should not take this risk lightly.

All of the above provide ample reason to probe the degree of labor market slack further and to look for signs that we can confidently expect to move back to our inflation target over the forecast horizon. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. The basic contours of my outlook have not changed materially over the past two SEP cycles. President Fisher, you had a very interesting term. I'm not sure I captured it correctly—SEP "projection-ologist" or something.

MR. FISHER. Dot-ologist.

MR. EVANS. Dot-ologist. Okay. I'm number eight. We see GDP growth averaging about 3 percent over the next two years. This is a faster pace than the Tealbook, and it largely reflects our higher assumption for potential output growth.

Thus, we too see the unemployment rate falling close to 5 percent by the end of 2016. After a long period of unemployment and resource slack, we will have finally arrived at a satisfactory outcome for the employment side of the dual mandate. But also like the Tealbook, we project that the FOMC will fail to achieve its inflation objective within the SEP forecast

period. My forecast has inflation slowly crawling up and not getting back to 2 percent until sometime in 2018.

Recall that since 2008, PCE inflation has averaged just 1½ percent per year. So under my SEP forecast we will have missed our inflation target for ten years. I continue to see this outcome as highly unsatisfactory. Moreover, for the FOMC to achieve even this unsatisfactory outcome, I find it necessary to assume greater monetary accommodation than the Tealbook, the median SEP dot path, and 15 other SEP submissions.

Conditional on my reading of economic and inflation fundamentals, I don't have the funds rate lifting off until March 2016. Frankly, I think truly appropriate policy would have us achieving our 2 percent goal before 2018. That would require even stronger accommodation than I'm writing down. By the way, it's essential to describe my policy assumption to give a better context to my SEP economic commentary.

Now, returning to the outlook, the recent data on consumer spending and the labor market have been somewhat better than we expected, and as a result, we boosted our near-term forecast a bit. My business contacts and directors indicate that not much has changed since last time. Most reports are positive about prospects for continued strength in the U.S. economy.

For example, automakers, not surprisingly, were pleased with the November sales numbers. Looking ahead, both Ford and GM expect sales in 2015 to be up a bit from this year's pace. They also are benefiting from consumers buying more expensive vehicles, and they suggested that continued attractive financing rates are likely to be important for a continuation of strong consumer sales. But, not to be too upbeat, U.S. automakers do note that their foreign competitors are getting an edge in the marketplace from the stronger dollar. They like to talk like that.

More generally, my directors and other contacts continue to be gloomy about the international situation. Most of the commentary was similar to the last round, although some mentioned that their businesses in Europe had weakened even further.

Like many, I see the international situation as the major downside risk to the U.S. growth outlook. At only 3 percent growth, the U.S. economy is not likely to pull up the rest of the world. They're going to have to do it largely on their own. But I'm also concerned that the U.S. economy will not be able to decouple completely from the rest of the world. The CEOs I speak with describe Europe as a mess. Matters there certainly could get worse, especially if policymakers simply muddle along. And a worsening Europe could have a substantial negative impact on U.S. corporate risk aversion and, with that, on domestic investment and hiring.

Now, let me turn to inflation. The bulk of the incoming information has been discouraging. First, aggregate wage increases continue to be very modest. One CEO of a large firm told me that they were raising wages by 3 to 6 percent for some lower-paid, second-tier jobs in the \$12 to \$16 an hour wage range. But it turns out that this follows a wage freeze last year. Furthermore, the same CEO indicated that he sees no inflationary pressures. He reiterated by saying, "Zero." Next, the further drop in oil prices and appreciation of the dollar will lower inflation, at least in the near term. Third, market measures of inflation compensation have fallen even further. Although this move may be difficult to parse, some portion of it ought to be due to lower expected inflation, as the dealer survey suggested. This is going in the wrong direction.

To conclude, my outlook for inflation is nowhere near satisfactory, in my opinion. Over the past six years, inflation has averaged 1½ percent per year. Over the next five years, I expect that inflation will average only 1¾ percent. Putting us on a path that returns inflation to target sooner rather than later should be our paramount concern at this time. Getting stuck at

1¾ percent would be a credibility failure of our long-run strategy for monetary policy. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. All signs confirm that the expansion is on track. Consumer spending has been surprisingly strong, supported by falling energy prices, improving household balance sheets, and renewed confidence. Strength in the manufacturing sector is also noteworthy, with capacity utilization in that sector near historical norms. I continue to expect real GDP growth to run well above potential output through next year, and my contacts are actually, nowadays, more upbeat about the outlook—which is a big change—telling me that there’s more upside than downside risk to my forecast.

On the jobs front, at our previous FOMC meeting, I think I referred to recent gains as “robust.” With the further pickups over the past two months, I guess I’ll have to say that they were very robust, and the unemployment rate has also edged down, accompanied by improvement in a wide set of labor market indicators. In this wave of transparency, I am SEP respondent number five and will not go through all of the details of my forecast, unless everyone would like to hear it.

MR. FISHER. Nobody will know for five years.

MR. WILLIAMS. As labor market conditions continue to improve, the question of what constitutes maximum employment becomes a more pressing topic that President Lacker already talked about. Distinguishing between structural and cyclical factors in labor markets is essential to this question, and my staff, like others in the System, as already mentioned, have been working to provide some answers to this question.

One structural factor that's been a concern of late is job polarization, which refers to the disappearance of middle-skill, routine jobs that are replaced by computer-based technologies or are offshored. Although this process has been ongoing for three decades now, it accelerated during the recent recession and may have left a sizable number of routine jobs permanently dislocated.

My staff examined the extent to which this type of structural job loss has contributed to the mismatch and pushed up the natural rate of unemployment during the latest downturn and recovery. They found only minimal effects, largely consistent with earlier research conducted by the staff of the New York Fed. Workers in routine jobs have seen a pickup in their job-finding rates similar to workers with more favored nonroutine jobs, and, more generally, job mismatches associated with polarization appear to be limited, boosting the unemployment rate by only  $\frac{1}{4}$  percentage point at most. To further probe the role of mismatch, my staff also updated their earlier work on the interaction between the Beveridge curve and aggregate labor demand, as reflected in the job creation curve, and their results, which encompass a full range of sources of mismatch, also shows a limited effect of mismatch today.

Combined, these findings and the other research that was done in recent years on this topic add to my confidence that the long-term natural rate has not risen by a significant amount in the aftermath of the recession. My estimate of the natural rate remains at 5.2 percent, and I see the actual unemployment rate converging on that milepost by the end of next year. That's unchanged from my September forecast.

Given the sizable improvement in the labor market, inflation is now the most worrying issue. It's been running too low for quite some time, and declines in energy prices, commodity prices, and import prices will push down the headline numbers further through next year. Still,

core inflation has not slipped, and as commodity prices and the dollar stabilize and domestic wages pick up, I expect inflation to gradually rise and reach our longer-term objective in 2017.

Indeed, the possibility of a bounceback in oil prices as market conditions normalize adds some upside risk to the forecast. Let me add a little bit of commentary on that. That's been the big topic of discussion at our board meetings and in discussions with contacts. I think this is an interesting comparison between what's happening in Texas, where there's tight oil and the investment cycle is very short, and what's happening with some of the global oil companies. In Texas, the return to investment is very rapid and, once you get the permit, you can go in, drill the oil, get the oil out, and move out. When you think about global oil companies who are doing deepwater research and drilling, these are projects that tend to take five to seven years to fully develop and bring back returns. In that area you do hear reports of significant changes in willingness to invest in exploration, willingness to basically deploy capital, given not only the low level of oil prices, but the uncertainty there.

Now, I think the question that did come up is the one that President Fisher talked about—how is this dynamic with Saudi Arabia going to play out? How long will that take? You mentioned, I think, a figure of a couple years. Some of our discussions suggested that this may collapse or shift sooner than that, but it's a matter of uncertainty. When you think about investment in this area, I think it's something that would, given a long lead time, lead to a pullback in investment until some of this uncertainty clears up.

MR. FISHER. May I clarify, Madam Chair? I was referring to Saudi Aramco in my numbers, not just the titans of oil in Texas.

MR. WILLIAMS. I think there is a different dynamic between different types of oil exploration and drilling. Okay. I think there is uncertainty around the future of oil prices, and

we could see a jump back up in the next year or so. This outlook for gradually rising inflation is supported by the continuation of well-anchored inflation expectations. I agree with President Fisher, I believe inflation expectations have remained well anchored. And I remain steadfast in my view that I don't agree with the Board's staff view that inflation expectations are anchored below 2 percent. I think they are actually anchored at 2 percent, so let me explain that a little bit. In the Survey of Professional Forecasters, long-term expectations of PCE and price inflation have been glued to 2 percent—that's 2.0 percent—over the past two years. That sounds like success to me. Although CPI long-run inflation expectations have come down a touch, analysis by my staff suggests that this is much ado about nothing.

First, the drop is small. But, more importantly, it mainly served to bring the midpoint of the distribution of expectations back down from elevated levels recorded in the aftermath of the financial crisis. The recent decline mainly reflects lower inflation expectations among respondents whose earlier expectations were unusually high. Some of those respondents, when asked, "Why did you have high inflation expectations?" attributed their elevated responses, in part, to the uncertainty about the inflationary impact of the Fed's ballooning balance sheet. If you think about the dynamic of inflation expectations on the CPI, basically the reason they went up, at least in part, was concerns about the Fed's policy actions. Clearly, as President Rosengren pointed out, inflation has not risen. These risks have not materialized. They have actually shifted down their views of long-run inflation expectations from high to more in the middle.

The decline in inflation expectations among this group implies that respondents now show much greater agreement about the likelihood of moderate inflation in the future. Now, of course, market-based measures of expected inflation and associated risks, in particular breakeven inflation rates, have come down by more than the survey-based measures. However, consistent



with the findings noted in the Tealbook, a model developed by my staff at the San Francisco Fed attributes these declines to risk and liquidity premiums rather than expected inflation.

That brings us to President Kocherlakota and his staff's memo—which I thought was very thought-provoking and very insightful—that basically made the point that we should not distinguish between these two components, meaning inflation expectations and the inflation risk premium. According to the memo, we should simply react to the full inflation compensation in order to account for market participants' valuation of the risks associated with different inflation outcomes.

Now, despite the theoretical elegance of his argument, and also my staff's being thrilled to be able to talk about market-based probabilities and statistically estimated probabilities during the FOMC briefing, I am unconvinced that market prices likely reflect the preferences of American households in the way that the memo lays out. One reason is that a large share of American households doesn't actively participate in financial markets. Indeed, the marginal investor could well be a foreign hedge fund, which would invalidate the welfare rationale for using market prices. Certainly, part of the recent decline in breakeven rates reflects a flight to safety from abroad into nominal Treasuries. More generally, as highlighted by the field of behavioral finance, there are a variety of reasons why sentiment and other factors and frictions not associated with marginal utility might influence market prices.

Furthermore, if the real world did approximate the framework of the full participation in complete markets assumed in the Minneapolis Fed's memo, one implication of that is that our large-scale asset purchase programs would be ineffective. Without some imperfect substitutability among assets, such purchases would have no economic effects through portfolio balance channels. My reading of the available evidence suggests that's not the world that we

live in. For these reasons, I remain convinced that it makes sense, in theory, to consider inflation expectations as well as the risk premium associated with inflation separately. But that's in theory. In practice, of course, we have imperfect tools to distinguish between these signals. Given these measurement difficulties, we should not be too cavalier about the decline in breakeven inflation and should continue to monitor and analyze it and other measures carefully. Thank you.

CHAIR YELLEN. Thank you. A two-hander—President Kocherlakota.

MR. KOCHERLAKOTA. Yes. Thank you, Madam Chair. I thank President Williams and his staff for his close attention to the Minneapolis Fed memo, although I would recommend—some of the sections that occur later in the memo on limited participation and incomplete markets might address some of the concerns that you raise in your remarks.

I think a general point would be that we were trying to make—we may not have made it as clearly as we could have—is that it's important to take into account relative valuations of resources across states of the world as well as the likelihood of those states of the world occurring. Basically, using probabilities alone is akin to counting up GDP by counting up how much things weigh as opposed to using values instead because, basically, probabilities don't take into account how much people actually value the resources in those different states of the world where you need to have a price to do that.

Now, as President Williams and his staff pointed out, I think there are definitely issues about how well financial market prices—and we tried to talk about some of that in the memo—measure exactly marginal valuations for everybody in the economy. I think there are reasons to think they are relatively close, but that we can argue about. I think we should keep in mind that

just looking at probabilities alone is not sufficient, because we want to know how much people value resources, not just how likely states of the world are. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. I will start with a summary of reports of contacts from around my District. Overall, reports were quite positive. General demand conditions remain on the upswing, and demand for labor is rising. We also heard positive reports on the direction of capital expenditure outlays and plans. Neither the falling price of gasoline nor the rising dollar has yet materially affected the pace of business activity, although we heard acknowledgement that both will come into play in 2015. I might add that one director talked about the gasoline price having an effect on the composition of sales. The largest national auto retailer spoke about the preference of Americans now for SUVs and light trucks. He said, “Don’t listen to what the American public says. They say they want broccoli, but they want to buy a donut.” [Laughter]

We had over 300 responses in response to the Board of Governors employment survey. For us, almost 60 percent of respondents said they intend to increase employment over the next 12 months. A significant plurality cited expected growth and sales as the most important factor pushing them to hire. We heard comments that higher turnover is beginning to present problems. Compensation growth, while still generally subdued, appears to be firming.

Comments on transport and logistics challenges were worthy of note. Contacts expressed some concern about the growing vulnerability of the economy to transportation bottlenecks. They cited the shortage of truck drivers and railcars as well as the Long Beach Port congestion. We heard the view that transportation problems are likely to get worse.

Our reports from District contacts evidence rising confidence. Most interpretations of recent national data, both inside the Fed and externally, emphasize the strength of the data, so the cautious contrarian in me says, “Don’t get carried away.” Let me mention some cautionary points on the current and near-term situation.

Tracking estimates of fourth-quarter GDP growth, including hours, point to a marked slowdown from well over 4 percent annualized third-quarter growth to down around 2½ percent this quarter. Recent inflation readings remain well below the Committee’s target, with little evidence of acceleration. Headline inflation numbers will likely be extremely soft in the first quarter, with widening divergence of headline and core. How to explain the declining market-based indications of inflation expectations is not, in my opinion, a closed debate. Payroll jobs growth is certainly quite strong and encouraging. But considering the level of U-6, the still elevated U-3/U-6 differential, and continuing weak wage growth, I still see a fair measure of employment slack remaining.

These are just cautionary comments. My baseline forecast submitted for this meeting has not substantially changed from October and September. My central assumption is that the economy will continue to enjoy an underlying run rate of growth around 3 percent. In that respect, my forecast sees stronger growth than the December Tealbook by more than ½ percentage point. I adjusted down my headline inflation projection over the next year, reflecting the playing through of the drop in oil prices. I have core inflation slightly above the Tealbook over the forecast horizon but do not have core or headline inflation reaching target until 2017.

As regards risks to my outlook, I share the view that substantially lower gasoline and energy prices will likely produce a clear benefit to the real economy in the medium term. My

staff did some statistical modeling of the effect of lower oil prices. This work suggested positive consumption and investment effects materializing in the second half of 2015. However, the share of oil and gas structures investment, as a percentage of total investment in structures, has grown significantly since the mid-1990s. As a consequence, the effect of sustained low oil prices on drilling activity could be a slight drag on growth in the near term.

A second risk to my outlook relates to the impact of a stronger dollar on net exports in the context of weak global growth. The Tealbook seems to have incorporated effects of these factors into their baseline growth forecast. I have not yet done so. Given the structure of U.S. exports, I don't feel I am on firm ground estimating the downside effect of the higher dollar on exports. I am also uncertain about the second-quarter positive effects on our economy, of what one would expect to be stronger export performance growth and ultimate demand in economies whose currency has depreciated.

I found the exercise of projecting economic conditions at liftoff to be quite useful. Like the Tealbook, I can imagine circumstances leading up to liftoff when the incoming data and near-term outlook could be very short of our mandated objectives. Assuming a mid-2015 liftoff date, our communications in anticipation of liftoff will probably begin as early as the March FOMC meeting. At this time, it is likely, in my view, that headline PCE inflation will be moving sharply away from our longer-term objective. The decline in oil prices to date could contribute to negative headline inflation through the February PCE price report. At the same time, we could be looking at a two-quarter growth rate for this quarter and next, well below the average of the second and third quarters of 2014.

My point is that the array of data relative to mandate could be confidence challenging and require that the Committee look through, discount, and explain away aspects of the picture

presented by the data. This could be an awkward place to be as we approach liftoff. I will pick up on this thought again in the policy round. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. My overall view is that the economy is building momentum in terms of output and employment. The Fourth District economy continues to expand. Fifty percent of our contacts reported an improvement in business conditions over the past six to eight weeks compared with 10 percent that reported a deterioration. This yields an implied diffusion index of 40, slightly less than the 47 we saw at the time of our previous meeting but significantly higher than the 10 we saw last December.

Fourth District business contacts remain optimistic about the economy. Indeed, over half plan to increase capital spending next year. In many cases, this investment is being made to expand capacity rather than merely replace depreciated equipment. Conditions in District labor markets have also improved further. For the year to date, employment growth has picked up to 1.4 percent, the closest the region has come to the nation's growth rate in several years. Anecdotal reports on hiring plans for the coming year continue to indicate steadily improving labor markets.

The unemployment rate for the four states in our District fell to 5.3 percent in October, down almost 1½ percentage points since the end of last year. The decline in unemployment, the pickup in employment growth, and anecdotal reports of increased plans to hire all paint a favorable labor market picture for the Fourth District.

We do not yet see much evidence of broad wage or price pressures either up or down. My directors continue to report that wage gains are moderate in the 2 to 3 percent range, on average. Manufacturers reported that lower-skilled production jobs are readily filled without

significant wage growth. However, we also continue to receive reports of wage pressures increasing for hard-to-find skills and also in high-cost locations. In general, prices for finished goods remain stable, although we have received reports of higher nonlabor input costs, such as freight charges, despite the lower fuel costs.

My view of the national economy is little changed since the previous meeting. Incoming information has largely been positive and has given me more confidence that momentum is increasing. Growth is picking up, and labor markets continue to improve. We see this across a broad range of indicators, including payroll and household employment, and job openings and quits in JOLTS, which are trending higher and have recently hit multiyear highs.

The percentage of the labor force employed part time for economic reasons remains elevated relative to the period from about 1995 until the crisis, but it, too, has declined significantly and stands at the level we saw in the early 1990s. There are even tentative signs from the employment cost index that wage gains may be starting to pick up.

Over the intermeeting period, headline inflation has moved further below our target of 2 percent, driven by the sharp decline in oil prices. This change in prices partly reflects weaker global demand, but most analyses indicate that it has been driven mainly by supply changes. So far there's been little pass-through to core inflation measures, which have remained relatively stable. I'm not anticipating much pass-through because, although results vary across studies, most of the research, including that by the Cleveland Fed staff, suggests that pass-through of energy price shocks to core inflation has been fairly muted since the 1990s.

On balance, lower oil prices should be a net positive for the U.S. economy, although a fair amount of media attention is focused on the negative effects on domestic oil producers. So long as inflation expectations remain anchored, the appropriate monetary policy response to a

negative oil supply shock would not be to increase the level of accommodation. Indeed, the positive effect on growth from the drop in oil prices will point to slightly tighter policy being appropriate. Of course, this is dependent on inflation expectations remaining anchored. I do not find the declines we've seen in some of the market-based inflation compensation measures as that troubling yet. So far the changes in expectations are within the ranges we've seen in recent years and partly reflect changes in liquidity and risk premiums.

The Cleveland Fed's 10-year CPI inflation expectations measure, which was mentioned earlier, has remained quite stable near 2 percent. Survey measures like the SPF have also been stable, and as the Board staff indicates, the decline in the medium-run inflation expectations measure from the Michigan survey could be reflecting the sharp drop in oil prices rather than a sustained drop in inflation expectations. I do think we need to keep our eyes on inflation developments. We also should remember that inflation expectations are endogenous. To the extent that we believe that the downward pressure on inflation is transitory, we should make sure that message is conveyed.

My outlook remains positive. I continue to project GDP growth to be about 3 percent over the next couple of years before returning to trend growth of 2½ percent in 2017. The factors supporting above-trend growth include highly accommodative monetary policy, improving household and business balance sheets and confidence, and strengthening labor markets. As the expansion continues, I expect the unemployment rate to continue to decline over the forecast horizon, slightly undershooting and then returning to 5½ percent, my estimate of the longer-run unemployment rate, in 2017. Lower oil and commodity prices will temporarily lower headline inflation, but as these prices stabilize, the economy continues to expand at a slightly



above-trend pace, and longer-term inflation expectations remain stable. I project inflation to gradually rise to our 2 percent objective by the end of 2016.

My projections are dependent on appropriate monetary policy, which, in my view, should reflect actual and projected progress toward the Committee objectives, including the speed with which progress is being made. I believe we should recognize the substantial progress we've made toward our goal of full employment. I expect that progress to continue, perhaps at an accelerated pace. Under these conditions, a key condition informing my expected liftoff of the fed funds rate from the zero lower bound is when projected inflation between one and two years ahead reaches the Committee's goal of 2 percent. My projection continues to show us reaching this liftoff condition in the first quarter of 2015, and I've incorporated this into my projections. After liftoff, as the expansion continues at an above-trend rate in my projection, I believe it will be appropriate to raise interest rates gradually for a time, similar to a path suggested by a Taylor 1999 rule with inertia, but then to raise rates at a pace more in line with a less inertial Taylor rule.

There continue to be a number of risks to the forecast, but I view these as balanced. The recent volatility in private financial markets, driven by the drop in oil prices, has a potential for broader spillovers. Also, conditions abroad may have worsened since our October meeting. On the other hand, there also seem to be better prospects now for an effective policy response in key economies there, including the euro area.

On the positive side, U.S. growth and employment may be picking up at a faster pace than projected, which suggests we're getting close to liftoff, and we should remain focused on preparing the public for it. I'm not sure the public understands that forward-looking monetary policy means it will be appropriate to begin reducing the degree of policy accommodation when

the outlook calls for future inflation to be at our goal even though trailing headline inflation is below our goal, and, similarly, when the unemployment rate is not yet at its estimated long-run level. Indeed, the SEP indicates that all but one participant sees inflation below 2 percent at the time of liftoff, and all but five see inflation at 1 percent or less at the time of liftoff.

In our desire to clarify that we take the downside risk to inflation very seriously, we may have conveyed less of the consensus view that the effect of the oil price shock on inflation is likely to be transitory, and that lower oil prices are likely to be a net positive for the U.S. economy. I'm concerned that people have taken too negative a read of our views and haven't fully appreciated the positive developments. Unless the public understands the outlook as we see it, I'm not sure they'll understand the rationale for our change in policy, whenever that time comes. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. The Eighth District economy continued to expand during the intermeeting period. The unemployment rate across District MSAs dropped to 6.0 percent during the most recent reporting period, just 0.2 higher than the national unemployment rate. Before the 2007–09 recession, the District unemployment rate tended to run slightly higher than the national average. During much of the past five years, however, the national unemployment rate was notably higher than what we measured in the Eighth District. The fact that these two rates have returned to their historical relationship during 2014 can be taken as a sign of a return to normalcy in U.S. labor markets.

Eighth District business contacts surveyed during the intermeeting period expressed a generally optimistic outlook for local economic conditions in 2015. In particular, 63 percent said they expect business conditions to improve further in 2015, while only 5 percent said they expect

business conditions to be worse. Anecdotal information also suggests a slight increase in prices during the fourth quarter. Sixty-five percent of contacts reported that prices charged to consumers have stayed about the same as a year ago, while 21 percent reported an increase and 14 percent reported a decrease. First-quarter expectations suggest an upward movement in prices with about half of business contacts expecting to keep prices unchanged and 34 percent expecting to increase them. I took this to indicate deflation is not imminent.

Business contacts with a national footprint were optimistic about the current holiday season. A contact at a very large retailer felt that the climate for consumer expenditures will be much stronger this holiday season than last year due to decreasing gasoline prices and a more stable political environment in Washington. Another very large retailer reported strong demand for electronics as well as impressive foot traffic at its brick-and-mortar stores.

We are hearing continuing reports of serious congestion problems in the national railway system, tending to slow down service and push up costs, as President Lockhart alluded to. A logistics firm that hires tens of thousands of temporary workers during the holiday season said it expects to keep more of these workers on after the holidays than it has in the past. I found these anecdotal reports encouraging.

For the national economy, in my view the story continues to be that the U.S. economy has considerable momentum and is being further aided by two tailwinds: a lower rate structure as compared with several months ago and a sharp drop in oil and gasoline prices. For the momentum part of the story, we can consider that GDP growth has likely been in excess of 4 percent at an annual rate over the second and third quarters of 2014, and that many private-sector tracking estimates of current-quarter GDP growth are running about 3 percent.

Based on my discussions with CEO District contacts, I think there may be some upside risk to the 3 percent number, so that early next year we could be looking at three very strong GDP growth quarters in a row. Commensurate with this robust performance, labor markets have been improving more rapidly than many around this table anticipated. Unemployment will likely continue to tick down and is within just a few jobs reports of the Committee's central tendency for the long-run value of this important variable. In addition, some recent reports on retail sales, consumer confidence, and industrial production seem to confirm a narrative of substantial economic strength.

Based on the performance of the real economy alone, my judgment is that the Committee can no longer justify its continued zero-rate policy. These data are far too hot to rationalize what was really an unprecedented emergency policy in reaction to a very severe crisis. Even for those who think my characterization of the U.S. economy is too rosy, I think that the most that can be said is that the Committee should perhaps be running a policy with rates somewhat below normal, but not pinned down all the way to the floor at zero. Even as we begin to normalize the policy rate next year, monetary policy will likely remain very accommodative for several years. The real economy is strongly signaling that we need to get on with this process before it gets away from us and causes us to take more drastic action later or possibly face a new crisis.

I might also remark that, in terms of goal variables, if you take unemployment and inflation and you put a quadratic objective on them and look at how far inflation is from target and how far unemployment is from target, we're about as close as the Committee has ever been to our goal variables in that respect. We're closer than we have been 90 percent of the time since 1960.

There are two caveats to the view that I just outlined. One is the international situation and the other is inflation. Concerning the international outlook, many in financial markets have been concerned that slower growth in Europe, Japan, and China bodes ill for the U.S. macroeconomic outlook. We also saw part of the Tealbook looking at a scenario of weaker foreign growth. I do not think that the situation as it currently stands is threatening to the United States in a direct sense. While there is certainly some direct effect on the United States from slower global growth, my sense is that the United States is actually likely to benefit from a lower rate structure globally than would have otherwise occurred and from lower oil and gasoline prices than would have otherwise occurred.

The risk, from the perspective of this Committee, with respect to foreign developments is that weak economic performance abroad morphs into a full-blown financial crisis, most likely in Europe or China, as it did in Europe in 2011 and 2012. Developments in that direction would have important impacts on U.S. financial markets and likely on U.S. macroeconomic performance. However, as we sit here today, I do not see this as something that we can predict with much accuracy, and I do not think it is any more likely today than it has been since ECB President Draghi's "whatever it takes" speech in London in 2012 brought the previous crisis to a conclusion.

Domestic inflation has been running below the Committee's target, but my current forecast continues to call for inflation returning to target over the medium term. The fact that inflation is running below target is enough to justify a policy rate that is somewhat lower than normal, but it is not enough to justify a policy rate that remains pinned down at zero. According to leading New Keynesian theories, the main determinant of actual inflation is inflation expectations, and, in this regard, the steep decline in TIPS breakeven inflation rates is quite

disconcerting. I also learned a lot from President Kocherlakota's memo on inflation and inflation expectations and inflation risk premiums. My view is that the Board staff is too quick to dismiss these important market developments on inflation expectations.

The worry for me is not so much that year-over-year PCE inflation remains somewhat low, but rather that the shift in inflation expectations is so severe that actual inflation begins to fall further just at the point when the Committee is trying to take on board the robust developments in the real economy. This may create a situation in which inflation expectations and actual inflation continue to fall instead of rising back toward target as I expect.

A modern central bank cannot afford to be complacent about inflation expectations that are shifting away from target over periods as long as 5 and 10 years. This problem is severe enough—the 5-year TIPS breakeven was 115 basis points on Friday—that the Committee needs to be prepared to arrest this trend if necessary. I will discuss ways to be prepared for this possibility more in my policy remarks tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Plosser.

MR. PLOSSER. Thank you, Madam Chair. The outlook for the Third District has improved somewhat since our previous meeting. Economic activity continues to grow moderately, and expectations of future activity remain very optimistic. Our Manufacturing Business Outlook Survey current activity index for November came in at an extraordinarily high number of 40.8, the highest reading since 1993. Unfortunately, most of that was in seasonal-adjustment factors and probably wasn't expected to be sustained. Nonetheless, it still showed great strength. The industrial production numbers that came in just this week showed very strong activity, as has been noted several times, and also the capacity utilization rate was very high, almost near historical averages. Very strong performance.

Looking ahead to our December BOS results, which will be released on Thursday at 10:00 a.m., they pulled back, as we probably expected, from the 40 to 23.2, which is about where they were in October, the month before—still a very strong number and well above the sort of nonrecessionary averages for that survey. Even though it fell back, it's still a very strong number.

Contacts in the region confirm this assessment, as do most of our recent state indicators, which are composed mostly of employment growth, unemployment rates, manufacturing hours, and wage and salary data. Growth is broad based across a wide range of manufacturing categories. This strength is mirrored in our new Nonmanufacturing Business Outlook Survey. Its current activity index remains at a high level of 41.2. Just as important, though, is the Future General Activity Index, which continues to show a high degree of optimism in the District. At 54.1 in December—again, to be announced on Thursday—it is relatively close to where it was the previous month, which was 57.7—again, very high numbers for optimism.

Moreover, there is a new statistic we have created that measures the dispersion of the responses for future activity and has shown a marked decline in recent months; based on our research, this indicates less uncertainty about the future than perhaps existed in the past, which is also encouraging. A reduction in this uncertainty statistic, we found, is indicative of future strength in our index for capital expenditures.

The results of a special question on labor markets, which was summarized in the staff briefing earlier, showed continued improvement. Fifty-six percent of the manufacturers said they expected to hire additional workers over the next 12 months. That is up from 45 percent in January. And 59 percent of the nonmanufacturers indicated the same thing—again, up from 44 percent in January.

As in the nation, auto sales in the District are robust. Non-auto retailers contacted around Thanksgiving reported modest growth. Construction of high-rise office buildings in Center City is robust. It now includes the new Comcast Tower, which has shown up in the F.W. Dodge index for the value of contracts for nonresidential buildings, creating a huge spike in our local contracting number. There are two other buildings coming on line soon. However, as indicated by growth of only 2 percent in permits for single-family housing, residential real estate is exhibiting, at best, only modest growth and modest house price appreciation, and the modest house price appreciation we have experienced has slowed even a bit more. On the other hand, the multifamily sector of the market remains very strong.

Regarding the national outlook, my view has not really changed very much since our last SEP, and I remain fairly upbeat. For me, the intermeeting releases have resulted not so much in a change in my forecast but in me becoming more confident about the sustainability of the growth we have seen and about my outlook in general. A portion of that optimism revolves around continued increasing strength in the labor market. And 2014 will likely see the strongest change in employment in any calendar year since 1999 and the strongest 12-month interval by the end of this year of any period since early 2000. It's a pretty extraordinary record to have the strongest employment growth in nearly a decade and a half.

Now, this strength should support somewhat stronger-than-trend growth, in my view, in 2015. Moreover, a wide range of other labor market conditions, including broader measures of unemployment and the JOLTS data, are also consistent with continued improvements in the labor market. Given the ongoing strength in the labor market, a continued consistent decline in household debt-to-income ratios, improved household access to credit, and falling prices at the



pump, I project that consumer spending will grow slightly above trend next year. I anticipate that business investment will grow at about trend and residential investment will grow modestly.

Putting these broad features together leads me to continue anticipating aggregate growth of about 3 percent next year, falling to about 2.6 percent in 2016 and 2.5 percent in 2017, which is near the high end of my estimate for trend growth, which is between 2.3 and 2.5 percent. By the way, I am number 14, if anybody is interested.

I think we need to look at what has happened in the past year. It's pretty remarkable. In the third quarter of 2013, real GDP growth was 4½ percent. In the fourth quarter of 2013, 3½ percent. Of course, then we had the aberration in the first quarter with the winter, which was negative 2 percent; second quarter of 2014, 4.6 percent; third quarter of 2014, 4.6 percent. At least those are the current estimates. The fourth quarter of 2014 is likely to be close to 3 percent. That is five out of six quarters of 3½-plus percent growth. That's a pretty extraordinary record for the past five quarters. How much evidence does it take us to believe that policy needs to adjust to that strong growth and become a little less accommodative than zero interest rates?

Continued labor market strength leads me to forecast the unemployment rate falling to 5.7 percent by the end of this year. Next year we will see it continue to fall, although probably at a somewhat slower rate, because we are almost at what we think is the long-term sustainable pace. We are very near our unemployment rate range that the Committee has for the sustainable rate in the long term. I think we will be at 5.4 percent before the middle of next year, and that will begin slowly shrinking, reaching only 5.3 percent by the end of next year.

Headline inflation will be somewhat softer over the next couple of quarters, as we all know, reflecting the decline in energy prices. But those prices should stabilize, and headline

inflation will return to that 1½ to 2 percent range over the second half of next year and, I believe, converge to 2 percent in 2016.

This Committee correctly looked through the very large oil price increases and the increases in headline inflation that we witnessed in 2011, when headline inflation reached over 3 percent in some months and in some quarters. We need to do the same thing here. We should not let the change in relative prices and their effects on headline inflation drive us to largely reassess our view of inflation in the longer term. Again, as many people have said, as long as inflation expectations remain well anchored—and I believe they are—I'm not going to repeat the evidence that others have offered.

My own view of appropriate policy is somewhat different from my previous SEP submission. I have reduced my long-run neutral rate from 4 to 3.75 percent, which I think is consistent mostly for demographic reasons. I have also reduced my policy rate because the rules I follow suggest that inflation is going to get back to 2 percent a little later than I previously thought. That is cause for making a more gradual adjustment in my policy rate.

My path calls for liftoff in the first quarter of next year, with gradual rate hikes reaching an IOER rate of 2 percent, but I guess we don't use IOER—1.875 percent for the midpoint of the federal funds rate target range, to be more precise, by the end of next year. I believe by 2017 we should be at our long-run neutral rate of 3.75 percent. I think this path is both feasible and desirable, is gradual, and is measured in its approach. However, I continue to be concerned that if we do not begin this process reasonably promptly, we will face a much higher risk of having to raise rates much more quickly and, thus, returning to those old go-stop policies of the past. When we do that, we will induce greater, not less, economic and financial instability in the years to come.

Thus, while the Committee may still believe that June is a reasonable expectation for liftoff, I believe it is very important that we convey in our language and our messaging to the markets that there remains significant probability on liftoff before then, and mostly in the first quarter. We may not lift off in the first quarter, but the more we encourage the markets to have zero probability on that event, when the time comes for us to move—if that happens to be earlier than the market expects—then we will probably be faced with having to surprise the market substantially and create more volatility than would indeed be necessary. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. The Tenth District economy has continued to expand at a relatively steady pace, with the exception of energy and agricultural production. Most of our industry contacts note positive expectations for both consumer spending and business activity in the months ahead.

District labor markets have improved further alongside an expanding economy. Exemplifying the recent strength, unemployment rates declined considerably in October, with five of the District's seven states reporting unemployment rates that range from a low of 3.4 percent in Nebraska to 4.7 percent in Wyoming. Recent surveys showed that firms expected wage increases to average just over 3 percent for their current employees, while wage increases for new employees were reported to be considerably higher, averaging 4.7 percent. Wage increases were expected to be especially prevalent for skilled positions in transportation, banking, IT, and construction.

A large trucking firm reported that drivers' wages would be increased 13 percent, effective in January. In agriculture, low crop prices are expected to stress some producers over

the coming year as working capital erodes because of weaker profit margins. For the most part, however, farmland values have remained relatively steady despite weaker incomes.

With respect to District energy producers, the steady decline in oil prices has led to diminished expectations for drilling activity next year. One District contact currently expects that if oil prices are in the \$60 to \$70 range next year, there will be a 20 percent decline in cap-ex. The declines should occur gradually based on existing leasing arrangements on drilling equipment and the fact that many firms have hedged prices for about half of their production next year. Larger declines in production activity and corresponding layoffs could occur if low prices persist into 2016.

My outlook for the national economy is little changed since our previous meeting, and my confidence in the economy's fundamentals continues to grow. A stronger labor market across many dimensions points to a sustainable growth outlook. With payroll growth averaging 250,000 per month over the past six months, labor demand has picked up for middle-skill jobs, those that were most negatively affected during the recession. Correspondingly, employment growth has picked up for workers with a high school diploma and some college education, two groups of workers that had experienced only limited recovery prior to this year.

The Board staff memos on the labor market and cyclical dynamics offered useful insights on the progress toward our objectives. Similarly, my staff constructed a measure that offers additional information on the amount of spare capacity in the economy. It combines four different output gap measures along with fiscal policy information, such as personal current tax and corporate tax receipts, to produce a sort of composite output gap.

This measure shows the current output gap in the range of about 1 percent. Assuming trend growth of 2 percent, a growth rate of 3 percent over the next year will eliminate the excess

capacity in the economy according to this measure. If labor market conditions continue to evolve at a similar pace of improvement, as we have seen over the past 12 months, the economy looks to be about a year away from full capacity and full employment.

With the labor market approaching a level consistent with sustainable long-run economic growth, upward pressure on wages should begin to emerge. As the quits rate has increased over the past two years, average wage growth from job switchers has risen from roughly 4.3 percent per quarter in early 2013 to 5.6 percent in the third quarter of this year. Wage growth was highest for switchers in leisure and hospitality and professional and business services. It was lower for switchers in manufacturing, education, and health industries. With the quits rates rising and returning to pre-recession levels, I expect to see even greater wage growth for job switchers, and eventually for others, as competitive pressures take hold.

Regarding inflation, I expect in the near term there will be downward pressure on domestic prices exerted by slower global growth and the recent shifts in foreign exchange rates. If energy prices should continue to fall, we could see inflation expectations sag. Notwithstanding such risk, I expect that strong economic growth and a return of labor market conditions toward full employment levels over the next year will move inflation toward our target level within the next two years. In particular, increasing nominal wage growth should provide upward pressure on inflation, particularly in labor-intensive industries such as the services sector, for which the recent QSS report showed stronger-than-expected consumption of services in the second half of 2014. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I plan to discuss my troubling inflation outlook, some evidence from labor markets in support of that outlook, and the

credibility risk posed by that outlook. When I talk about my inflation outlook, I just want to be clear about my monetary policy assumption. My monetary policy assumption that I'm going to be using for the purpose of these remarks is similar to that in Tealbook A, so liftoff in the second quarter of 2015. That differs from what I do see as appropriate monetary policy. I'm respondent number 10 in the SEP. Like financial markets, I see the fed funds rate at the end of 2017 as being around 2 percent, and so my path for the fed funds rate is considerably lower than the central tendency of this Committee or as modeled in Tealbook A. But, for the purposes of these remarks, as I said at the beginning, I'm going to be using the same monetary policy assumption as described in Tealbook A. Under that monetary policy assumption, I see inflation returning to target, but only very gradually, in 2018.

I think it would be useful for us to spend more time in our conversations to dig into the differences in our outlooks for inflation. I thought it was great that some people were offering very specific forecasts that differed from that in Tealbook A, and I thought that was important because that presumably shapes the differences in our policy outlook as well. Digging into why we have those differences in those inflation outlooks, I think, could be very useful. For me, a key factor underlying my inflation outlook is that improvements in economic activity are anticipated to put only modest upward pressure on inflation. So the Phillips curve is relatively flat.

In my view, this flatness is broadly consistent with the recent behavior of labor markets both in the Ninth District and in the nation. In terms of the Ninth District, in some ways labor markets are very tight there, and we've heard some unemployment rates mentioned. Now let's talk about some low unemployment. The unemployment rate in the Minneapolis–St. Paul metropolitan area, which has a population of about 3 million, was 3.2 percent in October. The

unemployment rate in Fargo was 2.2 percent. It's hardly surprising, with these kinds of unemployment rates, that we hear widespread reports that firms can't find desirable workers. But, despite these labor shortages, we continue to hear relatively few reports of wage pressures.

Now, outside of the oil boom area in western North Dakota, our business contacts consistently report wage growth in 2014 of 2 to 3 percent, although the reports are often closer to the top of that range than they were a couple years ago. These are backward-looking data, obviously, so if we look forward it might be different. What was most surprising to me, I have to say, is that this general pattern holds true even in Fargo, which I had mentioned earlier has a 2.2 percent unemployment rate. Now, many of you, I'm sure, remember your North Dakota geography, but just in case you don't [laughter], Fargo is on the eastern edge of North Dakota, and it's 400 miles from the heart of the oil boom on the western side of the state. It's a big state.

So this is on the wage-pressure side, and I think one thing we should be trying to drill in at and trying to get a better understanding of is how those wage pressures translate into pricing pressures. That's the next step actually, right? Because our goals are shaped in terms of price inflation. Our business contacts generally do not see themselves as having much power to raise prices. When they talk about wage increases, they say that they will be absorbing those wage increases by reducing margins. In terms of hard evidence, the latest year-over-year CPI increase in the Twin Cities was less than 2 percent.

This basic story is also playing out in the national economy. We have seen a striking improvement in employment in 2014, and it's possible to see some signs of compensation pressures emerging in the past few quarters. But, by and large, the improvement in the labor market activity has been associated with little change in wage and price growth. I think this

recent national evidence and recent Ninth District evidence are consistent with the flat Phillips curves that underlie the Tealbook's and my sluggish inflation outlook.

Now, of course, inflation has already been below target for over 30 months, and, in my assessment, this projected long stay—something like seven to eight years below 2 percent—creates substantial risk to the credibility of our target. If I were asked, I, too, would answer as several Presidents answered before me. I do believe that our expectations remain well anchored. My core fundamental belief is that. I have faith in that. But, I think there is evidence that suggests that there is some risk to that credibility. The continued decline in market-based measures of longer-term inflation expectations over the intermeeting period suggests that the downside risk to our target may already be materializing.

As the Minneapolis staff and I stressed in the memo we sent in the intermeeting period, we think it's important not to remove these risk premiums when thinking about these market-based measures. Even if you don't buy into that story, I think that the decline has to be seen as being a signal that we're seeing a decline in longer-term inflation expectations themselves. Of course, declines in longer-term inflation expectations would spill back and create further downside risks to inflation itself.

I want to stress that this erosion of credibility scenario is still only a risk to my baseline outlook, and I wouldn't necessarily say that it's a high probability risk. The problem is that the experience in Japan and the more recent experience in Europe both suggest that it would be very hard for us to respond effectively to this risk if it were to materialize. The Japanese central bank is relying on extensive support from the fiscal authority to be able to respond effectively. I think we should not be building that into our tools about how to respond to that scenario. For that



reason it's a risk that bulks large in my policy thinking, and I'll say more about that in the next go-round, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. Like many others, I'm more confident about the strength and durability of expansion. There are several reasons for that. First, the passage of time is important. Many of the headwinds that have blunted the economy's momentum in recent years have subsided. The most obvious is on the fiscal side. I expect the fiscal impulse in 2015 to be slightly positive when one includes both the federal and state and local government sectors. Another headwind that's subsiding is credit availability. I think that's continuing to improve. Some of this presumably represents the better-capitalized banking system, but some may also be due to improved confidence by lenders in the economic outlook.

Second, in assessing consumption, I think, along with many others, the outlook is quite positive. The real income trend is strengthening, helped by lower energy prices, faster payroll growth, and higher hours worked. Interesting to me, the New York Fed's most recent Survey of Consumer Expectations, which was released last week, shows a meaningful uptick in household one-year-ahead expectations for both nominal earnings growth and nominal household income. Translate that to real, and it's an even bigger uptick.

Third, lower oil prices I view as likely to be a substantial positive for global growth. In particular, the lower headline inflation is already provoking a more-aggressive monetary policy response in Europe and Japan, and, more importantly, the drop in oil prices should lead to a shift in the global fiscal stance toward stimulus as oil exporters faced with much lower oil income run smaller surpluses and/or bigger deficits. On the other side, for some oil importers, the drop in energy prices represents a very large windfall. This is a huge transfer from oil producers to

importers. A \$40 drop in the per barrel price of oil represents a transfer of about \$1 trillion a year from oil producers to oil importers, which I think is significant.

In terms of the inflation outlook, I'm not very worried about the fact that lower oil prices are pushing down the headline inflation rate. The effect is likely to be temporary as long as it doesn't affect wage trends or inflationary expectations, and I would say those conditions are broadly satisfied at this point. With respect to survey measures of inflation expectations, it's true that the November University of Michigan survey dipped, but we saw a partial retracement of that in the December preliminary results. Moreover, I think the decline that we saw in the November Michigan survey is not really corroborated by other surveys of household inflation expectations. For example, the New York Fed survey shows expectations at both the one-year and three-year horizons as having been stable recently.

I asked my staff, "How should I reconcile the differences between the University of Michigan results and the New York Fed survey, and what should I put more weight on?" What do you think the answer was? I don't think this reflects bias [laughter] in the particular measurement. I think there's a pretty strong case to be made that the New York Fed survey is actually the superior measure. A few key points worth mentioning. The first point is that the University of Michigan inflation expectations survey is much more sensitive to oil and gasoline price developments than the New York Fed survey. This may be due to the fact that the University of Michigan survey asks about prices, which brings gasoline prices into people's minds, while the New York Fed survey asks the question in terms of inflation. The second point is when oil and gas prices drop, it's quite common that this actually feeds through to 5-to-10-year-forward inflation expectations in the University of Michigan survey. In other words, what we're seeing in terms of the University of Michigan survey right now—a big drop in oil prices

and that leading to a drop in 5-to-10-year-forward inflation expectations—is not unusual. It's actually pretty typical, and that means, I think, we should discount it more heavily. The last point is that there seems to be quite a bit more noise in the University of Michigan survey compared with the New York Fed survey in terms of measurement error. The sample for the New York Fed survey is considerably larger, and, more importantly, it's panel data. We're asking the same people the same question month after month. I think the New York Fed survey appears to be the more reliable measure.

With respect to wages, which is sort of the second parameter that might cause you to become more worried about inflation expectations, the trend doesn't seem to have changed much. In particular, there's no evidence that nominal wage growth is declining. In fact, if you look really closely at the recent ECI and average hourly earnings data, if anything, wage compensation trends may be starting to firm just a little bit. When I look at the survey-based measures of inflation expectations, when I look at nominal wage growth, both of those series suggest that we should look through the effect of the oil price decline on overall inflation. With nominal incomes rising at more than a 4 percent annual rate and the risk of recession very low, it seems that the risk of the type of debt deflation dynamic for the United States is very low right now, and that's very different than the situation in Europe and Japan, in which both inflation and nominal income growth are much lower. In fact, when I review the inflation statistics, as I raised in the question to the staff earlier, I'm a bit surprised that the core deflator has remained stuck at 1½ percent. I was actually thinking that it would decline a bit because of the decline in energy prices and the appreciation of the dollar.

Now, in many ways, although we're wringing our hands and worrying that inflation is below our target, in some ways it's actually a good thing. It does allow us to be more patient in

terms of the timing of liftoff, and it also should enable us to probe more aggressively to see how low full employment actually is as we go through the monetary policy normalization process. If inflation was running at 2.3 percent or 2.4 percent today, we'd be having a very different conversation. I think we're going to want to let the unemployment rate fall slightly below its natural rate in order to push inflation up, and that has a pretty significant benefit. That tight labor market should create pressure to rehire some of the long-term unemployed, which would be good not just for them, but good for the country because it would expand the economy's productive capacity.

Finally, in terms of risks to the outlook, I think they really seem to lie mostly overseas at this point. One risk we haven't talked about in any detail is the recent developments in Russia. The ruble has declined precipitously. That's caused the Russian central bank to raise interest rates substantially, and it's not really clear that they're in a position that's going to turn out to be sustainable. This, of course, would ripple back mostly to Europe if you think about what the near-term effects would be, through the trade channel and also through their banking system exposures. Several large European banks have significant exposure to Russian corporates on the order of 50 percent or more of their core Tier 1 capital.

I also think the developments in Russia are also concerning from a geopolitical basis. I would think that as the economic circumstances of Russia deteriorate, Vladimir Putin will have an incentive to take greater risks geopolitically to divert attention from what's an increasingly problematic domestic economy. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. The economy, particularly the labor market, has made remarkable progress in the past two years, with U-3 having declined from 7.8 percent

at the end of 2012 to 5.8 percent at present. This means that the unemployment rate is now within hailing distance of the most recent estimates of the natural rate of unemployment. Indeed, it is tangential to the range that is given by the SEP, which ends at 5.8 percent. We should celebrate this. But, as an aside, we should note that there is a tendency for estimates of the natural rate to adjust adaptively to the actual rate. It tends to come down. This is serious—it tends to come down with the actual rates. I'm not sure we'll stay at 5.8 percent as the natural rate. But, in any case, we are much closer than we were until very recently.

We are also seeing signs of faster output growth fueled mainly, I suppose, by the two forces of very low interest rates and the decline in the price of oil. We are seeing improvements in consumer sentiment and growth and investment, which seem to be picking up, aside from what may happen with regard to oil investment. Earlier speakers have expanded on the growth they are seeing in their Districts and in the data, and I agree with those who believe that the recent trends are more likely to have legs than the earlier false starts, but I will come back to that in a minute.

Well, all of this looks very good, but we have some “buts.” First, investment will be reduced by the decline in energy investment. Second, net exports will be reduced by the appreciation of the dollar. Third, net exports will be reduced by the slowdown in foreign growth. Here I take some encouragement from the fact that the staff forecasts increases in foreign growth, particularly in Europe, in the coming years, and one really hopes that is right for many reasons. I suppose someone will talk about a Greek exit from the European monetary union or a substantial prolongation of European instability and extremely low, even negative, growth. But the Tealbook does not believe that will happen, and I take some comfort from that.

Further, and here Vice Chairman Dudley and I have not spoken previously, we do not know how the volatility in the price of oil and the associated financial market instability will affect the world economy, nor do we know what the geopolitical consequences of the unfolding Russian economic crisis, which is becoming very difficult for the Russians, will be.

In short, although this feels much better, we do have to remind ourselves that two or three quarters of good data do not establish a solid trend. We have several times hoped we were heading back to 3 percent growth only to have to reduce our forecasts in light of weaker data. That is also to say that we have always to remind ourselves that our forecasts have very wide, not narrow, confidence bands around them.

Despite the headwinds I have just noted, I am, on balance, also relatively optimistic about the prospects for both the labor markets and overall growth. But there is inflation, and this has two aspects. First, there is the large impact on the inflation rate of the decline in the price of oil. The Tealbook forecasts that the PCE price index will decline in both this quarter and the next quarter. But this energy price effect will be temporary. As the Chair has said, the FOMC has looked through the higher price of oil on several previous occasions, including notably in 2008. The FOMC was right to do that then, and we will be similarly right to look through the lower price of oil now.

I expect we will all agree that this is the right approach, in particular because the extremely low inflation expected in the next year or so is the result of a positive supply shock, which is growth-inducing, rather than the result of exceptionally low demand, which is the fear behind very low inflation when you are thinking of temporary inflation. The more serious inflation problem is to be found in the Tealbook forecast for core inflation for the coming years—2014 and 2015 have core inflation of 1½ percent, which is obviously significantly below

our 2 percent target—and the Tealbook predicts that even by 2017 the core inflation rate will be 1.8 percent and not yet 2 percent.

Well, how should we think about this core inflation? I have two main reactions. The first is to point out that 1.8 percent is very close to 2 percent. Using the staff's baseline prediction for inflation, and estimating probabilities using stochastic simulations of the FRB/US model kindly supplied by the staff, the probability that inflation in 2017 will be greater than 2 percent is 40 percent, and above 1.8 percent is 48 percent. We are not talking about very different outcomes for inflation.

My second reaction is to say that while I believe the staff's views as reflected in the Tealbook forecast are plausible, there are several possible reasons to expect, nonetheless, that nominal wage growth may begin to rise more than predicted in the Tealbook as the level of unemployment continues to decline. One reason is the basic economics of supply and demand. That is, of course, taken into account in the Tealbook, because there are increases in price inflation and nominal wage growth in the Tealbook forecast. But I would add to that a lesson of experience that when one proclaims the end of a well-established relationship, more often than not, that is the moment that the relationship makes its presence known shortly thereafter. I think this may well happen again in the case of the flat Phillips curve.

Let's go back to the key question, which is, what should we do? In particular, what should we do if the labor markets continue to strengthen in the months to come, but core inflation remains around 1.5 percent? Yes, we have two choices. Some would insist that we not begin normalization until the core inflation rate reaches 2 percent. However, the consensus statement says—I had to mention it here—[laughter]—that in considering how to manage policy,

we must follow a balanced approach with respect to the dual mandate. I'll expand on that tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I join the general view that has been expressed this afternoon that the steady growth of what is almost now a year's duration is likely to continue. Like President Lacker and a few others here, I found myself looking for reasons to believe that this time, the relatively strong performance will continue, as opposed to our past pattern of a period of sustained decent growth faltering after fiscal or monetary stimulus has been removed. Several of you have mentioned some reasons to believe that. I will just note three quickly.

One, I just alluded to the fact that, this time around, when we began tapering early this year and through the end of the LSAPs, we didn't see the kind of stumbles that occurred earlier when either fiscal or monetary stimulus was withdrawn, and what had been a promising period of an uptick in growth was followed by a disappointing couple of quarters.

Two, as Jeff also noted, beyond the continued improvement in the unemployment rate and the recent strength of monthly jobs numbers, we are now seeing more structural dynamism in labor markets. Following on the increases in job openings, albeit with some lag, the quits rate has been edging up this year. It is now solidly in pre-crisis territory, which is probably notable since each of the past two recessions resulted in the quits rate never quite getting back to where it had been previously. That is some indication of an uptick in dynamism. The hires rate isn't quite there yet, but it has also improved, on net, this year.

Three, while it is hard to say where the equilibrium point for household debt is or should be, it is pretty clear that a considerable amount of deleveraging has taken place. We are now at



levels of household debt comparable with those prevailing in the early years of the past decade, before the effect of the mortgage mania had accelerated the growth of household debt. The pace of decline in the ratio of household debt to GDP has diminished considerably in the past year or so. It is not unreasonable to think that the change in the second derivative will portend some leveling off of this ratio in the not-too-distant future, an inference that is buttressed by the fact that the dollar amount of total household debt has risen modestly over the past year. I should probably add that student debt accounts for a fair bit of that increase, and serious delinquency rates of student debt have risen quite a bit, now surpassing credit card debt, which was the traditional leader in this category. This is hardly an unalloyed good.

Now, as Governor Fischer and President Lockhart have already said, and I think Jay may say it as well, it is not as though we have unqualifiedly good news. But I think that what we have seen explains and justifies the prevailing attitude today that, with continued progress for another couple of quarters, concerns about premature liftoff or the inevitable choppiness of the first rate increase will diminish enough to put a federal funds rate increase in play. On the other hand, as Governor Fischer also pointed out, there is a considerable amount of uncertainty that remains. On the upside of economic performance, it is possible that we would get unexpectedly high jobs numbers for the next few months, along with more concrete signs of accelerating wage increases. I'm sure that would lead some to want to consider an earlier liftoff.

From my perspective, there are at least two plausible scenarios that would make me, at least, more hesitant to move in the June–September timeframe that is represented by many of the dots of voters in this SEP. One, which has already been mentioned by several people, is the external downside risk from global markets. It is certainly reasonable to expect, as the Tealbook does, that the euro zone will improve slightly next year, and that some form of QE there will help

stave off any deflationary or recession threat. But the euro zone does lack much capacity to absorb any further shocks, whether from renewed sovereign debt problems or geopolitical turmoil or other sources. Were things to go awry in the euro zone and China's growth to slow more than the current consensus suggests, financial markets, and market psychology more generally, might pose risks to the United States. I know that most models suggest a limited vulnerability to external developments of this sort, but my memory, at least, of past episodes suggests that the models may be missing something, particularly in the absence of either fiscal or monetary stimulus in the United States. I think Governor Brainard, fortunately, probably has a better perspective on this than I.

The other scenario is the one that concerns me perhaps more, and that's anticipating that jobs numbers and other indicators, including unemployment, may suggest, by the first part of next year, continued moderate strengthening of labor markets, but that there also would be evidence of labor participation increasing, part-time employment diminishing, and still no real signs of wage acceleration, much less upward pressure on inflation. The question would be what to do in those circumstances. This returns me to a theme that I've sounded, probably *ad nauseum*, over the past year or two here, which is that with all of the uncertainties in labor markets, we all have to admit that we have been surprised about something that has happened in labor markets over the past couple of years, and we are well advised to be pretty pragmatic and pretty data sensitive in thinking about and assessing what is actually going on in labor markets.

There are some labor economists who are already beginning to do some work on what they find to be the changes in life-cycle labor market behavior that could conceivably be second only to the broad entry into the labor market of women over a three-decade period in changing the shape of labor market behavior. We don't know whether that is actually occurring yet, but

we do know that a lot of things that have happened in labor markets—participation rates and other things—haven't conformed to what might have been expected based on pre-crisis behavior. This may be another area in which the crisis and the Great Recession have accelerated trends that were previously a little harder to detect.

When we look at wages and the anticipation of wage increases, even though the NFIB is now predicting more wage increases being paid by its members—we should probably note that they have been predicting that for two years now, and we haven't yet seen it realized. As I think Presidents Kocherlakota and Rosengren have both pointed out, in some discrete analyses that their staffs did, there is some reason to believe that the performance of labor markets and wage markets in the past is not necessarily a great predictor of where we are right now. Then Governor Fischer alluded to the Phillips-curve issue, and that the slope may indeed change or revert to where it has been. But for a while now, the Phillips curve has been pretty flat, and we can't predict with any certainty that it will normalize, understanding that “normal” may vary from time to time.

Again, this all leads me to the anticipation that if we face this set of circumstances in the spring or the early summer, I think it behooves us to think carefully about whether we would be prepared to lift off, notwithstanding the fact that there will have been continued economic growth in that period. I don't know that that's where we'll be. I actually think it's not so likely that we will have six more months of really solid job numbers and not see some changes in wage patterns and part-time unemployment, but we might, and I think we should just remain open to that.

What we've been doing in the past couple of meetings, I think, is trying to begin weaning the markets gradually off what has been something like calendar-based guidance and more

toward a focus on conditions as we see them evolving in the nearer term. I just want us to make sure that we don't replace a calendar approach for holding off rate increases with a calendar approach for starting them and instead really stick to what we all tend to mouth as the mantra—that we want to be reacting to conditions, be state contingent, be conditional, whatever one's favorite phrase is—and that, I continue to think, will probably serve us best over the next couple of quarters. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. My forecast is very close to that of the December Tealbook and, for that matter, the September Tealbook. I see continued growth in the region of 2½ percent. Consumer spending ought to be strong, supported by much lower energy prices, higher levels of confidence, continued low interest rates, and higher stock prices. Businesses should respond by hiring and investing. In the labor market I see continued improvement across a broad range of measures, including strong payroll growth at well over 200,000 per month, a flattening out of labor force participation at roughly current levels for a couple of years at least, and the elimination of remaining slack. Wages ought to react positively. In fact, we may already be seeing the beginning of that, and I see inflation moving back up to the 2 percent objective as slack is eliminated.

The one place where I differ very modestly from the baseline is in the pace of rate increases. In particular, it seems to me that if we are broadly on the baseline path, we would be raising rates more than 25 basis points per quarter in 2016, and that's what the baseline shows. I would think we would be moving along a little more rapidly than that, but it's not a huge difference.

Also, I would say I take some positive signal from the Reserve Bank inquiries of District business contacts. It's nice to see measures like that coming up all over the place that tend to suggest that the time for wage increases and greater hiring is coming soon.

I find this narrative, which is broadly that of the Tealbook and the central tendency of the SEP, both fairly plausible and fairly positive. In fact, I would go so far as to say there's real upside. I don't think anyone should fall over dead with surprise if the alternative view on pages 6 and 7 of Tealbook A, materializes since all it does is represent a straight-lining, in effect, of 2014. That said, in the spirit of poking holes in this consensus and perhaps the spirit of cautious contrarianism, I think Dennis said, I'm going to mention three gaps or disconnects and also one emerging risk scenario that I think could threaten the narrative. And I have to admit, I can't dismiss them from my mind, and we've talked about these in one form or another.

The first is the gap between the relatively strong performance here in the United States and the weakness we see in Europe and elsewhere around the world, the threat being that we will feel this weakness over time, perhaps through the stronger dollar or through the risk-off channel if the bad events do happen. I see this as the principal threat to the baseline narrative. The alternative scenario in Tealbook A, titled "Weaker Foreign Growth and Stronger Dollar," captures that pretty well.

The second gap is one we spent some time on today, and that is the gap between survey measures of inflation expectations, which are stable, and market-based inflation compensation based on TIPS and inflation swaps, which show meaningful declines at the distant horizon. I thought that the paper that Yuriy Kitsul shared before the meeting was quite useful, showing that inflation compensation between 5 and 10 years out has declined by 72 basis points so far this year—it's actually more than that now, this is a week-old paper. And different models propose

different decompositions of this change, as we've discussed. The Board model happens to assign the smallest amount to actual expectations of lower inflation and to inflation risk premiums and the largest amount to liquidity premiums, which is really meant to capture the greater attraction of nominals due to their higher liquidity as well as other factors related to supply and demand. Other models tend to agree that there's relatively little to be seen in actual changes in inflation expectations but assign greater increases to the inflation risk premium. Inflation swaps send a similar signal. I look at all of these, and my instinct is to dismiss them and want to go with the survey-based measures, but I have to admit they raise concerns. It's very difficult to convince oneself that there isn't something here to at least be concerned about, and it will bear close monitoring.

The third gap I will mention is that between the median rate forecast in the SEP and the baseline, on the one hand, and the forecast reflected in market readings, on the other hand—and that gap is now quite large. At the short end, OIS quotes show a rate of about 1½ percent at year-end 2016 compared with about 2½ percent in the SEP. Some of that may reflect a difference between the Committee's modal outlook and the risk-neutral pricing of OIS, but not all of it. At the longer end, if you drop the SEP forecast and pretend it's a 10-year bond, you get a yield to maturity of about 3 percent, but the yield this morning was about 2.07 percent, and the difference is that the Treasury market is pricing in a much lower path of rates. The one-year-forward rate in five years is 2.7 percent, fully 100 basis points below the Committee's long-run equilibrium.

Why is the market pricing in lower yields than the Committee? Board models attribute about half of that to term premiums and only small amounts to real short rates and expected inflation. I guess there are two narratives. One may be that the market is concerned about the

possibility of weaker growth and lower expected inflation. Another explanation is that, given the sharp differences in economic performance and expectations for policy, global fixed income investors would rather own dollar-denominated risk-free instruments at the 10-year tenor yielding 2 percent rather than other alternatives like comparable euro-denominated instruments that yield 0.6 percent or even lower-yielding Japanese ones.

The recent data tend to support this story. My own sense is that the Treasury market is, in fact, pricing in lower oil prices and stronger foreign demand for Treasuries as opposed to concerns about slower U.S. growth or lower inflation. But there is likely some truth in both these explanations. Again, I find it hard to dismiss that.

Separately, I would add another risk scenario, which is certainly not an odds-on thing at this point, but I think there may be a heightened risk of an emerging markets selloff or even a rout driven by declining oil prices, a stronger dollar, and evolving events in Russia. The sensitivity of investors to these developments may be tested by the likely acknowledgement in tomorrow's statement that the time for increases in U.S. interest rates may be drawing near.

In any case, these three gaps will be adjusted or eliminated over time. I'm not suggesting that that process needs to be destabilizing or destructive, but I do think that they point to risks of weaker growth and lower inflation, and perhaps I'm just constitutionally more focused on avoiding downside risks, or it may be that the risks to the downside actually are greater and represent more difficult challenges for policy than the upside risks—for example, the risk that we might get several more payroll reports well in the 300,000 level. I'll have more to say on that tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Since we last met, we've had two strong payroll reports, and American consumers are demonstrating more confidence both in their actions and in their expectations, bolstered, in part, by significantly lower prices at the pump. These are very welcome developments. But we also see the increasingly resilient growth in the United States taking place against a backdrop of considerable risks to the outlook in several important foreign economies, and the dollar has continued its sharp appreciation. In addition, progress in moving inflation back up toward our target has been quite limited, even looking through the recent sharp drop in oil prices. On balance, then, I would say that conditions continue to validate our strategy of ending asset purchases in October—this time for real, or so we hope—while remaining somewhat patient on the removal of monetary accommodation, even as we see the day of liftoff coming, I think, into clearer view.

The news from the labor market has been unambiguously positive. The unemployment rate has moved down further. Payroll employment is now averaging above 280,000 per month. And whereas previously nearly all of the take-up in slack was seen only in the overall unemployment rate, now we're seeing other margins of slack also showing improvement. The participation rate has been about flat since the spring, which is encouraging, given that we think there is an underlying trend of decline, and it suggests some cyclical improvement. The number of employees working part time for economic reasons has moved noticeably lower in the past three months after remaining stubbornly high, and it's also notable that most of the reduction in unemployment over the past year has been accounted for by a welcome and overdue reduction in long-term unemployment.

But, of course, while we see evidence that labor market slack is diminishing across a number of dimensions, we don't actually have very good measurements of how much slack



remains. Moreover, we see no clear evidence of a broad-based acceleration in wages. We hear a lot of anecdotes. There are some regional and skill-specific pressures, but all three of the measures that we traditionally look at on the aggregate measure of wages show increases from a year ago that are still mired in the 2 to 2¼ percent range, well below increases prior to the crisis and little different from the pace in recent years.

The incoming data on aggregate spending, I think, reinforce the picture of solid underlying growth momentum in the domestic economy. The data on consumer spending received after publication of the Tealbook suggest that second-half GDP is increasing at above a 3 percent pace, which is very welcome. The continued low rates and the recent sharp declines in oil prices should continue to boost consumer spending into the next year, while also, on balance, providing a plus to business investment and output. It's also significant that potential disruptions to the fiscal-policy trajectory, which have damaged incipient recoveries previously, have been taken off the table, which removes a significant source of risk.

One note of weakness, I think, on the domestic aggregate demand front is familiar. We still see weakness in single-family housing, and the data that we saw this morning has single-family permits, the best gauge of activity in this sector, changing little again.

Now, on the risk side, I think the inflation picture bears continued vigilance. Even looking through the recent sharp declines in oil prices on the assumption they will stabilize and pass through to retail prices over the next two quarters, the level of inflation that might be expected to prevail seems to be centered around 1½ percent, below our target. Although there are good reasons to expect inflation to move up toward the target as slack is eliminated, we haven't seen any sustained movement in that direction thus far. Taken together with the recent shift down in market-based indications of inflation expectations, this points to some downside

risks in the inflation outlook, especially given the backdrop of falling commodity prices and disinflationary pressures abroad. We also are seeing some financial risks from the big adjustments recently in the price of oil, and they bear watching, I think.

It's also important to recognize possible risks from a further deterioration in economic conditions abroad. The intermeeting period saw further evidence of stagnation or weakening in economic activity in some of the largest foreign economies, further monetary accommodation or expectations of future easing in response, and a further notable increase in the dollar. Realized and expected changes in foreign monetary policy arise in the context of continued underperformance in key foreign economies struggling with deflationary pressures, compounded in some cases by an unwillingness or inability to engage in meaningful fiscal support to domestic demand and ongoing and unresolved structural challenges. Recent events in Greece remind us that although there has been notable progress, threats to financial stability in the euro area remain.

Although the United States obviously has a very large and diversified internal market, this doesn't imply that we are in any way a closed economy or immune from foreign shocks. Connections between the United States and foreign markets are still extremely large in both directions, and recent experience tells us that financial market disturbances abroad can have very large effects on U.S. asset prices and on financial markets more generally.

Due to the lag in the dollar's effects on trade, net exports will likely continue to subtract from GDP growth over the medium term. Moreover, I suspect that increases in the value of the dollar have not yet run their course. Staff memos have noted that, on net, the effect of dollar appreciation on U.S. GDP growth can be expected to be relatively modest, but this net effect conceals two important and significant gross effects, an initial and substantial depressing effect

of dollar increases on net exports and a subsequent, partially offsetting positive effect from a more-accommodative monetary policy. If a strengthening dollar does weigh heavily on net exports, all else being equal, we will need to adjust the pace of normalization in response.

The good news is that the U.S. economy and financial system have become more resilient over the past two years, and internal sources of demand seem sufficiently strong, particularly with the boost from low gas prices, to continue growth momentum in the face of headwinds from abroad. But I would not lightly dismiss risks that those headwinds could intensify.

Overall, when considering appropriate policy, I would place robust domestic demand growth in the context of a global environment of weak foreign aggregate demand and large persistent disinflationary pressures. Such an environment, in my view, suggests that downside risks to U.S. growth remain, and, coupled with persistently weak core inflation below our target and some deterioration in measures of inflation expectations, it warrants a still cautious approach to policy normalization. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. Let me thank everyone for a very thoughtful round of observations on the economic outlook. I think this has been an unusually rich discussion. I'm not going to be able to do it justice. I have a couple of comments of my own, but before I share those, I'll try as I usually do to summarize the main themes in your economic remarks, taking note particularly of how they bear on your assessment of progress we have seen toward closing the employment and inflation gaps and the question of whether incoming evidence suggests some meaningful change in the likely pace of future progress.

Starting with the labor market, I think everybody agreed that conditions have continued to improve, and the degree of underutilization of labor resources is diminishing. Several of you noted that the employment reports we received since our October meeting suggest faster progress

than you had expected. Up until last spring, payroll gains were averaging around 200,000 per month. By April, that three-month moving average had ramped up to around 240,000, and now the three-month average is running at almost 280,000. Even if the pace of job gains were to step down in line with the Tealbook projection, employment growth would still be on solid footing. The unemployment rate declined only 0.1 percentage point over the past two months, but labor force participation is up 0.1 percentage point and the employment-to-population ratio is up 0.2 percentage point since our October meeting. The share of the labor force working part time for economic reasons remains quite high, but it, too, has continued to edge down. It has declined 0.1 percentage point per month for the past four months.

A number of you pointed out that the JOLTS data also paint a more encouraging picture of the labor market. Job openings have flattened out at a pace slightly above their pre-recession level after rising strongly earlier in the year, and hires and quits have both moved up over the past two months and are now close to pre-recession levels. There continue to be reports, of course, of wage pressures in specific geographic areas and sectors. Now we're even seeing signs here and there of a possible incipient pickup in wage growth in aggregate data. For example, there was a bump up in average hourly earnings in November, and the ECI measures of compensation and wage and salary growth have also been rising more rapidly than earlier in the year.

But in terms of longer-term trends, wage gains still look pretty tepid. On a 12-month basis, average hourly earnings have barely edged above 2 percent, and, over the past year, the wages and salaries component of the ECI has risen by a similarly modest amount. President Rosengren noted work that his staff is doing as well, looking at the wages earned by new hires and the fact that that measure doesn't yet show any meaningful pickup in wages. We continue to

discuss our diverse views on whether U-3 is an adequate summary statistic of where the labor market is. Although different views bear on how we see the inflation risks for the future and our possible stance on policy, I think everyone around the table agrees that the labor market has improved, and it looks likely to continue to do so.

Of course, the outlook for the labor market depends on economic growth, and I heard most of you express reasonable confidence that, even with the downside risks we're seeing for the global growth outlook, that you expect growth to be at least adequate to sustain continued improvement in the labor market over coming months. A number of you noted that despite slightly softer growth abroad in the third quarter, U.S. growth looks like it's running near 3½ percent in the second half of the year, and that's above our expectations at the time of the October meeting.

Looking at your SEP submissions and some of your comments, the growth outlook beyond this year hasn't actually changed much since September, but most of you are anticipating above-trend growth. We've been disappointed before, and President Lockhart and others remind us that we should be careful not to become overconfident, but I did hear a good deal of upbeat sentiment around the table that you think the economy really is exhibiting greater momentum. You feel increased confidence that next year will be a year in which we do see a faster pace of growth, and that the expansion seems to be on track.

The continued decline in oil prices since our October meeting is one of the most notable economic developments shaping the outlook. Many of you noted that the spending stimulus due to lower energy prices does provide an offset to the restraint from the stronger dollar, and consumers, especially low-income consumers, should benefit from the decline in energy prices. We had an interesting discussion about the likely impact of lower energy prices on North

American drilling activity and capital spending, and that's something that will bear close watching. But I think all of you agreed that, on balance, the net effect of the decline in oil prices for U.S. GDP growth is positive—at least of the magnitude of decline we've seen so far. However, some of you noted the effect that the decline in oil prices will have on the global economy. Even though one can make the case that the net effect is positive, there really are very different regional effects, taking account of the possibility in Europe of pushing inflation expectations down and financial market effects. This is something that's going to bear close watching and is a risk.

With respect to the U.S. outlook, a number of you also pointed to increased consumer confidence and expressed your belief that a good dynamic, a kind of self-reinforcing multiplier-accelerator type of positive dynamic, may finally be coming into play.

Turning to inflation, incoming data during the intermeeting period have been mixed. Tealbook revised up its estimate of core PCE inflation in the current quarter after seeing October's data. Tomorrow morning we'll look at the CPI release and see if that's consistent with this assessment. On the other hand, though, the drag from declining energy prices on headline inflation now looks like it will be larger than previously projected, with the 12-month rate likely to drop below 1 percent early next year. Moreover, several of you pointed to downward pressure on inflation from dollar appreciation, which likely will lower non-energy commodity and imported goods prices.

On the question of whether lower energy prices and the higher dollar will leave an imprint on inflation beyond the next couple of quarters, I heard mixed views. A number of you expressed confidence in your projection that inflation will likely move back to 2 percent over time in an environment of continued improvement in the labor market. A number of you pointed

out that, with respect to inflation expectations, survey-based measures have remained stable and suggest that long-run inflation expectations are well anchored. And we've had a very rich discussion that I'm not even going to try to summarize regarding how to interpret the decline we've seen in five-year, five-year-forward breakevens that have continued to decline further since our October meeting. The staff's financial Board briefing yesterday pointed out that there are an awful lot of different ways to break this down into inflation expectations, inflation risk premiums, and liquidity effects, and the breakdown that one gets is actually highly model sensitive. I think this is something, obviously, to which we're going to be paying close attention as we go forward.

All in all, while most of you see the drop in headline inflation as largely transitory and continue to expect that it will move gradually back toward 2 percent, some of you are concerned that we may be seeing the beginning of a worrisome downward adjustment in inflation expectations. If inflation expectations were to shift down markedly, this would create downside risks to inflation itself, and a failure on our part to take decisive action could exacerbate this risk by diminishing the credibility of our commitment to our 2 percent inflation objective. Clearly, inflation developments will bear close watching.

Let me stop there and see if anyone would like to comment on this summary. [No response] Okay. Then let me just add a few brief comments of my own. First, I want to join with the others who described incoming news pertaining to the labor market as encouraging. My own reaction to incoming data, including the two employment reports, is that we are seeing a pattern of across-the-board improvement in labor market conditions. Virtually every indicator I monitor shows movement in the right direction. For example, I consider the quits rate a very useful cyclical indicator, and I'm encouraged by the increase we have seen in the past couple of

reports. A substantial share of quits results from job offers that employed workers receive and accept, and an increase in the prevalence of such offers points to the possibility of more-rapid wage increases and, I think, suggests real improvement in the labor market.

To the extent that there are also people who quit into unemployment, an increase in these flows suggests that workers have become less wary about leaving one job without having lined up the next. I'm similarly encouraged by the more favorable assessments of the labor market we're seeing in household surveys. If you will forgive me for returning yet again to my cross-country road trip analogy [laughter], whereas in October my assessment was that we were just pulling into Cleveland, by now I think we've left President Mester's office. We're in the process of crossing the Allegheny Mountains. There remains some way to go to the Weehawkin end of the Lincoln Tunnel, but I'm feeling a lot more hopeful now that we'll make it all the way to Manhattan without hitting any major delay.

Let me turn to inflation. Due to the recent momentum we have seen in the labor market, coupled with the downward pressure we are seeing on inflation, it now seems likely that the economy will return to maximum employment before inflation is returned to our 2 percent objective. Assuming that the labor market continues to improve, a key policy question for us will be how inflation developments should bear on our decision concerning the timing of liftoff.

We included a new question in the SEP to help gain some insight into your thinking on this topic, and I appreciate your willingness to provide more detailed information concerning your views both on the appropriate timing of liftoff and the economic conditions you expect to prevail at that time. It appears from your responses that most of you anticipate that liftoff will become appropriate during the first three quarters of next year. Many of you report that you expect core inflation will be running about 1½ percent or just a tad higher, while headline



inflation will be running under or only slightly above 1 percent. At the point that you see liftoff as appropriate, it therefore appears that most of you do not expect to have discernable evidence in hand that would confirm that inflation is actually moving back up to 2 percent.

Let me say that, like most of you, I also anticipate liftoff under conditions like these, but for me to support a decision to lift off with core inflation in the neighborhood of 1½ percent and headline inflation significantly lower, I will need to feel reasonably confident that inflation will actually begin moving back up to 2 percent over the next couple of years. To make such a forecast, I will be relying on theory, consistent with historical evidence, that with well-anchored inflation expectations, inflation will move up as the output gap shrinks and commodity prices stabilize. Incoming evidence confirming that inflation expectations remain well anchored, that energy and commodity prices are stabilizing, and that resource slack will continue to erode, possibly even with some small overshoot in the labor market, would bolster my confidence that inflation will, in fact, head back toward our 2 percent longer-run objective, in line with my SEP submission.

I admit this is a forecast-based approach to tightening, but I'm comfortable with this approach because, given the lags in monetary policy, I think we have to base our decisions on where we think inflation and real activity are heading and not where they are. That said, if unfolding developments were to materially diminish my confidence in this inflation outlook, then I probably would want to be more cautious about removing accommodation. In this regard, there are a few things I will be watching closely. One is wage developments. For example, as several of you mentioned, we may be seeing some tentative signs—and I'd underline "tentative"—that nominal wage growth may be stepping up. Even though I recognize that the link between nominal wage growth and consumer price inflation is pretty weak, if a sustained

step-up in nominal wage growth were to emerge, this would suggest that we're moving closer to our full employment objective, and it would enhance my confidence that PCE inflation would move back to 2 percent. Conversely, if nominal wage growth fails to step up at all while core PCE inflation was, for example, to move yet lower, I would be more cautious about lifting off.

Similarly, for now I consider the jury to be out on whether recent movements in TIPS breakevens reflect some broad-based reduction in confidence in our willingness and ability to achieve our 2 percent inflation objective or whether they instead reflect the transitory influence of recent oil price declines and possibly financial market spillovers from European inflation developments. But should we see further declines in measures of inflation expectations after oil prices have leveled off, this, too, would give me pause.

With respect to the decline in inflation compensation and financial market developments more generally, I would note that a possible interpretation both of the move down in inflation compensation and also the sizable gap between our SEP paths for the federal funds rate and the path implied by market prices is that market participants believe that the equilibrium real interest rate has declined. Such a decline would imply a higher likelihood of periods when nominal rates will be at the zero lower bound and inflation will be below target. If inflation is expected to be near 2 percent during normal times but below 2 percent during zero-lower-bound periods and the odds of zero-lower-bound episodes are increased, we would expect to see inflation compensation drift down. I think this interpretation is perhaps in line with President Kocherlakota's memo to us on this topic. In this regard, I found the Tealbook analysis pertaining to the cost of insurance against inflation outcomes quite interesting. It suggests that the cost of insuring against high inflation outcomes has moved down while the cost of insuring against low inflation outcomes has moved up, consistent with the decline in the equilibrium real rate.

In summary, I don't think there's a simple clear-cut answer to the question of whether inflation near current levels would or would not be consistent with liftoff being appropriate. For me, the answer will depend on both the outlook for inflation at the time and our confidence in the projection. I think the current language in paragraph 3 of alternative B is, therefore, appropriately open ended on this question.

Let me stop there. I think before dinner it would be good if we could ask Bill to provide his briefing on the policy round, and then we'll resume with that tomorrow morning.

MR. ENGLISH.<sup>5</sup> Thank you, Madam Chair. I will be referring to the exhibits labeled "Material for Briefing on Monetary Policy Alternatives." We made small changes to the final sentence of the first paragraph of all three alternatives that are shown in blue to take account of the rebound in the Michigan survey measure of longer-run inflation expectations that we received on Friday.

The top two panels on the first page of the handout provide information on labor market conditions and inflation. As shown in line 1 of the panel to the left, the overall unemployment rate has edged down in recent months, while the broader U-6 measure, line 2, has moved down more noticeably. Gains in payroll employment, line 3, have picked up of late. Your SEP submissions for the unemployment rate suggest that you anticipate underutilization of labor resources to continue to diminish over coming quarters.

As shown in the table to the right, you generally see the recent drop in energy prices holding total PCE inflation somewhat below the core rate in 2015, but, by 2016, the central tendency of your projections for total PCE inflation moves back in line with the core rate.

The middle-left panel plots your projections of unemployment rate gaps and four-quarter inflation at the time of liftoff. Like Beth, I am showing core rather than headline inflation in order to abstract from the temporary effects of changes in energy prices. Most of you expect the actual unemployment rate to be within three-tenths of a percentage point of your estimate of its longer-run normal level and the four-quarter change in core PCE prices to be between 1.5 and 1.7 percent. By these two metrics, at least, you appear to have a reasonable consensus on the economic conditions you anticipate at the time that the first increase in the federal funds rate becomes appropriate. That said, your expectations for the calendar date of liftoff span the period from 2015:Q1 to 2016:Q4.

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

As shown by the lines in the middle-right panel, the median path for the federal funds rate from the dealer survey has changed little since the time of the September meeting. By contrast, the median federal funds rate in the SEP, indicated by the dots, has moved down somewhat.

The bottom panel highlights a number of considerations relevant for updating the forward guidance regarding liftoff. First, the responses from the Desk's survey assign roughly even odds to a change in the forward guidance at this meeting but also attach a significant probability to a change in March. Many respondents expect the "considerable time" language to be replaced with more data-dependent language or with less calendar-specific language, such as "patient." Second, concerning how the statement may evolve over time and along different paths for the economy, the new statement in alternative B that indicates that the Committee "can be patient in beginning to normalize the stance of monetary policy" could be retained until the meeting at which the Committee judges that liftoff is drawing close. Third, alternative B is consistent with the October statement, although the anchoring of "considerable time" to the end of purchases in October may come as a surprise to some investors. Finally, at the end of 2016, you generally see the inflation rate near 2 percent and the unemployment rate near your assessments of its longer-run normal level, while most of you have the federal funds rate still noticeably below its longer-run value. These projections continue to support the post-liftoff forward guidance included in recent statements.

Turning to the alternatives for this meeting, you may view recent economic developments and the outlook as broadly in line with your earlier expectations. If so, you may view the updates to the language in alternative B, on page 6, as appropriate. In light of the recent strong employment gains and improvement in the broad measures of labor utilization, paragraph 1 offers a positive assessment of the labor market, saying that conditions have "improved somewhat further," with the option of dropping "somewhat," and then indicating that "underutilization of labor resources continues to diminish." Alternative B continues to state that inflation is running "below the Committee's longer-run objective" but notes that this partly reflects "declines in energy prices." It acknowledges that market-based measures of longer-term inflation compensation have declined "somewhat further" but states that survey-based measures "have remained stable."

Consistent with your SEP submissions, paragraph 2 of alternative B continues to report that the Committee expects "economic activity will expand at a moderate pace, with labor market indicators moving toward levels the Committee judges consistent with its dual mandate," and "sees the risks to the outlook for economic activity and the labor market as nearly balanced." The language on the outlook for inflation is revised to more clearly state—along the lines of your SEP submissions—that inflation is expected "to rise gradually toward 2 percent as the labor market improves further and the transitory effects of lower energy prices and other factors dissipate." However, it adds a note of caution that "the Committee continues to monitor inflation developments closely."

With regard to the forward guidance in paragraph 3, alternative B provides new language stating that “based on its current assessment, the Committee judges that it can be patient in beginning to normalize the stance of monetary policy.” In order to indicate that the Committee is not signaling a change in its policy intentions, the new language is accompanied by a sentence indicating that the new guidance is consistent with the “previous statement that it will likely be appropriate to maintain the 0 to ¼ percent target range for the federal funds rate for a considerable time following the end of [the] asset purchase program in October.” Finally, the post-liftoff guidance in paragraph 5 of alternative B is unchanged.

The changes to the statement language in alternative B may not surprise many market participants. However, the sentence confirming the consistency of the new and old language concerning liftoff, by tying the “considerable time” to the end of the purchase program in October, may cause expectations for the timing of liftoff to become more concentrated in the second quarter of 2015. Of course, investors’ responses to the statement are difficult to predict with confidence and will depend importantly on the release of information from the December Summary of Economic Projections and also on the postmeeting press conference.

Alternative C, page 8, presents a more positive and confident assessment of the recent economic developments and the outlook. Most important, paragraph 2 states that the Committee “sees sufficient underlying strength in the broader economy to support attainment of its employment objective” and indicates that the risks to inflation, as well as to economic activity and the labor market, are “nearly balanced.” It does not refer to monitoring inflation developments closely.

Alternative C offers two options for replacing the “considerable time” language: The first, paragraph C.3, simply states that the Committee anticipates retaining the current target range for the federal funds rate for “some time.” The second, paragraph C.3’, would say that “economic conditions will soon warrant an increase in the target range for the federal funds rate.” Paragraph C.4 would modify the current post-liftoff guidance by indicating that a target federal funds rate below longer-run normal levels may be warranted “as employment and inflation approach mandate-consistent levels” rather than after that time.

Finally, alternative C includes a shorter discussion of reinvestment than the other two alternatives, and the reference is moved to the end of the statement, reducing the emphasis on that policy decision.

A statement like that in alternative C, particularly the guidance in C.3’ signaling imminent liftoff and the revision to C.4 weakening the post-liftoff guidance, would surprise market participants. Medium- and longer-term interest rates would likely rise, inflation compensation and equity prices fall, and the dollar appreciate.

Alternative A, on page 4, expresses somewhat less confidence about recent developments and the economic outlook. Paragraph 1 doesn’t note the recent

stronger labor market data, and paragraph 2 indicates that the Committee continues to closely monitor both inflation and inflation expectations.

Alternative A offers two options for forward guidance: Paragraph A.3 retains the “considerable time” phrase but without anchoring that phrase to the end of asset purchases. As a second option, paragraph A.3’ states that the Committee will be patient—perhaps “highly” patient—in beginning to normalize the stance of policy “in order to ensure that inflation returns to the 2 percent objective at an appropriately rapid pace.” It includes the possibility of indicating that the Committee intends “to reverse recent declines in longer-term inflation expectations.”

A statement like that in alternative A would likely cause market participants to push further into the future their expectation for the timing of the first increase in the target range for the federal funds rate and might flatten the expected subsequent path of policy firming. Accordingly, medium- and longer-term real interest rates would probably decline, inflation compensation and equity prices might rise, and the dollar could depreciate.

A draft directive for all three alternatives is shown on page 11 of your handout. Thank you. That completes my prepared remarks. I realize I’m the last thing standing between you and your reception, but I’d be happy to take your questions.

CHAIR YELLEN. President Fisher.

MR. FISHER. Actually, I’m the last person between you and the reception. [Laughter] Bill, you said that alternative B is consistent with our old guidance, although the anchoring could surprise some investors. Then you mentioned that the anchoring is dating the term “considerable time” from October, and you said that including it may cause markets to be more concentrated on the second quarter.

MR. ENGLISH. Yes.

MR. FISHER. I guess my question is, if we just said what we have in red here, “based on its current assessment, the Committee judges that it can be patient in beginning to normalize the stance of monetary policy,” and left out the reference to October, then said “especially if projected inflation continues to run below the Committee’s 2 percent longer-run goal,” so you took out that small section, which you’ve highlighted, would that lead the market to rule out that we wouldn’t be flexible in deciding to move in the second quarter or later?

MR. ENGLISH. I'm not sure. I mean, we thought it was helpful to have the sentence saying that the Committee is not intending this to be a change in its forward guidance. I think the question is, what did people understand the forward guidance to be in October? I think that some in the markets think that that was basically "considerable time," and they're expecting a repetition of "considerable time." So by saying "considerable time following the end of its purchase program in October," you're pulling a little closer in time the point at which it may be appropriate to raise rates. I think that's consistent with the new "patient" wording, which I think means something like "not the next couple of meetings," but it's not pushing all the way out maybe six months or so, which I think is what market participants read the "considerable time" as meaning.

MR. FISHER. Thank you.

CHAIR YELLEN. Further questions for Bill? [No response] All right. See you tomorrow at 9:00 a.m.

[Meeting recessed]

**December 17 Session**

CHAIR YELLEN. Okay. Good morning, everybody. I'd like to start by asking David Wilcox to update us on the CPI read this morning.

MR. WILCOX.<sup>6</sup> Thank you, Madam Chair. This morning's release was a little weaker than we had been looking for. Our forecast for energy prices was close to what was published, with about a 3¾ percent decline in energy prices in November. And, with food, we were pretty close as well. For core CPI, we had been looking for an increase of 0.2 and got 0.1 percent.

Now, we have done a preliminary translation of the CPI prices into PCE terms, and there we think we're going to be down a little more than 0.1 percent from our expectation in the Tealbook that we published last week. A preliminary look at how that'll play out for the quarterly arithmetic is that, for core PCE inflation at an annual rate, we had been expecting 1.6 percent in Q4, and we think that today's release will take us down to about 1.3 percent. So we'll be down about 0.3 on the quarter.

For quarterly arithmetic reasons, our projection for Q1 would come down a couple of tenths, from 1.5 percent to about 1.3 percent. So, a revised projection, as of this morning, is that we'd have two quarters of core inflation at 1.3 percent on the PCE basis.

For top line, we had been looking for a Q4 figure of minus 0.1 in the Tealbook, and we think that'll be down to about minus 0.3 or minus 0.4 in Q4. And for top-line PCE inflation in Q1, we'd been looking for a decline in the Tealbook of minus 0.6. We think that'll be down to about minus 0.7—so just one-tenth of 1 percentage point erosion in Q1.

Those are pretty preliminary figures, as you can imagine. Heartbeats were going quickly upstairs to get even this much produced.

CHAIR YELLEN. Any questions? Governor Fischer.

MR. FISCHER. David, the thing that made a big impression on me was the two quarters of negative PCE inflation in the forecast. Does that still remain?

MR. WILCOX. Yes.

MR. FISCHER. And does it extend any further?

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<sup>6</sup> The materials used by Mr. Wilcox are appended to this transcript (appendix 6).



MR. WILCOX. No. As we mentioned, those are predominantly reflecting the steep decline in energy prices in the fourth and first quarters. Those energy price declines are pretty amazing at this point. They are now at something like minus 27 percent at an annual rate in Q4 and somewhere in the range of minus 35 to minus 40 percent at an annual rate in Q1. So that's what's generating the negative top-line PCE figures for Q4 and Q1 in our projection.

MR. FISCHER. It's minus 27 percent times what? What's the weight in the index?

MR. WILCOX. Let's see whether I have weights here. In the CPI, the energy index gets a weight of about 10 percent or so, and, in the PCE, it gets a weight of 5½ percent.

MR. FISCHER. I guess there's no one around old enough to remember what happened in 1986, when oil prices reached \$6 a barrel, at which rate they collapsed.

MR. FISHER. I remember that.

MR. FISCHER. Oh, yes—you would.

MR. EVANS. I'll have to remember.

MR. TARULLO. I was a toddler. [Laughter]

VICE CHAIRMAN DUDLEY. Not that long ago.

MR. FISHER. We also had the run-up, though, as you remember—because Bob Hormats and I used to front the U.S.-Saudi oil commission starting in the Carter Administration—and that was a reaction to the run-up in oil prices. They overshot on the upside and came dramatically down. I don't remember how we handled it from a monetary policy standpoint. On that, I would defer to the Chair. The point is that this is not unprecedented, and this isn't as radical a price movement as we saw back then.

MR. FISCHER. Well, I think I've said it before in this forum—that many Russian economists attribute the collapse of the Soviet Union to that price and not to the difficulty of running the system.

MR. FISHER. Exactly. It certainly helped.

MR. FISCHER. Yes. So maybe we're having a second round.

MR. LACKER. A second collapse.

CHAIR YELLEN. Are there any further questions for David? [No response] If not, then let me just start off this morning. First of all, I want to thank you for the comments and suggestions you've provided on our draft policy statements in the run-up to this meeting. As has been evident from our ongoing interactions, we have a range of views on how our forward guidance should be cast, and I appreciate everyone's willingness to work together to find some common ground and to communicate our policy intentions to the public as clearly as possible.

I'm hopeful that the language we have before us today in alternative B, if we choose to adopt it, will enhance our flexibility and simplify our communications as we move closer toward policy normalization. By indicating that the new "patient" language is consistent with the previous "considerable time" language, alternative B also signals continuity in our approach to policy. Looking ahead, in our January statement, we can drop the phrase "considerable time following the end of its asset purchase program in October" and retain the "patient" language until we get closer to liftoff.

To further improve our policy communications, I believe it would be useful if I could try to clarify some aspects of our thinking during the press conference, but only with your broad assent. In this regard, I would appreciate your views on two specific questions during the go-round. The first question is how to describe what we mean by the word "patient." This will be

an obvious question in the press conference and one that, frankly, deserves an answer. My inclination would be to characterize “patient” by stating something like this: “Based on its current outlook, the Committee judges it unlikely to begin the normalization process for at least the next couple of meetings.” I would immediately follow that by reiterating that this expectation is entirely data dependent, and if progress proves faster than we expect, we likely would move earlier than now anticipated. In this sense, no meeting is off the table. That said, unless there is a surprise, this definition does mean that January and March are unlikely. April and later meetings are completely live possibilities. So let me emphasize that the absence of a press conference does not, in my view, take April off the table, and I will emphasize this in the press conference if I’m asked about it. If the Committee wants to begin normalizing policy in April, we already have arrangements in place to hold the press conference call. This was something that would also be webcast, and it would occur at 2:30 p.m., the normal time for a press conference following the 2:00 release of our statement.

The second question is whether you would be comfortable with my characterizing participants’ views on the likely timing of liftoff and the economic conditions that are expected to prevail at that time. Based on your responses in the SEP, I could say, “Assuming that the economy evolves broadly in line with participants’ expectations, almost all participants believe that it will be appropriate to begin raising the target range for the federal funds rate in 2015. There are a range of views on the appropriate timing of liftoff within the year, in part reflecting differences in participants’ expectations for how the economy will evolve. At the time of liftoff, participants expect to see some further decline in the unemployment rate and improvement in labor market conditions. They expect core inflation to be running near current levels, but they will want to be reasonably confident in their forecast that inflation will move back toward our

2 percent longer-run objective over time.” And, again, I would clearly frame this in the context of our expectations being completely data dependent.

Let me conclude by saying that I don’t think that we will be well served by being overly vague on the likely course of policy, particularly if we want to guard against abrupt market moves today and down the road. But we obviously cannot deliver too much precision, as our policy does depend entirely on how the economy evolves. So let me stop there, and, with that, I look forward to hearing your views. Let me first call on President Lockhart to begin our go-round.

MR. LOCKHART. Thank you, Madam Chair. I expect the consensus of the Committee to settle on removal of the “considerable time” phrase as in alternative B, and I’m prepared in the end to support alternative B, but with some apprehension.

I want to pick up where I left off in the economy round and express some cautionary concerns. I think we are well advised to be as realistic as we can about the data we’ll have in hand and the conditions that could prevail at the time when we might begin to signal imminent liftoff, perhaps in the spring. As I argued in the economy round, we may have at least a couple of indications in the data to look through, particularly in the inflation data. I don’t feel we absolutely need to make the changes captured in alternative B at this meeting. I’m sympathetic to the approach of retaining “considerable time” for one or two more meetings without its link to the ending of asset purchases in October. This is, in effect, the treatment of “considerable time” in alternative A, and I could support inserting that into alternative B.

Because, in my view, the “considerable time” phrase is widely equated with about six months, its last use in October—with its connection in that statement to the October QE end—might suggest that we’re signaling an April liftoff. Then, because there’s no press conference

scheduled for April, market expectations as of now seem to have centered on June. I would prefer not to lock in June and would hope that the Chair's communication would not inalterably fix the market's focus on June. I think the message of data dependency has to be forceful enough to allow for adjustment based on our reading of the status and evolution of economic circumstances.

My preferred signaling regarding liftoff—conditioned, of course, on supportive data—is liftoff at midyear or a little later. I think alternative B at this meeting, with its introduction of the new “patient” theme, could be interpreted as slightly hawkish and could bring some near-term tightening. At the long end of the curve, that will probably do no harm. I expect some market participants to interpret the word “patient” by reference to the pattern of 2004. Market participants don't have anything else to go on, so they could take “patient” to signal March or April.

If the Committee decides to go with alternative B, I would urge that the Chair be given permission to convey some strong points explaining the decision in the press conference. I support Chair Yellen's request that she downplay any likelihood that the liftoff decision would come in January or March. I also support her request to characterize the mainstream views of the Committee members and participants regarding economic conditions at liftoff. I think this serves to stress the economic conditionality associated with the message of data dependency. The Chair should convey that “patient” is not meant to signal a date or time frame. It's also time to explain that every meeting is in play, and that the Chair will call a press conference when needed. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I support alternative B, although I have some comments regarding the wording of the statement that I'll turn to in a minute.

The recovery has picked up a great amount of steam. Of course, inflation remains low, but, with remaining slack diminishing and commodity import prices likely stabilizing, I see inflation gradually returning to our objective. The statement appropriately recognizes these developments and provides a smooth transition in preparation for liftoff sometime next year. I continue, personally, to view a June 2015 liftoff as appropriate, but, of course, that's entirely data dependent.

The healthy tenor of recent economic data and business reports bolsters my confidence in the ongoing expansion. Performance in the labor market has been especially impressive, and, after a long seven years in the wilderness, we're probably only about a year away from finally reaching our goal of maximum employment.

To be consistent with the unvarnished improvement in these labor market data, paragraph 1 of alternative B should omit the bracketed "somewhat," in my view. Including "somewhat" would be inconsistent with the very positive October–November labor market reports and other labor market indicators, as we discussed yesterday.

Of course, a consequential change in statement language is the "patient" wording in paragraph 3, as President Lockhart mentioned, and my comments are actually going to follow very closely with the comments of President Lockhart. The staff memo did lay out, I think nicely, how the statement could evolve from the word "patient" into the future. I will mention that we've had two other staff memos over the past several months that explained how "considerable time" could very nicely play out through the future to "some time" and how "considerable time since October" could play out into the future very nicely. I actually think all

of these approaches represent reasonable bridges between now and liftoff, whenever that's appropriate.

The main goal that we're trying to achieve is basically not, in my view, to move market expectations around. Market expectations are pretty reasonable about liftoff right now. Our goal is basically to explain in a smooth and easy-to-understand way that we are moving closer to liftoff. There are different ways to do that, and my main comments are that I'm more concerned about the word "patient" than maybe I was about "considerable time." So let me explain my concerns around the word "patient." And I beg the Committee's patience in listening to my concerns. I will make a promise here: I will leave time for everyone to finish their holiday shopping.

There's always a risk of misinterpretation when we change words or when we add a word to the statement or subtract something, and that's just part of life. But I do think that the word "patient" does bring up a couple of issues. Specifically, my concern about the word "patient" boils down to: I myself didn't really know what it meant in terms of monetary policy. And I'm going to get back to the Chair's suggestion because I think that's an important element of our communications strategy.

There are two competing definitions out there, and they differ dramatically. One interpretation of "patient" is "relatively soon." As President Lockhart said, that's how we used "patient" back in January and March of 2004. "Patient" meant that we're going to raise rates in the next few meetings. So let's go back to March 2004, the last time we used "patient." Well, that FOMC raised the funds rate in June 2004. That's two meetings after the use of "patient."

Then I went to a dictionary and looked up the word "patient," and, actually, the definition is exactly the opposite. It means "not soon," and I assume that's the usage that my esteemed

colleague President Evans means when he says on numerous occasions that we need to be patient in removing accommodation. I believe President Evans would describe “sometime in 2016,” perhaps, as actually being patient. So, what is the FOMC trying to communicate with this word “patient”? Is it soon or not soon?

I figured this out on my own—I guessed that these problems were recognized, and that led to the classic Fed “belt and suspenders” approach that we always take, which is to anchor expectations on, apparently, this first definition, in which “patient” means “relatively soon.” Now, the belt is the additional language in the statement that says that the “patient” language is exactly entirely consistent with the October “considerable time” language. There’s no change there. And the suspenders of this approach are Chair Yellen’s proposal that she explain in today’s press conference that “patient” means no increase in the next few meetings.

Now, actually, after going through my concerns about what “patient” means, I think this does define “patient.” It’s a very effective way to explain what the word “patient” means here. It does, I hope, shift us away from what “patient” meant in 2004. The combination of putting in the belt of that extra sentence and adding the suspenders of the Chair explaining and putting a good commentary about what “patient” means and its data dependence actually solves these problems. Therefore, I can support the language that’s in the statement, conditional both on having that sentence in the paragraph that says that this is not a change in our views, and on the Chair’s having permission to describe what “patient” means.

I do have some lingering concerns that, when there’s consequential language in our policy decisions, I would prefer them to be explained in the statement rather than relying on the Chair to define the terms, but maybe that’s a conversation for a later day. But, Madam Chair, I



do have great confidence that, in the press conference, you'll be able to explain this very effectively. So I think that this will be fine.

In terms of the questions you asked, my answer to the first one is that I agree, I do think that you should define “patient” as meaning no increase for at least the next couple of meetings, along with the data dependence and all of that, and no decision on liftoff being made. And I do agree with your summarizing the SEP views on the conditions at liftoff as being further labor market improvement with inflation running near current levels. However, on that, I would make sure that this isn't described as necessary conditions for liftoff—that we need a 1.5 percent on inflation or a 5.7 percent or something on unemployment—but that it's described as, under the current view of the Committee, these are the conditions that are expected around liftoff. Again, I support alternative B, and thank you.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support alternative B as written. I like several aspects of alternative B. First, we were overconstrained by the “considerable time” language. Given our imperfect understanding of wage and price dynamics, we should be flexible to move the timing of our liftoff up or back, depending on incoming data.

Second, it further emphasizes that we'd be moving from time-dependent to more data-driven language as monetary policy normalizes.

Third, patience is the appropriate policy for now. Nominal wage growth and price inflation have been stubbornly low. We should wait for some evidence that inflation is more clearly on a gradual path toward our 2 percent inflation target. Certainly, lower oil prices and a stronger dollar will have some effect on the overall level of prices, but to have such little evidence of wage and price pressures indicates that we still have significant labor market slack.

The challenge is likely to be determining when to stop being patient. I think it is very unlikely that we will have much evidence of wage and price pressures soon, certainly not at the next two meetings. In fact, the earliest is likely to be the middle of next year.

This will be the art of the liftoff. We want to make sure we have enough evidence that labor markets have tightened, but we must have and must appreciate the need for some insurance, given the long lags and uncertainty surrounding the effect of our first tightening.

In terms of the two questions that you have, I actually very much like the word “patient.” I think it is an improvement. If you define it in terms of “unlikely at the next several meetings,” it is very unlikely that we would have any evidence that wages and prices are going to be moving toward 2 percent in the next two meetings. So I’m very comfortable with that. If anything, even though we should look through the oil price changes, it’s going to be very hard to look through them over the next two meetings. So I think it is very appropriate.

In terms of tying it to the SEP liftoff and providing a little more clarity as to what we want to see to take the word “patient” out, I believe that’s more difficult. I don’t think we want to be overly specific on that. I would want to be confident we’re moving back to 2 percent inflation, and so that’s not just labor market statistics. It’s not just wages or prices. It’s looking at the constellation of data that we have and saying that we have more confidence than what we’ve had over the past several years that we’re actually on the right path. So I would not tie it to labor market markers that, at the same inflation rate and with a slightly lower unemployment rate, would be sufficient. And I don’t think it would be sufficient just to see one piece of data on wages or prices. We’re going to want to look at the constellation and—

CHAIR YELLEN. Just to clarify, what I said was that we would want to be reasonably confident that inflation is moving back toward our target, even though it’s below. I meant that to

take account of exactly what you're saying. That's not any simple statistic. It's looking at a whole constellation of factors to make that judgment.

MR. ROSENGREN. Yes. If we're reasonably confident that we're back on the path toward the 2 percent inflation rate, I would be comfortable with that.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. I can support alternative B today as offered, because it's merely a modest restatement of our current patient policy strategy without committing to a date-based future action. That said, I expect the public to quickly embrace June 2015 as the focal point for our eventual policy liftoff, and I'm uncomfortable with that assessment today as I read the economic situation. After six years of inflation averaging 1½ percent, I would prefer a course of action that maximizes our likelihood of achieving 2 percent inflation by 2017 at the latest, and we need to hit our price-stability objective in a sustainable manner, not simply as a short-term burst of transitory relative price adjustments when oil prices bounce back. Given my assessment of the economy's fundamentals, I myself will be surprised if it becomes appropriate to begin increasing short-term policy rates before March 2016. But things can change—I recognize that.

Within this context, I prefer the conditional language in paragraph 3' of alternative A. Its conditionality with respect to achieving our price-stability mandate is much clearer, and I believe the public would better infer that we intend to achieve our 2 percent inflation objective sooner rather than later. At a time when the Bank of Japan and the ECB are struggling at the zero lower bound with low inflation, there's no more powerful tool available than a strong and credible public expectation of actions to achieve this better outcome. This is an important preventive defense for ourselves. Without such a marker, I fear that the focal point for liftoff will be too

firmly date-based on June 2015, without enough data conditionality, in the event our inflation improvements stall.

I did like very much some of the suggestions that President Lockhart made in terms of trying to push a little further into the future the start of our normalization.

Madam Chair, yesterday you listed a number of policy caveats related to this conditionality test. I believe my own list is well aligned with your comments. For me to envision a June 2015 liftoff as the appropriate response to economic conditions, I would like to see a number of developments—first, continued strong employment growth, associated improvements in other labor market indicators, and continued growth above potential.

Second, I'd want to see clear signs that wages were beginning to increase toward the range of 3 to 4 percent that I associate with neutral cost pressures. I think this is important for reinforcing the evidence that resource gaps have been sufficiently narrowed and for establishing cost increases that would be more consistent with an underlying inflation rate of 2 percent.

The third important condition would be an increase in TIPS-based inflation expectations from today's low levels. As you and President Kocherlakota mentioned yesterday, there are serious costs when we live in a world with low inflation, a low equilibrium real rate, and monetary policy stuck at the zero lower bound. If market measures of inflation compensation are lower today because the market participants are much more mindful of and averse to these costly low-inflation scenarios, then the FOMC should better ensure that we hit our 2 percent objective with greater confidence and more quickly.

The final signal I would be looking for would be an increase in my inflation projection to 2 percent in 2017 at the latest under the contemplated post-liftoff path. As you suggested yesterday, Madam Chair, there is a risk that core and underlying inflation measures could

become persistently too low owing to relative price downdrafts outside of our control. You mentioned that you would be monitoring for things like that. It's not your base case, of course. In this case, inflation's behavior would likely be inconsistent with our price-stability objective, in my opinion. We thus may still need to reinforce our patient, data-conditional policy messages along the path in order to keep inflation up.

It's certainly possible that these caveats will be overcome by mid-2015. That's part of the conditionality test. Still, I continue to worry that we're hoping to thread the needle and bring inflation up to 2 percent from below without ever crossing over 2 percent. I think this hopeful scenario is fraught with risks that inflation will stall out before we get to 2 percent. If confronted with a choice of stalling at  $1\frac{1}{2}$  or  $1\frac{3}{4}$  percent inflation versus modestly overshooting inflation at  $2\frac{1}{4}$  to  $2\frac{1}{2}$  percent inflation for a time, I firmly believe that the latter is more consistent with our stated long-run strategy for monetary policy.

Now, on the questions that you asked, I think your characterization of the liftoff dates is accurate—almost all participants in 2015. I don't disagree with that.

In terms of the definition of "patient," my own preference is some adjustment along the lines that President Lockhart was trying to convey, so it would be longer than one to two meetings. But I defer to your judgment on that. I understand the importance of this, and I would not disagree with the important objectives you have for the press conference today. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. For some time I've argued that, as we approach a more normal policy-setting environment, we should be moving our forward guidance away from date-based guidance to more state-contingent guidance describing the conditions we

deem important in determining appropriate policy. In reformulating the forward guidance, over time, I believe we should strive to remove the focus from the date of a policy change to the conditions we look at in determining actual and projected progress of the economy toward our goals.

Chair Yellen's remarks yesterday, on the economic conditions and indicators she'll be looking at in coming months to inform her view of when to lift off, seemed a very good way to frame the discussion—perhaps not doable in the statement, but something to strive for in our public discourse and around the table. Similarly, at our October meeting, we took an important step in the right direction in our statement by adding the qualifier that the timing of liftoff would vary if incoming information suggested either faster- or slower-than-anticipated progress toward our goals.

With the end of the asset purchase program, with market participants expecting some type of change in guidance, and with the Chair holding a postmeeting press conference, we have a unique opportunity to take a further step today to clarify our policy expectations. Now, my preferred choice of guidance would be different than in alternative B. But, given that we will be taking out the “considerable time” qualifier at the next meeting, as you suggest, and as you plan in the press conference to clarify what “patient” means, I can support that going forward today. Also, the fact that you're going to give some context for what we're going to have to see in order to have liftoff is, I think, the right way to go. So I'm very supportive of that. My own preference would be not to put a number, necessarily, on core inflation but to describe that it probably won't be at 2 percent, and that we're going to be forward-looking. So I support that. I do think it's right to change the forward guidance today, notwithstanding some of the comments

that we heard from President Lockhart and others about there being some risks to changing the forward guidance.

Looking ahead, based on the economic progress that's been made and my forecast of continued progress, I believe the time for lifting off from the zero lower bound is nearing, and we have to do our best to prepare the public and markets for it. The SEP suggests the consensus among participants is that liftoff is going to be in the first half of the year provided the economy evolves as anticipated. The policy rules that we look at and the optimal control exercises in the Tealbook all point to an approaching liftoff.

Monetary policy will, of course, remain extremely accommodative for some time to come, even after the first rate increase. And I think that's something that we need to inform the public of as well. Yet, of course, liftoff will certainly be a historic event, given the journey the economy and monetary policy have been on for the past six years.

The Committee always has to balance several considerations when it begins contemplating a change in policy direction. But, in the current circumstances, these considerations are heightened. We've seen several false starts, when it looked as though the economy was poised to accelerate, only to slow down again. So it's natural to be cautious, especially with interest rates at the zero lower bound, making the economy more vulnerable to negative shocks. At the same time, recent data suggest growth and employment may be accelerating more than anticipated. In addition, we've not been in the situation of zero interest rates before. So we may be underestimating the costs of moving too slowly to normalize policy.

The Committee will, of course, continue to monitor economic developments and will do its best to balance these considerations. We do not know today when liftoff will be appropriate. It will depend on how the economy evolves. But we do know that a large majority of

participants assess that the economy will evolve so that liftoff will be appropriate in the first half of next year. With liftoff in sight, it is prudent to continue to prepare the public for the contemplated policy change that will be coming so that they will not be caught off guard. And I do like the fact that you're going to use a press conference for that.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I have just a few remarks. I'm going to talk about three topics. One is that the constellation of data that we face today is not consistent with a policy rate pinned down at the zero lower bound, and, for this reason, I think it's important for the Committee to be considering normalization strategies. So I'll talk about that a little bit. The second topic is that inflation expectations are falling. I think this is of paramount concern for a central bank. Inflation expectations should not fall over a horizon as long as 5 to 10 years. We need to be ready to react to this, if necessary. Frankly, I don't think that we're ready to react to this. Third, our policy options today are cementing date-dependent policy. I agree with President Evans on this, and I have some suggestions about how to move toward more state-contingency by creating windows of meetings at which the Committee may potentially move, instead of single meetings.

On the first topic, concerning the constellation of data, unemployment is only a few ticks away from our own estimates of the natural rate. If you'd rather look at indexes of labor market performance, they are also not far from their long-run averages. Inflation is only a few ticks away from our target. Constructing a quadratic objective in inflation and unemployment deviations, as we have in St. Louis, shows that this Committee is closer to achieving its goals than at about 90 percent of the Committee meetings that have occurred since 1960. So I think the idea that we're far away from our goals is false.



The policy stance, on the other hand, is to have the policy rate still near zero and liftoff still some time away. The policy stance is dramatically different from what it has been for similar data constellations in the past. We have a large balance sheet, and we have a zero interest rate policy. From this perspective, our policy is badly out of position compared with historical norms. For this reason, I want to push back against those who believe it's inappropriate to be thinking about normalization. It's totally appropriate to be thinking about normalization now and at coming meetings.

The second topic is that inflation expectations are falling, and I don't think we should be making as many excuses about this as we are at this meeting. The experience in Japan over the past 20 years and in the euro area today shows that allowing expectations of inflation over longer-term horizons to fall can create unique and very difficult problems for central banks. We need to be prepared, although it's not my baseline case, to make a move—and possibly a dramatic move—to shore up inflation expectations, if that becomes necessary, over the next six months. Probably the most potent tool we have at this point, given that QE is out of the picture, would be to delay the date of liftoff.

As many of you know, I have argued in the past that promising to stay at zero even longer can be counterproductive with regard to inflation expectations, and so if we have to do this, I want to do it in a particular way. If we have to delay liftoff at some point in order to shore up longer-run expectations, I would prefer to do that in reaction to bullish data on the economy, as opposed to weakening data on the economy. That would send a signal that it's the expectations of inflation we care about, and it's not sending the signal that we think the economy is going to be weaker in the future, and that we're reacting to that.

This has been a very difficult issue for the Committee over the past five years, but, if we have to play that card, that's the way I would prefer to play it. That would avoid the negative feedback that could otherwise occur—we're delaying liftoff because we see a weaker economy in the second half of 2015 or out into 2016, and we see even lower inflation numbers. That process can become self-fulfilling and lead to a bad equilibrium, and that's exactly what we're trying to avoid. So I would just put that out there as a possible contingency if the inflation expectations situation does not turn around in the next six months. There is a fairly substantial risk that inflation will continue to decline—and that, possibly, inflation expectations will continue to decline—in the months ahead.

The third topic is that our policy choices today are cementing too much date dependency. The probabilities of action by this Committee are totally piling up on June. The primary dealer survey put no weight on meetings other than meetings that had a press conference attached, and put most weight on the June meeting as a possible date of liftoff. I think it's particularly telling that we have a lot of weight on the June meeting—no primary dealers, or maybe only one, on the April meeting, and none on the July meeting. So, ideally, as we're sitting here today, we should see a spread-out probability structure of three possible meetings. I'm going to suggest a way to do that here.

What are the dangers with putting all of your eggs in the June basket? I think one of the main dangers for the Committee is that the data running up to the June meeting aren't ideal or aren't what we're hoping for. Of course, if they are, everything will go smoothly. I'm talking about the case in which they're not. Suppose we get somewhat weaker data during that period. Then, should the Committee decide to plow ahead, even with less-than-desirable data, that can erode the credibility of the Committee that policy is state dependent, because what you're doing

is saying, “We’re going to move in June even if the data don’t agree with us.” And then people start to think that we’re not sufficiently attentive to incoming data on the economy.

I also would like to reiterate that I think this harms the natural decisionmaking process on the Committee. A lot of the compromise on the Committee has to do with trading off things that you might do at one meeting versus doing them at the next meeting or possibly pulling them earlier. Because of our press conference structure, it puts a lot of pressure on certain meetings. Members of the Committee feel as though, if they’re going to get something done, they want to get it done at a particular meeting, and it hardens positions, I think, relative to what they would otherwise be.

My solution is that we have press conferences associated with every meeting. At this point, I’m not going to insert the passionate speech about press conferences at every meeting that I’ve given at other meetings in the past, but I’ll reiterate a little bit of it here. I think you could announce today, even at the press conference, that we’re going to have press conferences at every meeting in 2015, or you could say, “I would contemplate having press conferences at every meeting in 2015.” This would put all of the dates on the table. It would spread out the probabilities the way I’m talking about. It would make all meetings *ex ante* identical and distribute the probability of a liftoff move more or less equally among April, June, and July instead of just June. It would create a window for possible action by the Committee. The Committee could then walk into one of those meetings at which the data were relatively favorable and say, “Okay. We’re ready to go at this meeting.” I don’t think it would matter much in any of those three meetings, in a macroeconomic sense, as long as we got going on the normalization process. But it would allow us to move when the data speak to that possibility, instead of having to possibly move against what the data are telling us at a particular meeting.

This would mitigate, in my mind, some of the risk of a liftoff event that would be harkening back to the June 2013 meeting and its aftermath, in which, I think, the Committee felt a lot of pressure to do something at that meeting, as opposed to waiting until the August meeting. I don't believe the Committee was quite ready. We put a lot of pressure on the press conference. The ultimate reaction of that was that the Committee came off as quite a bit more hawkish than it probably was, and we ended up with the taper tantrum and its effects in the summer of 2013. You could mitigate quite a bit of this by creating this window of possible meetings at which we could move.

I do not think that the prospect of a surprise press conference fixes the situation, because this is mostly about expectations, as we sit here today, about when the Committee will move. It's true that we could move at any time. Of course, we can call a meeting at any time and take action at any time, but we would want to do that only in particularly dire circumstances, and it would shock markets to do that. So I don't think the fact that we could call a press conference would fix the problem of expectations, which are really piling up on June at this point.

I have just a couple of further comments. One is that, Madam Chair, you asked for comments on defining "patience" as "at least the next couple of meetings." Here I'd like to associate myself with the comments of President Williams, which I thought were very good. "Patient" could be interpreted as "a very long time." Even if you define it in the press conference, there'll still be market chatter that will continue in the coming weeks, and it might have the effect of pushing out expectations of liftoff. So that's a risk that we face. I think you need to push back hard against that in the press conference in order to get this to be right.

I also agree with President Williams that we should define things in the statement and not in press conference comments. If it is, in fact, the policy of the Committee, we should define it

here at the Committee. It leaves ambiguity to put too much pressure on the press conference, and, at some points in the past—in particular, June 2013—it didn't work out very well.

Let me bring up one other problem with the “patient” language that I think needs to be addressed. By using “patience” and then defining it as “the next couple of meetings,” we’re harkening back to the 2004–06 tightening cycle, which is not something I would prefer to do. I do not believe that that tightening cycle was very successful in the end. The bursting of the housing bubble caused global macroeconomic disaster, from which we’re still trying to recover. So, saying that we’re going to use “patient” in the same way that we used it in 2004 will immediately trigger a lot of discussion that we’re going to do the whole tightening cycle the way we did it in the period from 2004 to 2006, which involved moves of 25 basis points at 17 consecutive meetings and was way too mechanical and not data dependent enough. So I would encourage you, Madam Chair, to push back against the interpretation that this is a repeat of the 2004–06 tightening cycle. And, really, all of us should push back against that interpretation because I don't think that that was a successful tightening cycle.

Finally, my last comment on the word “patient” is that, if we include “patient” in there, which I think we will, taking “patient” out is actually the tightening move. As soon as you take “patient” out, it means that action is imminent. This is a general problem with this kind of approach, and that can't be fixed. The Committee should be aware of this. Once you say you're going to take “patient” out, you're basically committing to future action, except, perhaps, in dire circumstances in which the data go in a dramatically different direction. Thanks for the opportunity to comment, Madam Chair.

CHAIR YELLEN. Thank you very much. Vice Chairman.

VICE CHAIRMAN DUDLEY. I had a question. You were implying that the dealers were putting very little probability on meetings not associated with press conferences. I think, in fact, some probability is placed on meetings not associated with press conferences. Actually, the probability mass on June isn't particularly high, so maybe Simon or Lorie, if you could just—

MR. POTTER. There is about 26 percent probability on June. They definitely think it's more likely—

MR. BULLARD. Okay. I'll tell you what data I'm looking at.

MR. FISHER. Wait. Can I just hear the rest of what Simon—

MR. BULLARD. Just to say what data I'm looking at, I looked at the New York Fed data on the primary dealer survey. They were asked a specific question: When do you think the most likely date is? And they said June. One person said April. No one had weight on other meetings. Some had September.

MR. POTTER. But, no, that's the most likely.

VICE CHAIRMAN DUDLEY. There are two questions: There is, what do you think is most likely? And, what does your probability density function look like across the meetings? Those are very different things, and so we don't want to confuse those two.

MR. BULLARD. Okay. My argument is that we're going to cement that, and the probabilities are going to pile up on June after this meeting.

VICE CHAIRMAN DUDLEY. It's possible, but right now, it's not piled up on June. That's the point I want to make.

MR. FISHER. Madam Chair, just for comparison—Simon, what are the probabilities that you were going to mention?

MR. POTTER. The weight on June from the dealers is about 26 percent—close to 30 from the sell side. The sell side actually has quite a lot of weight on the July meeting, which is not a press conference meeting. So, to me, there is a slight bias to the press conference in their thoughts. However, most of them seem to think that there is a chance you could move at a non-press conference meeting, because they seem to understand that it's a data-dependent strategy.

MR. FISHER. Is the other 74 percent spread on both sides or more on the later part?

MR. POTTER. It's more toward the later part. There's very little weight on this meeting, for example. January gets a little weight. There's about 5 to 6 percent on March. It's the same for April, actually, as for March, and then it starts to move up. And there's still some weight in 2016.

VICE CHAIRMAN DUDLEY. Thank you.

CHAIR YELLEN. Thank you. President Plosser.

MR. PLOSSER. Thank you, Madam Chair. Some of my comments will align with the remarks of President Bullard, but I want to start off by talking about the economy a little bit and reminding us about the progress that we've made. I alluded to this somewhat yesterday.

Over the past five quarters, GDP growth has come in above 4 percent in three of those quarters. Four out of those five quarters, GDP growth has been 3½ percent or greater. The only bad quarter was winter, as we all know. If, in December, employment comes in about as we expect, the increase in employment in calendar year 2014 will be the largest since 1999. The economy is improving. Yes, inflation is a bit low. I'm sympathetic to that and sensitive to that. But I also believe it's not that far away from where we would like to be, and, indeed, I don't really think that deflation is the serious problem here. We do want to get our target back up, but I do believe expectations are anchored in a way that will continue.

Given this progress and given the state of the economy, I cannot support alternative B at this meeting. Alternative C more closely aligns with my assessment of appropriate policy. I believe our policy statement—and the forward guidance, in particular—should reflect the performance that we've seen in the economy and the expected continued progress that we think it's going to make.

Our statement needs to communicate in some way that there's measurable probability that liftoff may occur in the first quarter of next year, even if the most likely scenario is still June. I do not think the somewhat tortured language of alternative B sends that message. It's mostly a message of *status quo*, of no change: We still are where we thought we'd be, and there's been no progress other than what we thought. Yet progress has been quite considerable.

I worry that continuing to allow expectations to place near-zero probability of liftoff in the first quarter is asking for more volatility later when we finally do lift off. It also risks making it more difficult to lift off earlier, because we will fear upsetting expectations. As President Bullard suggested, expectations are piling up on June. And building those expectations up so high, I think, is not a good idea and is a recipe for volatility.

Most policy rules that I consider—for example, those in the Tealbook B—continue to suggest that liftoff should be occurring now, and that the funds rate should be significantly higher than zero by June of next year. By the way, I want to emphasize that, even after liftoff from the zero bound, policy will remain highly accommodative. We need to disabuse the public and the markets of the notion that, somehow, highly accommodative policy means staying at zero until we reach our goals. To me, that is a recipe for big trouble.

I also interpret the Board staff's memo on the relationship between unemployment rate rises and recessions as highlighting the risks of keeping policy overly accommodative. I am on



record as indicating that waiting too long to raise rates could lead to the need for more aggressive policy in the future, which could potentially lead to unnecessary volatility and instability.

Substituting the word “patient” for “considerable time,” to me, seems unnecessary and confusing. It’s yet another adjective that we need to explain, and it’s mostly time dependent in its nature. At least in alternative C, we just drop the word “considerable” and put that it’ll be “a time” before we lift off. Now, while I’m not happy with that because of its calendar dependence, at least it signals that there’s been a change in the way we’re thinking about forward guidance, and that something is different. Continuing to refer to time, as in alternative C, remains problematic, as I said. I believe that, by using paragraph 3 in alt-C, the markets are more likely to interpret this language in a way that the expected funds rate would look more like our policy rate paths in the SEP than it does now.

Let me turn to two issues—about the word “patience” and the suggestions of the Chair. Adding yet another word in “patience” that we have to define makes our statement read like Chinese water torture: drip, drip, drip. It’s another definition and another something vague. But if we use such a term—and this is as President Bullard and President Williams suggested—it’s important that if the Committee believes that it means we won’t move for two meetings, then that ought to go in the statement. It’s the Committee’s statement. Leaving such things to press conferences is dangerous and risky. If that’s what the Committee believes, it should put it in the statement. I do think the statement will be read as saying that the probability of a liftoff earlier than June is zero. And so we’re stuck at June.

To echo what President Bullard said, I don’t believe that contingency planning for a press conference in April would be very effective, because what we need to do is to spread the mass of probability about when liftoff occurs wider and have some mass earlier in the year. If we don’t,

we're going to find ourselves in a situation in which we're going to get to that point and we'll feel as though we want to lift off, but we won't because we'll upset expectations. We're doing ourselves a disservice by doing it this way. So I would encourage that it go in the statement, not be elaborated on in the press conference.

Finally, I like the notion of characterizing the conditions under which we'll lift off. I actually believe that that ought to be front and center in our discussion of our policy decision, not patience and time. We need to reverse the ordering of those two discussions and emphasize what we're looking at when it comes to liftoff. Yet we're still making "patient" or "considerable time" the front-and-center message that we're giving. I think that's a mistake. We need to talk more about the conditions under which we are going to lift off, make our policy state dependent, and not allow it to pile up on expectations of particular dates. We know that, in the past, that's frustrated us, and the more we've relied on time-related guidance, we have always come to regret it. I think it was President Bullard who suggested that, once we get "patient" in the statement, it's going to be yet another word that we're going to have to figure out how to get out from under and worry about the signals it's going to give when the time comes. So I believe this path that we're on to do it this way is not serving our policy well, no matter whether you want to lift off later or you want to lift off earlier. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lacker.

MR. LACKER. Thank you, Madam Chair. My main concern about our choice of forward guidance today is that we preserve the flexibility to live up to our promise of data dependence. Today I think we need to be particularly mindful of the fact that the outlook for both inflation and the real economy can change rapidly, and that judgments about appropriate policy can shift accordingly.

It's not hard to find examples of this in the past, especially around policy turning points. The outlook for real activity shifted dramatically from late 1998 to early 1999. In late 1998, we were afraid of the domestic effects of overseas turmoil, coincidentally including a fall in the ruble, and then, in early 1999, it became clear that the effects would be minimal, and that growth was picking up pretty rapidly. Similarly, the inflation outlook shifted quite significantly from mid-2003, when we thought inflation had sunk below 1 percent, to early 2004, when inflation and growth were clearly rising. My sense right now, as I talked about yesterday, is that the risks are tilted to the upside for real activity, and, once the transient effects of falling oil prices have passed through, I suspect that the relatively small current shortfall of inflation from target could easily diminish rapidly.

Market participants have come to focus on June as the most likely liftoff date. A number of you have commented on that. But, at this juncture, I think we have to leave the door open for an earlier move, perhaps as early as March. In the interest of transparency, I will now reveal that I am respondent 17, who, careful readers of the SEP will recall, wrote down April 2015 as the liftoff date. I did so while taking seriously the pledge of our current and previous Chairs that important policy decisions need not be confined to meetings with preannounced press conferences. So I appreciate your intention to explain that to the public.

Our 2004 experience suggests that, when conditions warrant, we're going to want to prepare for liftoff by providing a clear signal in the statement at the previous meeting. That's just a reality. Indeed, the 2004 experience is going to lead people to expect such notice. I think the word "patient" can provide us with that flexibility. The meeting at which we drop it is the one at which we're essentially signaling a move at the next meeting. I would note—and thanks to President Williams for introducing into the discussion a dictionary definition of "patient" as

“not soon”—that I take “soon” to mean “the next meeting.” So “patient” means “not the next meeting.” That’s what “patient” means to me. It seems plain that that’s the natural reading of “patient.” But, to me, “patient” means that we’re not going to move in January, and we can drop “patient” in January and move in March. That seems like the plain interpretation.

Now, moving in April would mean making a call in March. So it would mean dropping “patient” in March after two uses, which is, of course, consistent with our 2004 experience. I seriously believe that we could receive data between now and March that make that appropriate to us. There’s even a chance—a smaller chance, but a chance—that we get data by the January meeting that warrant signaling a March liftoff. I’d note that five of us think that we’re likely to get enough data to lift off in March, and I take it that they’re taking into account a meeting-ahead signaling. So I’m thinking that the SEP indicates that five of us believe we could get data by January to indicate a March liftoff.

It would take just four more to move us to a majority to shift from Q2 to Q1—that is, a majority favoring a Q1 liftoff. I don’t know whether we will or we won’t. I don’t know whether I’m interpreting this correctly or not. But I think it’s a possibility we should prepare for. That’s my simple point. So I don’t believe we should take March off the table. Your language of “a couple of meetings” does not literally do that, and, of course, the recitation of the data-dependence formulation at least provides the fig leaf of contingency and of us dropping the signal in January and moving in March. But I think saying “a couple of meetings” is effectively coming close to the border of taking March off the table, and so I’d be disinclined to use “a couple of meetings” as a formulation. If I were you, I’d prefer to back off from providing so strong a signal about what “patient” means.

I also think that the question of a press conference in April is too important to be left to just a questioner. If they all have something more important on their minds, then this information doesn't get out. It's important that, if we take that seriously, we need to be really thoughtful about how to prepare for that. The fact that we're going to signal this a meeting in advance—one option is just to announce at the meeting at which we drop "patient" that we're having a press conference at the next meeting. To my mind, it wouldn't be inconsistent with the strength of the signal that dropping "patient" is going to provide for us to essentially say, "All right. We're going to have a press conference at the next meeting." If you want to send a smoke screen and provide some optionality, maybe say we're going to have press conferences in August and July, too. But I think we could be more thoughtful about approaching the April press conference, and it's too important to leave to just whether it's asked in a press conference. It should be part of your prepared statement.

Your characterization of views on participants is something I'm comfortable with, but there's a nuance here that I think we need to be mindful of. We're asked in the SEP what conditions would look like when we lift off. We weren't asked, "What would you need to see to lift off?" Those are two different things. Some of us might lift off on a given date even if conditions were a little different than the forecast path we've written down, given the history we've come into these meetings with. Do you see what I'm saying?

CHAIR YELLEN. Yes. I didn't say a whole lot about what people expect. All I said was some further improvement in labor market conditions and reasonable confidence that inflation will move back up to 2 percent.

MR. LACKER. Right. Those seem to characterize what we all thought would be true when we moved, but we weren't asked whether those were requirements, conditions, or triggers

for us moving. I know you didn't characterize it that way, but I want to just be mindful of the distinction and be careful not to characterize it that way, if we haven't been asked about it that way and haven't been really discussing those conditions as being that way, given how the SEP is constructed. So those are my comments, Madam Chair. Thank you very much.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. Yesterday's go-round reflected general confidence in the economy's ability to sustain growth with labor market strength and stable inflation expectations. This narrative, although not without noted risk and remaining weak spots, such as housing or tepid wage gains, seems to me inconsistent with a policy that continues to support negative real interest rates and is slow to normalize. So while I would have preferred to signal an earlier liftoff, as do most policy rules in the Tealbook B, I can support alternative B today and its attempt to lean forward with language changes that offer additional flexibility and the opportunity to underscore conditionality on a path to normalization.

As the Tealbook B, notes and as President Lockhart and others have mentioned, the history associated with the proposed language around "patience" may give the public some sense that we are looking to a sequence of guidance changes from that period. So I think the Chair's plan to emphasize data dependence and conditionality about liftoff will be especially important today. In that regard, I support both approaches that you've outlined around the explanation of "patient" and characterizing participant views. Also, in paragraph 1, I would prefer to characterize labor market conditions as having improved "further," rather than using "somewhat" in that characterization. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Yes—thank you, Madam Chair. I have a couple of remarks. I'm going to deviate from my prepared text to start off with, and then I'll come back to my prepared text.

My first remark is about the thinking, as I hear it, around liftoff. I'm concerned, I guess, about the thinking of liftoff as this discrete event. President Mester described it as historic. I think President Lockhart has used that same term in public remarks. I worry that we're bulking it too large as a discrete event and that we're viewing it as very irreversible.

I listened to your description of the conditions that are likely to prevail at the time of liftoff. This is obviously not going to be my preferred policy path, but I thought you did a good job yesterday of describing the conditions that are likely to prevail. Inflation might be well below target still at that time. I think we have to face the fact that this Committee is going to be very—well, let me say a couple of things. One is, it would be better if we were to be planning more strategically about what post-liftoff policy is going to look like. We have a little bit of time left. We don't want to have it be that we're going to raise interest rates by 25 basis points every other meeting. We want to have something that's more responsive to the ebb and flow of data than just having a sequence or plan like that. And we want to be prepared psychologically, within the Committee and publicly, for the possibility that we might return to the zero lower bound, if necessary, to stimulate the economy if conditions evolve accordingly.

If we build this up too much externally, communicating that liftoff is a historic event and we're finally liberating the U.S. economy from the chains that it's been in for the past eight years, that makes it very challenging for us to reverse course after liftoff. So there are two aspects to what I'm trying to say. The first is planning more strategically within the Committee

for what we're going to be doing after liftoff, and then the second is communicating, I think, about what that strategy is likely to be.

The second piece I wanted to comment on concerns my thinking. I believe it's useful to tie back our policy recommendations to our consensus statement. So I want to say a couple of things about the maximum-employment mandate. We've had a great year in terms of employment. President Plosser emphasized the right points yesterday. I agree with this completely. It was a fantastic year in terms of employment. But my thinking about the employment mandate is basically asymmetric. I don't believe that it was included in the Federal Reserve Act as a way to tighten policy. It's fundamentally in there as a way to provide a way to ease policy relative to what would be true if we had only a price-stability mandate. More colloquially, no one is going to complain to the Federal Reserve, "You've created way too many jobs. Stop creating so many jobs." That's what promoting maximum employment means—trying to make jobs as high as you can, given you've got a price-stability mandate.

So the growth in employment is very welcome. It hasn't influenced my inflation outlook that much relative to a year ago, though, for a variety of reasons. So I don't view it as necessitating a change in policy stance. And, regarding a concern that President Plosser raised about employment—if we overshoot on employment, we might have to raise rates in order to bring it back down—I think you'd want to average out. You might have high employment for some period of time and then have lower employment later. The higher employment is a good thing, so we want to take that into account as a positive sign. We're not about changes per se—it's about the levels we're trying to achieve.



Okay. Those are the two things I wanted to hit on. I hope I'm encouraging a more strategic approach to both thinking and communicating about post-liftoff policy, and at least my own thinking about the employment mandate is, as I described, basically asymmetric.

With all of that in mind, Madam Chair, at this meeting I'm unwilling to support alternative B. I would have been willing to support alternative A, especially with paragraph 3'. But, as you'll hear, my analysis of the current situation suggests that an even stronger response is desirable. The situation as I see it is characterized by three key facts. The first fact is about past inflation. Year-over-year inflation has run below our 2 percent target for over 30 months. Essentially since the time we announced the target, it's fallen below target and has stayed below target.

The second fact is about future inflation. The current FOMC staff projection is that inflation will be below target in each of the next four years. There is risk to that outlook, as Governor Fischer reminded us yesterday. We should be thinking about this. I believe the right way to think about this is more in probability space. The staff projection means that in the staff's assessment, in any of the next four years, the probability of inflation's being below target is larger than 50 percent. If we weight that, as our Minneapolis memo encouraged us to do, by what kinds of real conditions associated with those low-inflation outcomes are likely to prevail, I think you would be driven to say that the likelihood of low inflation is larger even than 50 percent.

Fact 1: We've had low, below-target inflation for 30 months.

Fact 2: Future inflation looks as though it's going to be low, according to the staff forecast, for four years.

Fact 3: Longer-term inflation expectations have declined. From November 2010 through July 2014, 31 consecutive meetings, the FOMC went out of its way and was in a position to state that longer-term inflation expectations remained stable. Because of the decline in longer-term inflation expectations in the past few months, at least as reflected in the market-based measures, the Committee has not been able to make this assertion in the past two FOMC statements—and in the one that I suspect will be issued today.

What is a proposed response to these three facts—low inflation for the past two and a half years, low inflation for the next four years, and declining long-term inflation expectations? The proposed response to these three facts in alternative B is to communicate that the FOMC is continuing on the path of gradual removal of accommodation that it initiated a year ago—or, more arguably, in May 2013.

In my assessment, the FOMC's failure to respond to weak inflation runs the risk of creating a harmful downward slide in inflation and inflation expectations of the kind that we have seen in Japan and Europe. I'll emphasize again that I see this as a risk. It's not my baseline outlook—it is a risk. I see this risk as unacceptable, given how hard it would be for the FOMC to respond successfully if this risk did, in fact, materialize.

As I said, I would have been willing to support alternative A at this meeting. But my preferred response would be for the FOMC to communicate that it'll keep the target range for the fed funds rate unchanged as long as the one-to-two-year-ahead outlook for the inflation rate remains below 2 percent. Going further than that, I think the FOMC should also make clear that, if this forward guidance were to prove inadequate in terms of moving inflation back to target, the Committee is willing to use additional tools, such as asset purchases, to push inflation and inflation expectations upward. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. Madam Chair, you're getting a considerable range of views at this meeting, and I'm going to express a view that's counter to what my distinguished colleague from Minneapolis just expressed.

I went back to the transcript of the October meeting. On page 139, I said, "Optimal policy is very sensitive to changes in economic conditions. Given the sensitivity, I don't want to be locked into a particular timing of liftoff or pace of substantive rate increases. . . . I consider"—and I'm quoting myself, my favorite source—"“considerable time’ as having been, and continuing to be, a bad idea. I believe that we need to consider this in December. If economic conditions improve between now and then, that will certainly condition my vote then.”

I looked through some of the comments of our colleagues. Governor Powell, for example, said on page 158, "It may well be that in December, depending on conditions and expectations, we can take [‘considerable time’] out of the statement completely." President Mester said, "My hope is that in December we will find a way to omit the reference to the conclusion of the purchase program in our forward guidance [and] replace ‘considerable time.’" Then she went on to say that we will know from the December SEP if our policy intentions have shifted.

We say we are, as President Lacker mentioned, data dependent. At that meeting in October, we added language, which I thought was wise and therefore voted for, emphasizing that policy would be data driven, not date driven, and trying to take that date-driven edge off it. If our claims that policy is data dependent are to have credibility at all, I believe we must signal that our expectations for liftoff have shifted forward. Also, the sentences we have that have "patient" as a qualifier and which, as you've indicated, you will explain during the press

conference—I'll get to that in a minute—retain what I call the past tense pluperfect reference, which is to October when we're issuing a statement in December. I believe that “the conditions have changed,” to quote Governor Powell, and that expectations have changed and the data have changed, to quote myself. And our SEP has five members expecting liftoff in the first quarter and seven expecting it in the second quarter, so that's a heavy weight out of the 17 of us who are at the table. The point is, we have to recognize—and I don't believe alternative B appropriately recognizes—the progress that's been made in the data, and I don't believe that the way the statement is written shifts forward to the degree I would like to see it shifting forward.

Yesterday Governor Tarullo said we need to be pragmatic. So if you'll indulge me for a second, I'm going to go back to my past. I started out as a midshipman at the U.S. Naval Academy. I was taught to drive ships. I was stationed on a ship called the USS *Truckee*. It contained 18 million gallons of the most explosive fuel of all. It was a jet fueler. Prudence demanded that we would ease back on the throttle as we approached our port or near the dock. Otherwise, we ran a substantial risk. Well, we're considerably closer to that dock now, from an economic standpoint, given the data—even closer than I thought we would be at our previous meeting. Yet, as we get closer, the economy is picking up speed and momentum.

It would be irresponsible not to take these changed circumstances into account and acknowledge them in our statement. I don't believe the statement does that. Madam Chair, much as I'd love to drive across the country with you from San Francisco all of the way to the Lincoln Tunnel—and I think we'd have a lot of fun—I do like the boating or ship analogy better than the driving analogy because a ship doesn't have brakes and is relatively unforgiving if you overshoot your destination. In the case of the ship I was on, we would blow up.

We have substantial combustible fuel in \$2.9 trillion in reserves. If you multiply that by the factor of other liquidity in the system, I really do believe that we are in a similar situation to the docking of the ship that I was taught to drive. You don't throw the engine into reverse, move to a restrictive policy stance, and immediately arrest your forward motion. So I believe that, as we approach this dock and as we see in the data that we're picking up momentum on the economy, it's important to start before April in beginning the process of throttling back and arresting our motion.

It's clear from the statement you made earlier—and I say this with the greatest respect—and from what I heard at the table yesterday, particularly given how people felt and the likely voters next year, that the intention is certainly to move toward possibly throttling back in June. And Bill's answer to my question just before dinner confirmed my view on that. I'm not saying it's wrong, Bill—I'm just saying that that seems to be the sentiment at the table. So I cannot support alternative B.

Now, I realize there are tail risks out there. There was reference yesterday to the emerging markets, in particular. I would be very cautious—and I've said this before—in dealing with Japan as an analogy. I've lived there. I've worked there. Governor Brainard and I dealt with that. I dealt with it in the Carter Administration, which was a long time ago, Stan. But you cannot possibly liken us to Japan, given the gearing of that economy and given the structural deficiencies that that economy has. Therefore, I do not like, and have never liked, that analogy.

With regard to Russia, you're right—it's worrisome. I think the sanctions present a greater issue than even the oil price declines, although that clearly compounds the situation. What you have is a fierce animal, trapped and caught in a cage, and I don't believe we should be

spending our time worrying about contagion from Russia or what we might do to condition anything that has to do with their behavioral pattern.

With regard to the other emerging countries, again, we all know that some did well in taking advantage of the low interest rate period to restructure their economies, and that others did extremely poorly. So I think we have to worry about our own ship here. Our ship of the economy is indeed approaching the dock that we had, in terms of employment and economic progress, and I think we should start throttling back a little bit earlier.

I would agree with President Williams on one thing—taking out the word “somewhat.” In fact, I’d take out the words “somewhat further” and just say “labor market conditions improved.” They have. So I would at least take out the word “somewhat,” and I would suggest taking out the word “further” as well.

With regard to your point, I would simply suggest that you avoid a fixation on having to be at 2 percent inflation, if we have supply-driven disinflationary pressures, in order to start liftoff, as long as you and our successor Committee feel that the expectations are holding.

I’ll add one other thing. Having been on the first communications subcommittee, I suggested then that whoever was Chair should have a press conference at every meeting. I’m not trying to flatter you, but you have the talent to do that, and I think you should consider it. The question of when you announce that is really a sensitive issue. I wouldn’t announce that here, because it telescopes a little bit. But you might consider saying at the next press conference, “We’re having a press conference at every meeting,” because I believe it can be done. I also like it because it gets us out of here well before 12:00 noon. [Laughter] Thank you, Madam Chair.

CHAIR YELLEN. Okay. Governor—

MR. FISHER. Oh, she wants to clarify her statement.

MS. MESTER. No, I have a question, and maybe you can clarify it. The way I read the proposal for alternative B is that the “considerable time” is quoting from the October statement.

CHAIR YELLEN. Correct.

MS. MESTER. And the intention is that in January, you won’t need to do that quoting.

CHAIR YELLEN. Yes, that is correct.

MS. MESTER. Okay—thanks.

MR. FISHER. Remember, Bill English said yesterday that that anchoring could surprise some investors. I understand why it’s there. Again, I refer to it as past tense pluperfect only because it’s an odd juxtaposition. Yet the attempt is to clarify it with the word “patient.” I think “patient” confounds it the way it’s written, but that’s a minority opinion, obviously.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. Almost everything I want to say has been said, but I’ll put it together differently. The one thing that hasn’t been said is what I was sure would have been said, which is this quote from *Through the Looking-Glass*, by Lewis Carroll: “‘When I use a word,’ Humpty Dumpty said in rather a scornful tone, ‘it means just what I choose it to mean—neither more nor less.’” I thought that was going to be the theme of several speeches. [Laughter] Actually, I was in the Williams school of “patient,” but then I realized that, having grown up in the British Empire, in which you say things like “terribly nice,” meaning “very nice”—[laughter]—I’m not a reliable guide to what this term means.

On the issues, this has been a very good discussion. A lot of very interesting things have been said, but we also have to make a decision. It was generally agreed yesterday, and everybody today has agreed, that the labor market has been improving recently, particularly in the past two months, and is now within hailing distance of the full-employment rate of

unemployment as defined by this meeting's SEP. We also agreed that the inflation picture is more complicated in that the staff forecast does not get to the 2 percent target level even by 2017.

So when should we begin normalizing? I believe a balanced approach would wait for liftoff until we have both employment and inflation not far from their target levels and expected to move toward their targets. With unemployment at 5.8 percent and core inflation at 1.5 percent, both employment and inflation are not far from their target levels. In saying that, I know I'll be told that 0.5 percent on a number that's 2 percent is 25 percent. Well, that's true. But the precision of that—we had from President Kocherlakota a very interesting discussion on how to think about the unemployment target and suggesting that the next consensus statement should say that the target level of unemployment is zero, and so forth.

On the inflation target, we really do not have a good basis for deciding that it's 2 percent and not 1.8 percent. I worked at the Bank of Israel with a target range for the inflation rate, but I understand that that was rejected in the consensus statement. But it seems to me that there's a significant degree of uncertainty, and that if we were to get stuck at 1.8 percent and the economy was growing rapidly, and so forth, we should not take that as something that requires us to do more to get to 2 percent.

What we have in the forecasts—probably our best forecasts are the staff estimates—but also in the SEP is that they both expect a move toward the target levels, albeit at different rates. So we need a few more months of data to convince ourselves that the situation justifies the start of normalization, and the wording in alternative B basically says that.



In alt-B, I would also take out the word “somewhat.” I wouldn’t take out the word “further,” because we had enormous amounts of progress on unemployment before the October meeting, and we ought to recognize that as well as what’s happened since October.

I would like to just mention a few things that we need to take into account before we start normalizing. First, we need to explain repeatedly that liftoff is the end of one story, that of the battle of the zero lower bound, but it is also the start of the no-less-important story of normalization. And I agree with what was said by President Lacker and by others around the table—that we really are overemphasizing the importance of the liftoff, not in absolute terms but relative to what will happen later.

Second, every time we raise rates, we are going to go through a procedure like the one we’ve gone through now. I don’t see that it’s going to be very different. I think, as somebody who wasn’t here before, that we are doing things in a different way—with more consensus, more efforts to reach a consensus, and models that have advanced significantly since, say, 20 years ago and even since 2004—and that we’re operating on a new basis. In that basis, we’ll find every decision as complicated as this one, and we should start making it clear to the world that that’s the situation. That means that we need to turn our attention and that of the staff, whose technical expertise I value more and more every day, even more to the technical issues that will arise as we normalize, including how to coordinate the use of our two interest rate instruments and when to begin asset sales, which we’ve left on the side, although there was considerable praise yesterday from President Fisher for this memo that was sent around by the Desk. I hope to absorb that thoroughly on the weekend.

Third, there’s a great deal of uncertainty about how normalization will play out. We need to continually remind people that the future is uncertain, and I think we also need to try to

anticipate the main difficulties we could face during the normalization process. I'm sure the Desk has very clear ideas on this. I suspect we also ought to be looking at the sorts of disturbances, most of them economic—possibly not all economic—that are likely to challenge the markets.

When we lift off, we need to remind ourselves—and this follows on things that I think both President Bullard and President Plosser said—that an interest rate of zero is far from normal, and that monetary policy will continue to be expansionary for a long while, at least for several years after liftoff. We should also remind ourselves not to get into the mode of “The Fed continued tightening.” “The Fed continued normalizing” is what we will be doing.

What is the bottom line? When should we lift off? Well, the answer is, when the data tell us to do so. And that depends very much on what happens in the next few months, in particular. I believe that we do not have language that rules out March. It's less likely by far than June, but it is still possible that the data will surprise us on the upside. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Yes—thank you, Madam Chair. I wanted to clarify what I was saying about the employment mandate, because I certainly wasn't trying to imply that the FOMC should have a target of zero percent unemployment. I think about the two mandates as lexicographic, so if inflation is running below target, I don't need to look at the employment mandate at all. You're just trying to get inflation back to target. Or if the outlook for inflation is running above target, then the employment mandate comes into play. We have to decide whether it's worth the cost to bring inflation down and how we want to do that—well, I think I've tried to say what I meant to say.

MR. FISCHER. Yes. Well, I'm just not sure how you signed on to the consensus statement.

MR. KOCHERLAKOTA. I'm asking myself that question. [Laughter]

CHAIR YELLEN. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. Let me first say that I realized after yesterday's meeting I had taken a sufficient amount of cold medicine that I wasn't entirely sure what I had said. So if I contradict anything I said yesterday, apologies in advance. This is what I really believe. [Laughter]

Let me begin by saying I support alternative B. I recognize, as a number of you have pointed out, that there are risks around any shift in language, particularly a shift that is not going cold turkey in getting markets off of thinking in calendar terms but, instead, is trying to wean them somewhat gradually with the use of an intermediate term.

I found that a lot of what John said resonated with me—that there are a number of paths to the end, but the end is still the same, which is, when we reach liftoff, to be doing it in a way that I would characterize as eliciting significant but not violent market reactions, because it would have already been sufficiently anticipated, both with economic developments and with things that the Chair had said. So I think that, with the Chair's comments not just at the press conference today, but also in the various public opportunities that she has in the first part of and middle of next year, we are in a better position to be weaning the market from a calendar sense and getting them more into a data-dependent sense, which we all purport to believe is the optimal situation.

The result of everything we're doing today probably will be to move to more of a focus on June. That's not actually where I am. I don't know what dot number I was, but I had a

September liftoff date, and even that, of course, is conditional on the data. I should note in passing that this is another instance in which the failure of the SEP to identify who's a voter in which year means that we're providing a little bit of misleading information to markets, because, based on what I've heard around the table, I think next year's voters are a little bit less front loaded in terms of their liftoff date than the participants as a whole. But that's something to be taken up another day.

The final thing I wanted to say is, the analytic issue of whether the greater risk lies in falling behind an inflation increase, on the one hand, or a premature liftoff, on the other, is one to which many people have alluded, but we haven't actually discussed it very much. People have more given their conclusions, either based on faith or based on some reference to past circumstances. I'm inclined to think that the risk of premature liftoff in current circumstances is greater than the risk of falling behind the inflation curve. In fact, as I sit here today, I think it's at least as likely that I'll ultimately be motivated to favor liftoff for financial-stability reasons as for inflation reasons.

But it would be useful, perhaps at some point early in the new year, either to have a discussion in a formal sense or to have us individually give some thought to, and bring our thoughts to the table on, this point, because the current conditions are sufficiently different from past cycles of tightening or deferral of tightening as to maybe make some of those semiautomatic references not as salient as they might be. One question that arises is, would the possible need for a steeper increase after initial liftoff, because liftoff had been delayed, end up imposing costs that outweigh those benefits of delay in the first place?

Narayana raised a number of issues—and Governor Fischer did, too—in talking about what the path is going to be following liftoff. Each of those, as Governor Fischer says, is not

going to be able to be pinned down because of the uncertainty about what will happen, but a bit more analysis around that may clarify at least my thinking as to when, in these various states, liftoff might be appropriate.

I will say that one of the reasons why I'm inclined toward the greater risk lying in the premature liftoff than in waiting too long is precisely that almost everyone around the table anticipates not a big acceleration in economic growth but, instead, more or less the maintenance of the growth that we've seen in everything but the first quarter of this year. So it doesn't feel like a circumstance in which things can get away from us, whereas we are at the zero lower bound, we've got deflationary risks, at least in other parts of the world, and thus, again, my instinct is that the risks of going too quickly outweigh the risks of waiting a bit. And President Kocherlakota raised a very good point: Why don't we think about going back, even if we have increased? Well, here another consideration would be, what does that do to the credibility of the institution in the eyes of the market if we lift off one month and, a few months later, are saying, "No, actually, we need to go back to zero again"?

All of that, I think, would profit from a formalized discussion that the staff and the Chair lay out for us or even from individuals picking up that theme over the next couple of meetings. But with all of that, Madam Chair, I support alternative B, and even I think that removing "somewhat" would be okay.

CHAIR YELLEN. Great. And let me say that we are tentatively planning both a staff paper and a discussion of the issues that you mentioned for January. So I hope we will have a more significant discussion about that and a full go-round.

MR. TARULLO. Thank you.

CHAIR YELLEN. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I will support alternative B, and I would also support removing “somewhat.”

If the economy moves generally along the baseline path, then I would support lifting off in June, other things being equal. I don’t see March as at all off the table. It would take strong results to justify it, but I didn’t think in September that we would have the kinds of employment reports we’ve had since September. So if you can imagine, we get three more employment reports between now and the March meeting, and, if we get really strong employment reports and, in addition, inflation provides grounds for confidence in a return to 2 percent, then I would see March as potentially on the table as well. Having said that, I also put significant probability mass on liftoff later than June, as in the primary dealer survey. It’s all going to depend on the path of the economy. I actually think we’re getting to the point at which personal assessments of probability matter less than having a plan for dealing with the entire probability distribution.

Getting to the language, I do like “patient” for both practical and other reasons. First, in terms of “considerable time,” I guess I regard “considerable time” as effectively out of the statement, given, as President Mester pointed out, that this is really referring back to a previous statement. It effectively is a dead letter and certainly will be a dead letter during the press conference. When someone asks you if it’ll be in the January statement, I suspect you’ll say, “No.” So I think it is out of the statement for all practical purposes at that point.

I also think we’re talking now about one or two meetings in either direction, and there’s not a lot that really rides on that in the long run. As long as we are transparent, predictable, and data-based in what we do here, it’ll be okay.

Having said that, there’s another reason that I like the word “patient”: I look at the risk weighting of undershooting and overshooting by a couple of meetings as asymmetric. The very

difficult mistake to recover from would be to go too soon. Maybe there's an exogenous event, but, in any case, we go, and then suddenly things turn bad for some reason that will look really obvious in hindsight. Now we're sitting around this table talking about restarting the asset purchase program and suffering from immense criticism that will be very hard to defend. That's a place where we really don't want to be. If we turn out to be a meeting or two late, we can move a little faster. There are ways to deal with that. I just don't see those risks as particularly symmetric.

I think it's appropriate at this time to start to prepare the public—the markets, really—for the onset of normalization. There could easily be a reaction in the markets after this statement. I think that would be appropriate.

Turning to your two questions at the beginning of this round, Madam Chair, I'm okay with your definition of "patient." I do think we need a shorter-handled tool, in a way. "Considerable time" was really a six-month tool. "Patient" is really a two-meeting tool. I realize that's time based and kind of awkward, but it's also swimming in a sea of data dependency and seems to work, and we should do what works.

In terms of leaving meetings on the table, I'll conclude with this thought: It's really a bad idea to think that we could raise rates and do it in the sense of calling a press conference suddenly at the end of a meeting or the day of a meeting. That is not a way I would go at all. I just think it can't be that important to do it. It would have to be really important to raise rates then rather than seven weeks later. It would be a big surprise to the market. This is a tremendously important event in our history, and it ought not to be thrown together in that way. So I guess I would offer for consideration a thought that, if it's a close call in March, then there would be an option to put April on the table, and maybe July as well, at that time, but well in

advance. If we're going to put April on the table, I wouldn't do it on the day of the meeting. I would do it as part of the March meeting so that we don't surprise the market.

As I said, it's really critical that we be transparent. The market will come to understand what we're going to do if we're transparent and predictable, and that's tremendously important in this process. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. Since we last met, we have seen two strong payroll reports, and the labor market is clearly continuing to strengthen, which is very welcome. But, of course, we also see continued risks associated with below-target inflation, with some deterioration in market-based measures of inflation expectations and this taking place against a global backdrop, which is broadly disinflationary.

What does this mean for policy? First, it's important to acknowledge that the continued underlying momentum in the economy validates the pace of tapering and the end of asset purchases. That's a very welcome change from previous attempts to end unconventional policy. Second, conditions overall, I think, validate our strategy of remaining somewhat cautious on the removal of monetary accommodation, although I believe we can acknowledge that the date of liftoff is now coming more clearly into view.

For my part, I think market expectations are nicely aligned with our outlook on the appropriate timing of liftoff, which makes me quite cautious about any change in wording that could perturb current expectations. The danger is that markets take signal from the change in wording when none is intended, and, of course, we know from past experience how disruptive unintended signals can be. As a result, I would probably have been more comfortable leaving the existing forward guidance anchored and making the outlook section of the statement do more



of the work. I think I would not have been inclined to introduce a new qualitative concept. I worry, in particular, that the choice of the word “patient” could be read as suggesting the same timing and pace of tightening as the last time the word was used, neither of which is appropriate to today’s conditions. However, I think we all recognize that many around this table did not like the existing language and were very uncomfortable keeping it, and, under those constraints, I think the language in alternative B is as good an approach as any of the alternatives. In particular, I would give my vote to the Chair in navigating these shoals and gently guiding market expectations using the press conference.

With regard to the outlook, the main takeaways on the outlook for the full employment part of the dual mandate are captured well by paragraphs 1 and 2. I would also be inclined to drop the word “somewhat.”

Describing the recent data and outlook for inflation is trickier. I still believe, in light of recent data, that, as resource slack diminishes further, inflation is likely to move back up toward our 2 percent goal, but the risks to that outlook are clearly on the downside. So I think it’s right to note, as alternative B does, some concern about the inflation outlook and just to recognize that, if we were in the same circumstances with a sharp increase in the price of oil and as far away from the 2 percent target above it as we are currently below it, we would certainly note that in our statement. I believe it’s appropriate to do that here. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Well, thank you all for your—

VICE CHAIRMAN DUDLEY. You’ve got one more.

CHAIR YELLEN. Oh, sorry. My deepest apologies.

VICE CHAIRMAN DUDLEY. No worries. It happened one time under Chairman Bernanke’s watch, too. So you can do it once. [Laughter.] I support alternative B, and I am

comfortable with what the Chair proposes to communicate at the press conference in terms of the “patient” language. I think “at least the next couple of meetings” is a good way of characterizing it. Also, the way you propose to characterize the participants’ views for 2015 sounds very good to me.

Before I get into the statement language, I do want to make some more general observations about monetary policy. First, in terms of my own thinking, I believe the likely timing of liftoff has moved in somewhat, given the strength of the recent data and the fact that I have greater confidence now that that momentum will be sustained in 2015. So it’s not just having strong employment reports, but also being more confident that the momentum will be sustained. Before, I was putting more of my weight on June than other meetings, but my expectations were more skewed June or later. Now I would say that I see June as more of a midpoint, with the probability weight of June also increasing somewhat.

The important question in my mind, as I talked about yesterday, is how much weight to give to the decline in inflation that’s been generated by this sharp drop in energy prices. My own bias has been mostly to look through that decline as long as the decline does not lead to a fall in wage compensation and other recent nominal income trends are largely undisturbed, and provided that inflation expectations remain broadly anchored. To date, I view these two conditions as still in place, and, because lower oil prices are likely to be a net positive for growth, that’s also important, as it increases my confidence in the sustainability of the expansion. So, for the time being, I’m very much looking through the decline in oil prices, although that could change in light of future developments.

Second, in terms of this issue of being patient with respect to the timing of liftoff, not in terms of the statement language but more as a general concept, I think it’s also important not to

be too patient. For example, some argue—and I’ve made the argument myself—that it would be less risky to be a little bit late rather than a bit early in terms of the timing of liftoff. I still agree with that, but I do think it’s important not to push that idea too far. In particular, if we were too late and the unemployment rate were to fall considerably below the natural rate, inflation could rise substantially above our 2 percent objective. I understand that the Phillips curve is very flat, so there’s a low probability of this happening. But this rests on the very strong assumption that inflation expectations will remain well anchored even at very low unemployment rates, and I’m just not sure that that’s actually the case. If the unemployment rate fell very low, the Phillips curve would steepen, and so there’s a risk in that. Now, some argue that, if that happened, we have the tools to deal with that situation. I think that’s true, but if we’re late, we would really have to make monetary policy tight in order to push the unemployment rate up, and that would be quite problematic.

The staff memo talks about the fact that, in the postwar period, every time the unemployment rate has risen four-tenths of 1 percent or more on a three-month moving-average basis, the U.S. economy has tumbled back into recession. That’s not something that I want to revisit any time soon, because I don’t think I want to probe the zero lower bound again, at least during my tenure.

Third, I believe it’s desirable to get off the zero lower bound as long as we think we can do so safely. Although we refer to a rise in the federal funds rate target as a tightening of monetary policy—and this harkens back to what Stan was saying—there’s a problem there in terms of talking about the tightening of monetary policy, because all that the first hikes are going to do is to be a very slight removal of a very high level of accommodation. So I think we need to

emphasize that fact in our communications—that even after the initial few tightening moves, monetary policy will still be very supportive of economic activity.

Fourth, in terms of how fast to go once we begin to raise the federal funds rate, obviously, the economic news will be very important. But how financial market conditions evolve is going to be important as well, and this deserves more emphasis in terms of our communications. The linkage of monetary policy to the real economy works through the transmission channel of financial market conditions. So if it's like the taper-tantrum episode and if financial conditions were to tighten significantly with the first rate hike, then we should go more slowly, everything else being equal. Conversely, if financial conditions don't tighten at all, which has been the situation since we began to end the asset purchase program, then we need to move more quickly. And I think we need to get market participants sensitized to this—that financial market conditions are going to be an important factor in our thinking in terms of the monetary policy normalization process. If they internalize the importance of financial market conditions in our own thinking, this would presumably reduce the risk of unusually large movements in financial market conditions in response to our actions. This would be a good outcome, at least initially, because our control of financial market conditions might be quite poor at first. In my mind, raising short-term rates for the first time in more than six years is a substantial regime shift.

Finally, given all of the uncertainties about how financial conditions will respond at liftoff, I do think it's important that we try to have liftoff occur with as little drama as possible. There's already going to be plenty of drama in lifting off with a new set of tools and in a regime shift of raising short-term rates after more than six years at the zero lower bound. So I do think

we want to foreshadow the expected timing of tightening as much as is feasible, subject to the inherent uncertainties of the economic outlook.

In an ideal scenario, the initial rate hike would occur precisely when it's broadly expected. This would work best to minimize the risks of another taper tantrum and minimize the risks of disruption to global financial markets. It also might help minimize the risks of the types of large-scale capital flow reversals that we saw in 2013 that made life particularly difficult for some emerging market economies.

Turning now to the statement, I think we want the statement to be read as modestly hawkish, reinforcing the notion that June, conditional on the data coming in relatively close to our expectations, is becoming more likely. The Chair can reinforce this at the press conference. The statement generally does this, and, particularly, it seems a little bit more positive about the growth outlook. It doesn't overemphasize the fact that inflation is below our objective, noting in paragraph 2 that inflation is expected to move back toward target. We could even be a little bit more positive on the growth side in paragraph 1, but I can accept it as written. I would take out the word "somewhat" because I do think we want to indicate that we really have upgraded our outlook a little bit. So I definitely would support that.

Getting the right message on inflation is very important right now because a lot of market participants are unclear about how much weight we will give to inflation in determining the timing of liftoff. We need to make it very clear that we don't have an inflation threshold. In other words, there's not a requirement that inflation must be moving up at the time of liftoff. Instead, we just must expect that inflation will rise in the future back to our 2 percent objective.

Liftoff is about lessening the degree of extreme monetary accommodation, and, of course, you want to begin this process well before employment and inflation reach your

objectives. I believe many market participants are confused about this, and that explains some of the difference between what we think we're going to do and what market participants expect for this. So I think we have to work on that a little bit. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Okay. I think the main open issue in the statement is the bracketed word “somewhat” in paragraph 1, and I heard one, two, three, four, five, six—eight people propose removing it. I'm certainly comfortable removing it. Is there anyone who supports the statement who would be uncomfortable seeing it removed? [No response] So let's go ahead and remove “somewhat.” Then I think everything else stays as is, and why don't we then vote on alternative B with “somewhat” removed?

MR. LUECKE. This vote, as Chair Yellen indicated, will be on alternative B, depicted on pages 6 and 7 of Bill English's handout. It will not have the word “somewhat” on line 3. It will also cover the directive on page 11.

Chair Yellen	Yes
Vice Chairman Dudley	Yes
Governor Brainard	Yes
Governor Fischer	Yes
President Fisher	No
President Kocherlakota	No
President Mester	Yes
President Plosser	No
Governor Powell	Yes
Governor Tarullo	Yes

CHAIR YELLEN. Okay. Thank you very much. And let me confirm that the next meeting will be held on Tuesday and Wednesday, January 27 and 28. I believe box lunches are now available for people, and, for anybody who is going to be around and would like to watch the press conference, there's a TV in the Special Library. I will do my best, and I will consider at the press conference what I've heard you say.

MR. FISCHER. Thank you, Madam Chair.

CHAIR YELLEN. Thank you.

END OF MEETING