Meeting of the Federal Open Market Committee on
September 16–17, 2015

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Wednesday, September 16, 2015, at 1:00 p.m. and continued on Thursday, September 17, 2015, at 8:30 a.m. Those present were the following:

Janet L. Yellen, Chair
William C. Dudley, Vice Chairman
Lael Brainard
Charles L. Evans
Stanley Fischer
Jeffrey M. Lacker
Dennis P. Lockhart
Jerome H. Powell
Daniel K. Tarullo
John C. Williams

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

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

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

David Altig, Thomas A. Connors, Michael P. Leahy, William R. Nelson, Daniel G. Sullivan, William Wascher, and John A. Weinberg, Associate Economists

Simon Potter, Manager, System Open Market Account

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

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

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

Nellie Liang, Director, Office of Financial Stability Policy and Research, Board of Governors

James A. Clouse and Stephen A. Meyer, Deputy Directors, Division of Monetary Affairs, Board of Governors

William B. English, Senior Special Adviser to the Board, Office of Board Members, Board of Governors

David Bowman, 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; David E. Lebow and Michael G. Palumbo, Senior Associate Directors, Division of Research and Statistics, Board of Governors

Ellen E. Meade and Joyce K. Zickler, Senior Advisers, 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; Francisco Covas and Elizabeth Klee, Assistant Directors, Division of Monetary Affairs, Board of Governors

Eric C. Engstrom, Adviser, Division of Research and Statistics, Board of Governors

Penelope A. Beattie,[1] Assistant to the Secretary, Office of the Secretary, Board of Governors

Katie Ross,[1] Manager, Office of the Secretary, Board of Governors

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

Elmar Mertens, Senior Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams, Information Management Analyst, Division of Monetary Affairs, Board of Governors

[1] Attended Wednesday's session only.

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

Alberto G. Musalem, Executive Vice President, Federal Reserve Bank of New York

Mary Daly, Troy Davig, Evan F. Koenig, Paolo A. Pesenti, Samuel Schulhofer-Wohl, Ellis W. Tallman, and Christopher J. Waller, Senior Vice Presidents, Federal Reserve Banks of San Francisco, Kansas City, Dallas, New York, Minneapolis, Cleveland, and St. Louis, respectively

Giovanni Olivei, Keith Sill, and Douglas Tillett, Vice Presidents, Federal Reserve Banks of Boston, Philadelphia, and Chicago, respectively

Transcript of the Federal Open Market Committee Meeting on September 16–17, 2015

September 16 Session

CHAIR YELLEN. Good afternoon, everyone. I would like to welcome Rob Kaplan to his first FOMC meeting. Rob became president and CEO of the Federal Reserve Bank of Dallas just last week. In his new role, President Kaplan brings to bear 10 years of academic experience at Harvard University, where he served as a professor and a dean; a long and distinguished career in global finance; and broad experience on corporate and noncorporate boards. I have to say, you chose to join us at a very interesting time. [Laughter] We all look forward to working with you.

MR. KAPLAN. Thank you, Madam Chair. I appreciate it.

CHAIR YELLEN. Let me mention, as was indicated in the agenda, that the entire FOMC meeting will be conducted jointly as an FOMC and Board of Governors meeting—and this will likely be true going forward. I need a motion to close the Board meeting.

MR. FISCHER. So moved.

CHAIR YELLEN. Thank you. And without objection. Our first item of business is “Financial Developments and Open Market Operations.” Let me call on Simon to give us the Desk report.

> MR. POTTER.[1] Thank you, Madam Chair. Over the intermeeting period, a sharp rise in concern about emerging market growth, particularly in China, triggered a broad decline in global risk-sensitive assets. Oil and other commodity prices fell, at times reaching levels last observed in early 2009, and inflation compensation measures in the United States and other advanced economies continued to decline. Most emerging market currencies depreciated, in some cases quite sharply. Nominal Treasury yields were relatively little changed, reportedly in part because flight-to-quality demand was offset by large-scale reserve sales by emerging market central banks, which intervened heavily in foreign exchange markets in a bid to stabilize the value of their currencies. Toward the end of the period, as U.S. markets calmed

[1] The materials used by Mr. Potter and Ms. Logan are appended to this transcript (appendix 1).

down, investors were intensely focused on the prospects for Federal Reserve policy firming in light of the positive news on U.S. real activity during the intermeeting period.

I will begin by discussing these financial market developments. Lorie will then discuss money market developments and operational matters.

The People's Bank of China unexpectedly devalued the renminbi versus the dollar following a long period of stability and predictability in the management of that exchange rate, as shown in the top-left panel of your first exhibit. Although the devaluation was relatively small compared with the increase in China's trade-weighted exchange rate over the past year, it came on the heels of a string of weak Chinese economic data and the unwinding, at least in part, of a bubble in Chinese equities. The devaluation appeared to intensify greatly the existing concerns among market participants about the severity of the growth slowdown in China and the ability of the Chinese authorities to address it appropriately. Sentiment toward Chinese policymaking had already been fragile, especially in light of the often heavy-handed and ultimately unsuccessful effort over the past few months to halt the selloff in equities. Following the devaluation, capital outflows from China accelerated markedly from already high levels. These outflows led, within a couple of days, to large-scale foreign exchange intervention to prevent further renminbi depreciation.

The concerns raised by the devaluation, along with a number of significant developments in other emerging markets that I will discuss later, contributed to a broad selloff in global risk assets. As shown in the top-right panel, equity price indexes in both emerging and developed economies declined sharply. The S&P 500 index fell by more than 10 percent over a two-day period before recovering somewhat and is about 7 percent lower, on net, over the period.

Nominal Treasury yields changed only modestly over the period, and real yields actually increased somewhat at most tenors. The middle-left panel shows a decomposition of the changes in forward nominal rates into real and inflation compensation components. Some market participants expressed surprise that nominal yields did not fall substantially and found the rise in real yields incongruous with the decline in global risk sentiment and flight-to-quality effects that are ordinarily expected to push yields down in such circumstances.

Many market participants believe that this relative stability in nominal yields reflects the downward pressure of typical flight-to-quality flows being offset by upward pressure stemming from sizable sales of Treasuries by Chinese and other emerging market reserve managers intervening to support their currencies. Your middle-right panel presents information about Chinese intervention activity. PBOC official reserve data for August showed a decline in reserve holdings of about $100 billion. Many market participants believe that this figure might understate the scale of Chinese sales—for example, by omitting intervention via foreign exchange derivatives—and estimate that the PBOC's intervention might have been up to $200 billion last month. Contacts believe that the PBOC funded outright interventions in large part via sales of shorter-dated, off-the-run nominal Treasury securities, and, as Lorie will discuss later, primary dealers' inventories of these securities rose rapidly. In addition, the PBOC was reportedly active in a range of other assets and across a variety of other currency pairs.

Market participants generally expect continued high levels of intervention to stem depreciation pressures on the renminbi, with some expecting that intervention could total several hundred billion dollars through the spring of next year. The combined effect of these actual and anticipated sales probably will put significant upward pressure on Treasury yields, although it is difficult to quantify the effects. Chinese officials appear to be hoping that various recently introduced so-called macroprudential measures will stem capital outflows and reduce the corresponding need for further FX intervention and asset sales to stabilize the currency at around its current level. However, investors appear skeptical that these measures will have much effect on capital flows, which are thought to be motivated by expectations for further renminbi depreciation and a loss of confidence in the Chinese economic outlook.

As further evidence of the possible effect of intervention on U.S. Treasuries, market participants have pointed to a narrowing of swap spreads—the difference between interest rate swap rates and cash Treasury yields—shown in the lower-left panel. According to this argument, the narrowing of swap spreads reflects underperformance of Treasuries versus other fixed-income assets in large part due to the concentrated flow of Treasury sales by reserve managers. The narrowing has been most notable in short-dated tenors, in which the majority of reserve selling has likely taken place.

Concern about a slowdown in China and other emerging markets also drove a steep decline in oil and other commodity prices. As shown in the lower-right panel, oil prices fell 13 percent on net over the period amid very high volatility. In addition to demand-related concerns, the decline in commodity prices also partly reflects expectations for oil production, both by OPEC member countries and by shale-exploration firms, to respond to recent price declines more slowly and to a lesser extent than earlier believed, as well as expectations for a significant rise in oil exports from Iran following the lifting of trade sanctions.

Declines in commodity prices, the surprise renminbi devaluation, and concern about fragility in many emerging economies have contributed to a significant decrease in emerging market asset prices, most notably in commodity-exporting economies. The top-left panel of your next exhibit illustrates the relationship between countries' intermeeting currency performance, on the vertical axis, against the share of their exports that come from commodities, on the horizontal axis. This panel shows that countries for which energy is a more important export experienced larger currency depreciations; for example, the currencies in the lower-right quadrant depend most on energy exports and exhibited the largest depreciation. These large exchange rate moves appear to reflect concern about the effect of sizable changes in the terms of trade on the economic health and fiscal, financial, political, and social stability of countries whose fortunes are closely tied to commodity exports and to China. The performance of the Turkish, Brazilian, Malaysian, and Russian currencies, which lie well below the best-fit line in this figure, also reflects the effects of political developments in these countries as well as, in the case of Brazil, a credit downgrade by Standard & Poor's to non-investment grade.

The decline in energy prices has also contributed to a continued fall in inflation compensation at both short and long horizons. The top-right panel shows the evolution of 5-year inflation compensation as measured in the swaps market over the past several years in the euro area and the United States. Each measure is well below its respective 10-year average, represented by the dashed horizontal lines. In the United States, 5-year inflation compensation fell about 25 basis points over the intermeeting period and is now near mid-2010 levels, although market measures of deflation probabilities are lower than they were in that earlier period. In addition to the drop in oil prices, market participants cite low inflation data, the appreciation of the trade-weighted dollar, and concerns about global economic growth as placing downward pressure on U.S. inflation compensation. Longer-dated forward inflation compensation also fell over the intermeeting period in the United States and the euro area. Respondents to the Desk's surveys continue to report that their own forward inflation expectations are little changed. At the same time, they attribute about one-third of the decline in long-forward inflation compensation over the period to a decline in the markets' overall assessment of inflation expectations, which is more than is attributed to this factor by most term structure models used in the System.

In response to increased concerns about the inflation and growth outlook, the ECB at its September 3 meeting signaled a willingness to change the size, composition, and duration of its purchase program, should conditions warrant, and adjusted one of the key parameters of its program to give more room to enlarge it if necessary. Sustained asset price response to this communication was limited. At its meeting this week, the Bank of Japan lowered its expectations for exports and production because of the slowdown in emerging markets but suggested the Japanese economy continues to recover moderately and kept its inflation outlook unchanged. A majority of Japanese market contacts believe the BOJ will expand the scope of its QE program later this year in pursuit of its inflation goal.

Some contacts report concerns that advanced-economy central banks—many of which are facing persistently low inflation while already at the zero lower bound and using quantitative easing measures—will be unable to adequately react to an external shock stemming from a significant global growth slowdown. In a new survey question, we asked the dealers to estimate the probability that the global economy will be in a recession six months from now. The average probability was 20 percent, with a range of individual beliefs from 5 to 50 percent. For comparison, the average probability associated with a recession in the United States was 13 percent.

Separately, market participants report uncertainty about how well some countries, most notably Brazil, will cope with tighter U.S. monetary policy, and note that many countries experienced significant challenges during the 2013 "taper tantrum."

However, it is important to emphasize that most market participants assess that these difficulties in individual countries by themselves are not material to the U.S. outlook. However, with policy firming likely to take place in the United States in the near or very near future, it is useful to recall that one of the lessons of the taper tantrum was that dollar carry trades might be more pervasive than standard measures indicate, and that their unwind can produce a deterioration of financial conditions in the United States through a decline in global risk appetite. Thus, it will be important to monitor closely for evidence of carry-trade-type linkages in offshore dollar markets. This is particularly true for activity running through Hong Kong, which is in the unusual position of maintaining a peg to the U.S. dollar while having the most open capital markets with mainland China.

The rise in uncertainty associated with the global economic outlook prompted an increase in volatility across most assets. Your middle-left panel shows the increase in implied volatility, most notably in equities and foreign exchange, in the period since the PBOC's devaluation. Implied volatility for equities in particular remains elevated, although it has come off its highs. Market participants reported that liquidity conditions, especially in foreign exchange and equity markets, deteriorated over the period, and that this contributed to some punctuated moves in asset prices, particularly on August 24. As in earlier events, such as the Treasury market moves last October 15, there seemed to be increased intraday volatility when large shocks or belief swings required big position unwinds. In this context, commentary over the period highlighted the effect of position adjustments by so-called risk parity strategies on market volatility. To date, these liquidity events have been transitory and do not seem to have materially affected market pricing. It is possible that these events are just part of the new landscape for financial markets with no implication for policy.

While market participants continue to see an increase in the federal funds rate at this meeting as a real possibility, expectations for this declined notably amid the financial market volatility. The middle-right panel shows the market-implied probability of liftoff at or before the September meeting, derived from federal funds futures prices and data from the Desk's surveys about where the effective rate will trade in the target range following liftoff. The probability had been about 50–50 before the PBOC devaluation and is now about 1-in-4 to 1-in-3. Market participants have suggested that diverse views expressed in policymaker communications over the period added to uncertainty surrounding the timing of liftoff. Thomas will discuss policy expectations and possible market reactions more in his briefing.

Turning to conditions expected at liftoff, for some time the Desk surveys have asked about expectations for inflation between one and two years ahead at the time of liftoff. As shown in the lower-left panel, the mean expectation is now that inflation between one and two years after liftoff will run a bit low, at 1.8 percent. This decline appears to reflect a belief that subdued inflation will be somewhat more persistent than earlier thought.

Let me conclude by noting the tightening in many common components of financial conditions indexes over the intermeeting period. Your lower-right panel shows the intermeeting performance of assets that form the core of most such indexes. As the panel shows, conditions in the equity, high-yield credit, foreign exchange, and real interest rate markets all tightened, with mortgages the significant exception. These moves were large both in absolute terms and in comparison with recent historical behavior. This illustrates that adverse developments in China and other emerging market countries have the potential to affect U.S. asset prices in a way that, if sustained, might have significant implications for the U.S. economic outlook. David Wilcox and Steve Kamin will discuss the implications of this risk further in their briefings.

Lorie will now discuss money markets and operational matters.

MS. LOGAN. As Simon noted, measures of domestic financial conditions tightened over the intermeeting period, though this tightening was not accompanied or led by any increase in dollar funding strains.

We have, however, observed a relatively modest but steady increase in some money market rates since earlier this year, as shown in the top-left panel of your third exhibit. This trend continued over the period, and the average effective federal funds rate for the month of August, excluding month-end, reached 14 basis points, its highest level in over two years. Market participants have speculated that the increase in the effective rate over recent months has been the result of a number of factors, including the pull of higher secured money market rates.

In explaining the more recent rise in repo rates, a number of contacts have pointed to foreign official sales to fund the FX intervention that Simon discussed and an associated increase in demand from primary dealers to finance these Treasury securities. Indeed, as shown in the top-right panel, primary dealers' Treasury holdings have increased since early July, leaving them with a larger amount of Treasury collateral to finance. The recent upward pressure arising from these developments is similar to the upward movement in repo rates and the effective rate observed during the maturity extension program, when the Federal Reserve was selling short-dated Treasury securities.

Amid these higher money market rates, total daily RRP take-up declined somewhat outside month-ends, averaging $78 billion versus $140 billion last period, as shown in the middle-left panel. The pattern of counterparty participation was generally consistent with prior periods, with money market funds continuing to account for most of the participation. The Federal Reserve also continued to test TDF operations over the intermeeting period. Take-up at the two overlapping TDF operations in August totaled nearly $125 billion, moderately lower than in the previous operations in May.

Meanwhile, foreign RP pool participation, shown in grey, was relatively steady over the period. As discussed at the July FOMC meeting, the staff communicated the changes in the repo pool terms of service to FIMA accounts, including the removal of individual target levels and of the requirement that we be notified in advance of changes in daily investment levels in excess of $100 million. The new terms took effect on September 4. We anticipate that the size of the foreign RP pool will grow $50 billion over the next several months based on indications from one large account holder that it plans to increase its use of the service. This institution noted that it plans to increase its liquid investments in anticipation of potential market turbulence over the next year related to U.S. monetary policy normalization.

Despite the recent upward drift in some money market rates noted earlier, expectations for the constellation of short-term interest rates following liftoff have remained quite stable. Responses to the Desk's surveys and outreach to a wide range of counterparties, summarized in your middle-right panel, suggest that market participants view the Federal Reserve as having the necessary tools to control short-term interest rates following liftoff. Specifically, the modal expectation is that the effective rate will print only slightly below the midpoint of a 25 to 50 basis point target range, and this expectation has been stable in responses to the Desk's surveys for some time. Other money market rates, with the exception of Treasury bills, are expected to trade at relatively similar spreads to the effective rate as they have over recent months.

While respondents to the Desk's surveys generally express confidence that the effective rate will print within the target range after liftoff—and assign very small probabilities to outcomes outside the range—they do assign a meaningful probability to it printing toward the bottom of that range. In particular, some commentary has highlighted that the effective lower bound may be providing support to money market rates that will recede as the target range is lifted. Other commentary has focused on the risks that increased demand for short-term, high-quality assets related to SEC money fund reform and continued declines in dealer repo books will put downward pressure on repo rates and pull down the effective federal funds rate.

More recently, market participants have noted that the timing of liftoff relative to the debt ceiling might also affect the path of money market rates. Over the intermeeting period, Treasury Secretary Lew extended the debt issuance suspension period through October 30, which allows the Treasury to continue to use extraordinary measures to remain under the statutory debt limit while issuing new securities. Staff and market projections suggest that these measures should allow the Treasury debt that is subject to the limit to stay below the statutory ceiling until around late November. Staff projections, shown as the dotted light blue line in the bottom-right panel, suggest that bill supply could temporarily decline another $171 billion from current levels if the debt ceiling is not lifted in the near term. This reduction in supply could put downward pressure on money market rates, particularly for outstanding bills, and the potential combination of lower money market rates and reduced bill supply might prompt a sizable increase in demand at our reverse repo operations, particularly at quarter-end. Demand for RRPs could be further boosted if, as in the past, money funds seek to avoid so-called at-risk securities or increase their investments in short-term, cash-like instruments in anticipation of possible redemptions. These pressures could increase the risk that demand at the ON RRP operations exceeds the current aggregate $300 billion limit.

At this point, we have not seen evidence of concern about a possible disruptive debt ceiling outcome in financial markets. That said, in past episodes, and as shown in the top-left panel of your final exhibit, bill yields did not reflect such concern until closer to the date when the Treasury was expected to exhaust its extraordinary measures. As in previous episodes, the staff intends to prepare contingency plans for a variety of scenarios and will provide an update to the Committee at the October meeting or sooner, if needed.

Looking ahead, as detailed in a note sent to the Committee during the intermeeting period and outlined in the top-right panel, the Desk plans to offer term RRPs over the September quarter-end. Should the Committee decide not to increase the target range, the Desk would propose offering \$250 billion in term RRPs at 3 basis points over the ON RRP offered rate, apportioned between seven- and two-day maturities. This increased offering amount should mitigate, to some extent, the risk that a drop in Treasury bill supply might lead to more quarter-end pressure than we anticipate. This would be somewhat higher than the \$200 billion offered over the past two quarter-end dates but below the \$300 billion offered in December 2014.

If the Committee decides to raise the target range at this meeting and directs the Desk to temporarily suspend the cap on the ON RRP, the Desk plans to continue to offer the already announced \$200 billion in two term operations, also with seven- and two-day maturities, but at a 0 basis point spread to the ON RRP rate. Without offering any financial incentive for investing cash for term instead of overnight, we would anticipate limited take-up in the term operations and larger take-up at the ON RRP operations.

Finally, I would like to provide a brief update on reinvestments. The Desk continues to reinvest principal payments on holdings of agency debt and MBS into agency MBS through secondary market purchases, and these operations proceeded smoothly over the intermeeting period. Following our update at the July meeting, the Desk began aggregating agency MBS CUSIPs during the week of August 17, as planned.

Over the period, there was some focus on the FOMC's reinvestment policy following the discussion in the July FOMC meeting minutes. As in prior surveys, and shown in your middle-left panel, respondents view a phasing-out of Treasury security and agency MBS reinvestments as the most likely scenario and generally expect that reinvestments will be phased out over a 10- to 12-month period. As shown in your middle-right panel, according to the Desk's surveys, the median respondent expects that the FOMC will cease some or all Treasury security and agency MBS reinvestments 9 months and 8 months following liftoff, respectively. Both of these numbers represent a modest increase from median expectations in the July surveys and continue to reflect a wide range of expectations.

Thank you, Madam Chair. That concludes our prepared remarks.

CHAIR YELLEN. Thank you very much. The floor is open for questions. Jim.

MR. BULLARD. Thank you, Madam Chair. I'm looking at exhibit 2, figure 7—"FX Performance over Intermeeting Period and Net Commodity Exports." What is the lesson I am to draw from this chart?

MR. POTTER. In general, countries that export a lot—mainly to China—and have done very well over the past 10 years are suffering quite a lot of exchange rate pressure right now. In addition, you see some big outliers down there that I discussed that have idiosyncratic events going on right now, probably the most important of which is Brazil, due to its size.

MR. BULLARD. One interpretation is that this line is pretty flat, and everybody depreciated against the dollar. Maybe it's not so much related to commodities—it's just everyone depreciated against the dollar.

MR. POTTER. There's a bit of a scale issue here and I agree that nearly everyone did depreciate against the dollar, but there is a relatively weak relationship here, and it does have a negative slope. If you took into account the depreciation over a longer period of time, you'd see more of a consistent one here. At the previous briefing, I discussed Canada and Norway in terms of the depreciation that they've had, and we saw less of that in this intermeeting period, but it's been substantial leading into this intermeeting period. The point we're trying to get across is, these are really big relative price shocks for these countries, and some of what we saw in the loss of risk appetite is how well they deal with these big, relative price shocks.

MR. BULLARD. Countries have also been changing their monetary policy stance, something that would tend to depreciate their currency.

MR. POTTER. Exactly.

MR. BULLARD. So it's not just commodities—it's commodity market developments in conjunction with monetary policy developments.

MR. POTTER. The theory is that you can get some economic stabilization by having a flexible exchange rate. And we're on the other side of that, as you pointed out.

MR. BULLARD. I have a question about panel 12, which gives key components of financial conditions. Could you just plot the financial conditions index that you think is the most appropriate? Because if you do it this way, then I've got to compute in my head what happened to the financial conditions index.

MR. POTTER. I think there's a new one of those produced each day.

MR. BULLARD. Yes. [Laughter]

MR. POTTER. And they have differences among them with respect to their construction. There's one that's been very prominent in the past week, and that one has been given some weight by people outside this building. For the people around this table, I think you can't rely on an index constructed by someone else for how you should look at the deterioration in financial conditions.

I tried to emphasize that it's been mixed. Mortgages tightened. If you put a lot of weight on the housing sector, then this doesn't look as bad as some other periods. If you put a lot of weight on the exchange rate, then this is a pretty big intermeeting move. If you look at some of the bigger indexes that are in the first percentile for the stock market, this is still pretty small. We could give you one index, but I think that would be misleading because every situation is different. The weights might have worked well in the past, but they might not work well going forward.

MR. BULLARD. Okay. So your point is that it's a mixed picture with respect to financial conditions.

MR. POTTER. Yes. That, we hope, is our spin.

CHAIR YELLEN. I have President Evans next.

MR. EVANS. Thank you, Madam Chair. Simon, could you talk more about chart 11 on inflation expectations between one and two years after liftoff? I assume this comes from the dealer survey?

MR. POTTER. It's from both the dealer survey and the Survey of Market Participants.

MR. EVANS. Okay. It seems to show that in June and July of 2014, inflation was expected to be above 2 percent. Is that because they thought we would be late to liftoff? We were taking a while to taper and we hadn't finished the tapering, and now should I infer that we're early to liftoff or right about time for liftoff? Also, is there any information from this about how longer-term inflation expectations might be moving? I understand that it's short term, but any information about credibility anchors?

MR. POTTER. I can't look into the heads of the people who put this answer down.

MR. EVANS. But you do statistical analysis of other things.

MR. POTTER. We do, but not psychology, which I'm not so good at. What has been the case, if you look at the probability distributions we have collected over the past year to a year and a half, there's less probability assigned to the higher inflation outcomes, so that naturally drags down the average inflation rate that people expect. In terms of the probability that inflation will be less than 1.75 percent over one to two years ahead, the dealers think there's a 30 percent chance, which is not as high as they thought in March. The buy side places a slightly higher probability on that outcome than they did in March. If you average the dealers and buy side together, you get about 45 percent probability, and that's consistent with the subdued inflation we've seen and the current inflation outlook.

MR. EVANS. Thank you.

CHAIR YELLEN. President Williams.

MR. WILLIAMS. Thank you. I want to follow up on President Bullard's question on panel 12 and then I want to make a link to panel 5. I noticed that the MBS OAS came down. I have a clarifying question and a more analytical one. When the Treasury nominal swap spreads come down, that means that the swap rates are coming down more than the Treasury rates, right?

MR. POTTER. They're both going up, but by less.

MR. WILLIAMS. Yes, but they're actually both coming down, on net, over the period.

MR. POTTER. This is the one-year forward rate, so you have to be careful with it. And it's not updated for what happened yesterday. If you look at the two-year note, it was 80 basis points at close yesterday. And you did see swap spreads also fall again yesterday.

MR. WILLIAMS. Okay. So, first, the swap rates have fallen?

MR. POTTER. Yes.

MR. WILLIAMS. And the second question is, do we have a view on what is more correlated with the interest rates we think matter for borrowing, like corporate rates, other borrowing rates in the economy, and mortgage rates—is it swap rates or the Treasury rates? Treasury securities can have special features that mean that there's a special premium associated with those, and possibly swap rates are more correlated with the private borrowing rates that we probably think actually matter—that is my question.

MR. POTTER. It's definitely true that this could be taken as something the private sector would like if they want to swap floating for fixed. Overall, though, if you look at high yield OAS, that did move out a reasonable amount but it's still not a really big change. I've got 14 basis points over the intermeeting period, which we quoted as being at the 31st percentile. One of the intermeeting periods was 128 basis points, which occurred with the fall in oil prices and the effect of the energy credits. What we tried to do in chart 12 is to give a feeling for the richness of how you might measure financial conditions.

MR. WILLIAMS. Are other borrowing rates besides mortgage rates, like corporate bond rates—

MR. POTTER. I think corporate bond rates have moved out, so they're higher, and that's definitely something that's been happening over the past few months. But as Lorie emphasized, we've seen absolutely zero evidence of signs of stress in funding markets. Again, as I said, it's a new world, and maybe we'll learn there's a great index that would've told us what to do in a year's time.

MR. WILLIAMS. So what we really need is a daily *r** out of all this.

MR. POTTER. Thank you. You and Thomas can work on it, then. [Laughter]

CHAIR YELLEN. Vice Chairman Dudley.

VICE CHAIRMAN DUDLEY. Just a very short intervention on the swap rate. The swap rate really is not a good indicator of what other corporate rates are going to be because it doesn't really have a credit default component in it. When the swap is struck, there's no notional value, so the swap rate doesn't really reflect corporate credit rates in a—

MR. POTTER. But holding that constant, it does.

VICE CHAIRMAN DUDLEY. It affects relative supply, and I think the way Simon was using it was to show that there's a lot of Treasury supply that's entering the market, presumably from the liquidation of foreign exchange reserves, and that's causing swap rates to fall relative to Treasury rates.

MR. POTTER. There are some other explanations the Tealbook discusses as well.

CHAIR YELLEN. President Rosengren.

MR. ROSENGREN. My question is for Lorie, and it's concerning the challenges of implementing the reverse repo facility when we decide to start raising rates. It's a two-part question. One is from panel 15. Were you surprised there wasn't more activity in the reverse repo facility around the end of August and the beginning of September? And as you think about the volatility we've been experiencing in financial markets—the debt ceiling, the government shutdown, and end-of-the-year effects—how do you weigh those things in terms of thinking about the challenges to actually doing liftoff when we want to lift off? Are there things that particularly concern you as we think about October, December, or next year and what's going to be happening, whether we'll actually be able to lift off effectively when we want to?

MS. LOGAN. With respect to the first question on not seeing more usage, I guess you're referring to the financial volatility in markets and flight to quality. We didn't see any funding pressures, as Simon just discussed. I would think that the type of volatility we'd expect to affect the overnight RRP would be more closely connected to funding pressures than asset price volatility going longer out. So I wasn't particularly surprised, but we were monitoring it closely to be sure.

With respect to the year-end and the debt ceiling, given that the Committee is considering suspending the cap at liftoff, I don't think we would expect to see year-end issues associated with managing the rate because there would be plenty of room to accommodate year-end pressures while targeting the overnight rate. There are other issues associated with liquidity in financial markets— there might be an exaggerated move in broader asset prices just because there's not as much trading going on during that time of year. So I think there are two separate issues when you look at liftoff at the end of the year. One is related specifically to implementation, and I think the cap should go a long way toward alleviating that if it was lifted.

The other is just broader financial market volatility, and I think that one is harder to assess, but I would say that there's a lot less liquidity at year-end.

With respect to the debt ceiling, I think it can go both ways. One the one hand, with the reduction in bill supply, we should expect there to be more pressure to use the overnight RRP due to a shortage of collateral. On the other hand, we don't know when that really is going to start, and we also don't know how markets are going to treat the at-risk securities. If market participants think the ON RRP facility is going to be there, they may not withdraw from the money funds that might give them those at-risk securities, and so we might not see the pressures there. I think it's hard to know with respect to the debt ceiling.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I thought panel 12 was quite informative. I was wondering if you know or if you could provide a similar metric with regard to the decline in market-based measures of inflation compensation during the intermeeting period in terms of a percentile. I thought the percentile metric was very helpful.

MR. POTTER. I don't have that in front of me. At times it was large—you can just look at the time series chart to see that. It's going to vary by which measure you use. There was definitely a period, around the middle-to-late part of August, when it was falling quite strongly, but I don't have that offhand. We can find it for you.

MR. KOCHERLAKOTA. Yes, if you could.

MR. POTTER. I think it's not going to be as big as some of the moves we've seen in the past. Remember, when I show you a chart like this, it doesn't tell you what level we start at. A lot of people say, "The stock market was a little high, and so it naturally came down." And it could be that some of those big moves down occurred when inflation compensation was relatively high compared with where it is today. So this is neutral on these statements. This is really looking at some change in change, you could almost argue.

MR. KOCHERLAKOTA. But if you could provide that to me, that would be useful.

MR. POTTER. Yes, will do.

MR. KOCHERLAKOTA. Thank you.

CHAIR YELLEN. Further questions?

MR. KAMIN. If I could just offer a little bit of additional information regarding President Bullard's question about the relationship between commodity prices and exchange rates. We've done some research on this: basically, econometrically relating changes in currency values to the share of a country's trade that's in both oil and non-oil commodities. It turns out that if you run that regression over the entire past year, starting when the dollar started to fall, you actually get pretty precise, statistically significant estimates of the effect of both oil prices and non-oil commodity prices on exchange rates. That explains somewhere in the neighborhood of half of the cross-sectional dispersion of exchange rate depreciations.

Now, if you take a snapshot of the previous intermeeting period, you might expect that, as it's a more tumultuous time and a shorter period, you'd get a less precise reading on the relationship between commodity prices and exchange rates, and that is indeed what we found. You still have a statistically significant effect of oil prices on currencies, but it's a smaller coefficient, and a not-statistically-significant effect of non-oil commodity prices on currencies.

That's all to say that I think the basic relationship between commodity prices and a country's exchange rate still holds, but it's been obscured in this past month and a half with the more general market volatility.

MR. BULLARD. Just to respond to that—why should they depreciate against the dollar? They should really depreciate against a basket of currencies of noncommodity countries, so the dollar is sort of proxying for the noncommodity—

MR. KAMIN. Well, they probably are.

MR. BULLARD. Yes. But that would be a big part of the world if you include the yen and the Europeans.

MR. POTTER. Well, the euro and yen went up against the dollar, so the currencies of commodity countries depreciated against them as well.

CHAIR YELLEN. Any further questions or comments? [No response] I need a motion to ratify domestic open market operations since July.

MR. FISCHER. So moved.

CHAIR YELLEN. Thank you. Without objection. We're next going to turn to "System Open Market Account Reinvestment Policy," and I'm going to call on Beth Klee to start us off.

MS. KLEE.[2] Thank you, Madam Chair. Chris Erceg and I will be referring to the materials titled "SOMA Reinvestment Policy."

At the July FOMC meeting, participants discussed various aspects of the decision to end reinvestment, including the appropriate economic conditionality of such a decision and the macroeconomic effects of alternative strategies. In that context, you recently received a follow-up memo that addressed a number of these questions. As noted in the upper panel of your first exhibit, key questions include the following: How much might the choice of reinvestment strategy matter for economic outcomes? How much might the choice of reinvestment strategy affect the path of the federal funds rate? And can reinvestment strategies that are linked to the federal funds rate improve economic outcomes in situations when the effective lower bound on the federal funds rate is binding? In our briefing, Chris and I will provide evidence on these issues and discuss possible implications for the reinvestment language options included in alternative C of the September Tealbook.

To start, under the trigger strategies considered in the staff memo—and as noted in the lower panel—the Committee would announce that full reinvestment of the principal payments from Treasury and agency mortgage-backed securities would

[2] The materials used by Ms. Klee and Mr. Erceg are appended to this transcript (appendix 2).

continue until the federal funds rate reaches the trigger—either 1 percent or 2 percent—and then stop permanently. These strategies have several key features. First, they are state dependent and, therefore, in line with the Policy Normalization Principles and Plans document, which indicates that the timing of the end of reinvestment will depend on the economic outlook. Second, these strategies link reinvestment to the level of the policy rate, a feature that may be conceptually attractive as it then indirectly links the end of reinvestment to economic conditions. Third, the conditionality is limited because the triggers, as constructed, imply that reinvestment ends permanently once the trigger is reached. Of note, although we assume for illustrative purposes that the trigger strategies are geared toward specific numerical values of the funds rate, these strategies could be communicated through qualitative guidance about how far policy normalization had to proceed before reinvestment would be ended.

Your next exhibit explores some consequences of the trigger strategies if economic conditions evolve in line with the modal outlook. Panel A compares the evolution of the SOMA portfolio under the baseline reinvestment strategy—for which it is assumed that reinvestment ceases roughly six months after liftoff, and which is depicted by the solid black line—with the trigger strategies. The 1 percent trigger—the blue dashed line—delays the end of reinvestment only briefly, while the 2 percent trigger—the red dotted line—delays the end of reinvestment until two years after liftoff, to late 2017. The larger balance sheet under each trigger strategy causes the term premium—panel B—to run a tad lower than under the baseline strategy. Because the inertial Taylor rule assumed to govern the federal funds rate in our simulations does not raise policy rates enough to counteract this additional balance sheet stimulus, long-term real interest rates decline a touch compared with the baseline—panel C—and, consequently, the unemployment rate also falls a little more quickly—panel E. However, it is clear that the macroeconomic effects are small, even under the more accommodative 2 percent trigger.

You might look at the results and wonder if reinvestment policy could matter much for macroeconomic outcomes. Returning to the top of the exhibit, consider a polar case—shown by the green dash-dotted lines in panel A—in which the FOMC announces that the SOMA portfolio will be held constant at its current level for a very long time. In this case, the term premium drops about 40 basis points on the announcement—the green line in panel B—and the unemployment rate, panel E, falls about ¼ percentage point below baseline by 2018. This example highlights the result that reinvestment policy can have sizable effects, albeit under an extreme strategy.

Turning to your third exhibit, the stimulus from the alternative reinvestment strategies can be offset by a somewhat higher funds rate than implied by the inertial Taylor rule. As seen in panel A, we implement this offset for each strategy by boosting the intercept term of the Taylor rule by enough to achieve nearly the same macroeconomic outcomes as in the Tealbook baseline. As seen in panel B, only a small upward adjustment of the federal funds rate path is required under the trigger strategies—the blue and red lines—to mimic the baseline outcomes for unemployment, panel C, and inflation, panel D. By contrast, offsetting the effects of maintaining a constant portfolio requires a noticeably higher funds rate—the green line in panel B.

Chris will now continue our briefing starting with your next exhibit.

MR. ERCEG. Thank you, Beth. Although the macroeconomic effects of the baseline and trigger reinvestment strategies do not differ greatly under the modal outlook, trigger strategies can provide considerably more balance sheet accommodation in response to adverse shocks, particularly those shocks that would drive the federal funds rate to the ELB. To illustrate this, in exhibit 4 we consider a recessionary shock that pins the federal funds rate at the ELB for three years under the baseline reinvestment strategy—the solid black line in panel A—and results in the unemployment rate—panel B—rising to 7½ percent. Under the 2 percent trigger strategy, the red dotted line in panel A, the public expects that the federal funds rate will remain below 2 percent until 2021. Accordingly, SOMA holdings, panel C, are expected to remain at their current level until the funds rate reaches 2 percent in 2021. The larger balance sheet under this strategy results in a much lower path for the term premium—the red line in panel D. As a result, the trigger strategy mitigates somewhat the rise in the unemployment rate—panel B—with the peak rise about 0.4 percentage point lower than under the baseline strategy.

The bottom panel discusses three key implications of trigger strategies. First, the balance sheet stimulus under the trigger strategy in an adverse scenario comes from an expectations channel: Because reinvestment is tied to the policy rate, which is expected to remain low for a long time, the balance sheet is expected to remain large for much longer than in the baseline. Second—and relatedly—a “calendar based” strategy that simply delayed reinvestment for a couple of years after liftoff would provide much less economic stimulus in adverse scenarios. This outcome is illustrated by the strategy labeled “liftoff plus 2 years” shown by the dashed blue lines in panel C. It delays the end of reinvestment by two years after liftoff, to late 2017, and thus extends the SOMA holdings. Because the effects on the term premium—panel D—are quite small, this alternative approach only slightly mitigates the rise in unemployment, the blue lines in panel B, relative to the baseline.

Returning to the bottom panel, the third key implication is that the trigger strategy only provides noticeable stimulus if the adverse shock occurs before the policy rate reaches the trigger. If the recessionary shocks occurred later, the trigger strategy—through delaying balance sheet adjustment a year or two—would provide only a small degree of additional stimulus. A strategy that would restart reinvestment in response to sufficiently bad shocks could potentially do better in limiting their adverse macroeconomic effects than would an irreversible trigger strategy, at least if this strategy were well understood by market participants. Of course, the greater state dependence of this policy might make it more difficult to communicate.

As noted in your final exhibit, paragraph 4 of alternative C provides two options to characterize the Committee’s thinking about when to cease or begin phasing out reinvestments. The first is to continue reinvesting “until normalization of the level of the federal funds rate is well under way," and the second is to continue reinvesting "at least during the early stages of normalization of the level of the federal funds rate."

You might view "well under way" as qualitatively consistent with the trigger strategies discussed in the memo. In particular, market participants might interpret this language as suggesting that reinvestment would not cease until economic conditions had led the Committee to increase the target range for the federal funds rate more than a few times. In addition, the public might conclude that, in the event that the economic outlook deteriorated, reinvestment could continue for a long time. This qualitative language would leave some ambiguity about how high the federal funds rate would have to rise to trigger an end of reinvestment, although policymakers could help clarify the public's understanding through speeches, testimony, and other communications.

In contrast, "at least during the early stages" might be interpreted as indicating that the Committee intends to cease or phase out reinvestment after a few hikes in the policy rate even if the federal funds rate stayed relatively low thereafter. Market participants would probably view this language as indicating that policymakers place a relatively high priority on beginning to normalize the size of the balance sheet fairly soon. However, the qualification "at least" would likely suggest that the Committee wanted to retain some option to continue reinvestments if the labor market was to weaken or if inflation was stubbornly low.

Thank you very much. Beth and I will be happy to take your questions.

CHAIR YELLEN. Let's start with questions for Beth and Chris, after which I'll be very interested in seeking the Committee's views on these different options. I expect that in the not-so-distant future I will be asked more about our thinking, and I'm looking for some Committee-approved language that I could use.

Why don't we start with questions, and then we'll have an opportunity for comments. We've got a list of people who have asked to comment, and others can join on. But now, questions. President Kocherlakota.

MR. KOCHERLAKOTA. Yes. Thank you, Madam Chair. First of all, thanks a lot for the excellent memo—I thought it was very informative and very useful. I'd be interested in your perspectives, in terms of the language that you propose, why you decided to go with as ambiguous or qualitative a characterization as you did as opposed to at least mentioning the federal funds rate or maybe actually talking about some numerical range for the federal funds rate. Why use the term "well under way," which is open to a lot of possible interpretations?

MR. ERCEG. I think that the trigger strategies potentially can be communicated in different ways. The minutes suggested that the Committee preferred qualitative guidance about the balance sheet, so we wanted to avoid really making it seem that the triggers we provide in our quantitative exercises for concreteness purposes really should be treated as numerical triggers as such.

CHAIR YELLEN. We had a discussion about this at our previous meeting, and I think our interpretation of the sense of those on the Committee was that they preferred qualitative language to an explicit quantitative characterization. Other questions? President Bullard.

MR. BULLARD. Thank you, Madam Chair. I'm looking at panel B of exhibit 2 about the term premium effect, especially the line associated with the constant portfolio. Drawing on the simulation, you said there was around a 40 basis point effect on the term premium over a decade. Usually we teach people that there's monetary neutrality, and monetary policy can only have temporary effects. This looks pretty much like a permanent effect.

MS. KLEE. The 40 basis points is correct. There are a couple of different things. If you structure the balance sheet so that it's constant for a very long time, our models suggest that has a very large term premium effect. I think in the memo we estimated it was going to be about 20 years until the size of the portfolio was normalized under this scenario. I think over time the Federal Reserve has used its portfolio in order to affect longer-term interest rates, and there's a question as to what is neutral. When we have traditionally reinvested, we've done it in a way that's neutral to the Treasury's issuance of securities. But I think that there are different ways you can think of a neutral portfolio and whether it actually will affect—

MR. BULLARD. According to this, if we can grow the portfolio at the pace of nominal GDP growth, we'll depress term premiums permanently, and we'll get permanently lower unemployment. That is long-run nonneutrality of monetary policy.

MS. KLEE. I think it fades over time. I don't think it's—

MR. BULLARD. Where does it fade in the picture? You've got—

MS. KLEE. Further out.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. The amount of government debt in the hands of the public is lower as long as we're holding a portfolio of a given size, and that's what the nonneutrality is—it's on the size of the government debt, and that's a particular monetary policy that has been undertaken in a way that does, in fact, make a change in the government debt, and it's nonneutral.

CHAIR YELLEN. Chris.

MR. ERCEG. I just wanted to add that it might be helpful to think of the balance sheet policy as essentially affecting what we might call the equilibrium real rate or the natural real rate. From that perspective, balance sheet policies that depress term premiums very persistently would in essence be tantamount to raising the natural real rate. And that's essentially what's happening in these exercises, and it would be underscored in exhibit 3, in which you see the increase in the federal funds rate at relatively long horizons.

Now, of course, this effect is derived from an estimated model. It's taken from the Li and Wei model, which is estimated over the 1994 to 2007 pre-crisis sample period. It's consistent with relatively large and persistent effects on term premiums associated with very protracted changes in the level of long-term assets on the Federal Reserve's balance sheet. So that drives these very persistent effects, but it's certainly based on an estimated model over the pre-crisis period.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Yes. Thank you, Madam Chair. I think of this kind of policy intervention as really more akin to a fiscal policy intervention. It's not about the increase in the liabilities, but really more in terms of the composition of assets that are in the hands of the public, as Governor Fischer was suggesting. And so the change in the composition of the assets in the hands of the public lowers the term premium below what it would be otherwise in a permanent fashion, for a given particular time path of public debt issuance by the Treasury.

MR. BULLARD. Show me a model.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. I think, President Bullard, the fundamental non-neutrality theorem says that if all the exogenous nominal variables are changed in the same proportion, that will be neutral. But this is not a change that changes them in the same proportion and so it is non-neutral.

CHAIR YELLEN. Thomas.

MR. LAUBACH. If I may just quickly elaborate on some of the things that President Kocherlakota and also Chris mentioned. You might think of this as if you kept the balance sheet permanently larger, you would have a permanent shift in the equilibrium real interest rate. If you didn't accommodate that or didn't take that into consideration in your policy rule by moving the intercept appropriately, you would end up missing your inflation target permanently.

Now, the policy rule has, of course, the 2 percent inflation target hardwired into it, so it would constantly push against the resulting inflation overshoot that would result from not adjusting the intercept of the policy rule. But it's still the case that if you properly took into account the resulting shift in the equilibrium real interest rate in the policy rule, then you would end up reaching your inflation target over time.

CHAIR YELLEN. President Lacker.

MR. LACKER. I'm looking at exhibit 3. We discussed this last time, that in principle, a change in the funds rate path should be capable of completely and exactly offsetting the effect of a different balance sheet path. So I'm surprised at these little differences in C and D—why doesn't the funds rate path for the constant portfolio result in the same unemployment and inflation rates as the baseline case? Why didn't you nail it in C and D? And, second, the intercept term in the inertial Taylor rule changes a lot, as shown in A—for example, look at the constant portfolio case—10 years from now, it's still above 2 percent. How come, in 10 years, the difference in the funds rate paths between the constant portfolio and the baseline case isn't closer to the difference in the intercept terms? So why didn't you nail it, and why is the funds rate not that much different at the end?

MR. ERCEG. I think that in the FRB/US model this is an implementation issue. We were trying to, within the confines of the model, use a relatively simple way of offsetting the additional stimulus. It's imperfect in exactly insulating the macroeconomic effects, but it comes, I believe, very close. In a smaller-scale model that I set up, one can achieve, as one might expect, that perfect insulation, but it's difficult to do in a much larger model.

MR. LACKER. Is this just a computational issue? I mean, there's some number that nails it, right? Is that true in the FRB/US model?

MR. ERCEG. Yes, in principle. You can alternatively adjust the intercept in a small-scale model or put an extremely large coefficient on the output gap. And by doing so—say, the latter approach—you'll completely insulate the economy from the effects of what is essentially an increase in the natural real rate.

MR. LACKER. So were you just guessing and moving and then just gave up before you got there? [Laughter]

MR. ERCEG. Well, I honestly didn't implement these simulations myself. But, nonetheless, it is difficult to do this in much larger scale models with—

MR. WILCOX. Very rich transmission structures.

MR. ERCEG. Exactly. Transmission that is much more realistic than in our simple models. In simple models, you can completely insulate. It's easy to do. You have many different ways of doing so. Under an optimal strategy that didn't penalize the change in interest rates, you can exactly insulate the macroeconomy from the effects of a shift in the natural rate. In bigger models, it's a lot harder to do.

MR. LACKER. It's a little mysterious. So the right-hand side variables in the Taylor rule are virtually the same—the only thing different is the intercept term. So why isn't the funds rate path different by about the difference in the intercepts?

MR. ERCEG. It's going to depend as well on the exact way that the intercept change is phased in. There are a number of complications.

MR. LACKER. But it was, like, 0.15 every period, and after 10 years you'd get—

MS. KLEE. Toward the end it's exactly the same. If you look in 2025, they're both about 50 basis points apart.

MR. LACKER. Okay. Thanks.

CHAIR YELLEN. Okay. Any other questions, or can we begin comments? President Rosengren.

MR. ROSENGREN. Regarding your choice of a discrete stop versus a tapering strategy—there are pretty large standard errors around how we think this would actually work, because the understanding of this is somewhat experimental, as this has occurred just since the financial crisis. As you think about a strategy that just allows reinvestment to stop completely versus a tapering strategy, why did you pick the particular one that you did? And why not show a tapering strategy, as that's where the market seems to think we're going to go?

MS. KLEE. Our Tealbook baseline is with a complete cessation of reinvestment six months after liftoff. We could have chosen a phaseout strategy—it doesn't make a whit of difference in these models in terms of the macroeconomic outcomes. It's more of a market-functioning issue.

CHAIR YELLEN. Okay. I have a list of people who'd like to comment, and, again, I'm really interested in your views on the alternative C options. Let's begin with the Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I have a brief comment. First, I very much appreciate the staff memo. I thought it framed the issues very well—very small effects when using the modal forecast scenario, but more significant effects in terms of insuring against adverse outcomes. In other words, reducing the probability of returning to the zero lower bound, which I think is the key issue that we're really talking about here.

In terms of the language in alternative C, I think we need a small addition. I'm fine with the phrase "until normalization of the level of the federal funds rate is well under way," but I think we should add an additional condition that we think that the normalization is expected to prove sustainable or something similar. Paragraph 5 in alternative C might read something like "The Committee anticipates doing so until the normalization of the level of funds rate is well under way and is expected to prove sustainable."

The notion I have in mind here is that the end of reinvestment should not be tied mechanically to the level of the funds rate but also tied to the economic outlook. I could imagine supporting an early end of reinvestment at a relatively low federal funds rate if the economy was forecast to grow very rapidly over the following year with very few downside risks in terms of the economic outlook. In that case, the likelihood would be that the Committee would raise the federal funds rate further over the next year, and the probability of an early return to the effective lower bound would be very low. In contrast, I'd favor waiting to end reinvestments if the economy was lacking forward momentum even at a somewhat higher federal funds rate. That's because the risk of returning to the effective lower bound would be higher in that case.

The point I'm trying to make is that we're delaying reinvestment for a reason—to reduce the probability of returning to the effective lower bound. That should really be the parameter that we're focusing on. That probability is not just governed by the level of the federal funds rate, but also the economic outlook at the time. We want to end reinvestments when that probability is relatively low, and I think that's not sufficiently summed up just by "well advanced." I think you have to get the concept of the outlook in there as well.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I'm glad to say I'm comfortable with either version of the reinvestment language in alternative C and most other aspects of alternative C as well. Oh, but I'll leave that to tomorrow's discussion. [Laughter] I thought you might appreciate that.

I'd like to make a few observations about the staff memo, quite honestly picking up on most of the themes that were discussed in response to some of the questions and also Vice Chairman Dudley's comments.

In terms of the staff memo, making decisions about the appropriate size of the balance sheet, I think it's very important that we weigh both the costs and the benefits under a wide range of plausible scenarios. The memo emphasized one specific adverse scenario in order to illustrate a potential benefit of using a state-dependent rule for any reinvestments. As was described in the memo and in the presentation, in this particular scenario, a state-dependent rule continues reinvestment for several years beyond the baseline, and the larger resulting balance sheet provides additional stimulus relative to the case of ending reinvestments on a preset path.

But in considering the merits of such a state-dependent rule, we shouldn't lose sight of the bigger issue of the relative costs and benefits of maintaining a very large balance sheet. Indeed, taking the analysis of the memo to its logical extreme, we should always maintain a very large balance sheet, arguably even larger than what we have today, to provide insurance against negative shocks. Now, I'm picking up on something implied by Vice Chairman Dudley's comment because, according to the Board analysis we discussed, a large SOMA portfolio lowers the term premium and effectively shifts the IS curve out, and this implies a higher equilibrium federal funds rate—it's about ½ percentage point higher than baseline for the constant portfolio. What does that do? It provides us with more buffer to use the federal funds rate as a policy instrument to respond to negative shocks.

I see this memo not really being about this scenario or about the strategy for ending reinvestments. Really, it's a question of, fundamentally, do we need a bigger buffer, especially in light of concerns about a continuing very low equilibrium real interest rate? In a way, I think the memo narrows the question too much to just the specific language concerning how we would end reinvestments, and we really should think much more carefully about both the benefits more generally of having a large balance sheet, and also revisit the costs around that because the memo obviously can only cover the benefits. Now, we've decided through our discussions in the past that the costs of holding a very large balance sheet outweigh the benefits at most times, and we shouldn't lose track of that in thinking through some of these issues in terms of the reinvestment strategy, as opposed to just focusing on the benefits under certain scenarios.

Now, I recognize I am veering into the topic of the long-run policy strategy that the Chair has initiated and is under way, but I do think this is an important issue to think about. If we really do think we're in a world of a lower equilibrium real rate and we are worried about downside risks, I think we really should be thinking in very broad terms about what the costs and benefits of the balance sheet are. And getting back to President Bullard's question, what do we really understand about the effects of the balance sheet on the equilibrium real interest rate, and what are these tradeoffs that we're facing?

I think that the memo is fine—I have no quibbles about the memo—but it narrows this discussion down far too much. The discussion we need to be having is about this broader issue of the costs and benefits of the balance sheet and not just thinking through this one experiment because, more generally, in a stochastic environment, we're going to get hit by both positive and negative shocks.

Again, I'm looking forward to the work that's being started in the work group with regard to the long-run policy initiative, but I do hope that this is one of the issues on which they give us better guidance, and sooner rather than later. Thank you.

CHAIR YELLEN. All right. Good. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. We've had questions from President Bullard and discussions already by Vice Chairman Dudley and President Williams. There's a very interesting issue present in this discussion, which is: How should we think of the influence of the balance sheet? And what this analysis has brought out has been that, essentially, in the "stock" view of what it is that quantitative easing does, all of the quantitative easing that has been done so far is in the balance sheet—it's there and it's having an effect. Let me ask the next question and then I'll tell you the effect.

When we do quantitative easing, the short rate remains unchanged. Well, what happens to other interest rates? Our analysis is that quantitative easing goes into the term premium. We buy up assets, and the money that's put into the system goes into longer-term assets and reduces the term premium.

So the next question is, what do we want to do over the longer term, after we've normalized the federal funds rate? If we had already reduced the balance sheet to its steady-state level, we might have a lower federal funds rate. At some point, we might even reach the point at which we would be at a near-zero federal funds rate again. What the large balance sheet is doing for us is keeping us away from the effective lower bound, as both Vice Chairman Dudley and President Williams pointed out, and it's providing us with a twist in the term structure which we probably like. We haven't really seen the effects of quantitative easing show up in investment spending very much, but, in principle, it is a factor encouraging investment. And the question is: What do we want to do? Do we want to keep this effect of having a higher federal funds rate and a lower longer-term rate?

We'd like the possibility of keeping the federal funds rate positive for longer, I assume, because we don't like what we'd have to do if we got back down to zero, and it will be politically controversial and so forth. So it's useful to have this "stock of QE" under our control. We can reduce it at some time by stopping reinvestment, and we could in effect reduce the stock of QE under our control. So this is a kind of investment and also a monetary policy choice, in terms of what term structure we are looking at.

What this analysis did in my case was to make me think better of holding the larger portfolio for longer because then it would be safer for us and for the economy in terms of keeping us away from the zero lower bound in the event that we get a lot of negative shocks. Well, we may get them, we may not get them, but they're a risk, and we'd prefer not to be there. So I don't know which of these strategies I'd like more. I think we should look at the likely quantitative effects of the two approaches. I think that what the analysis does show, particularly with that green line which goes out there forever, is that the effect of QE is 40 basis points on the federal funds rate—that's what our models say, precisely.

I conclude that we ought to rethink and keep reinvestment going a little longer. We have a slight problem in the fact that when you read what people say, they all assume it's six months after normalization begins before we end reinvestment. Simon, I must get a different set of analyst remarks from that you get, but that's what I find in the analyst remarks that I read—six months, nine months—and I think we might want to go longer. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. I also want to thank the staff for the memo. I actually thought it was very helpful. I'm sympathetic to the notion that you can't take into account everything, so for my purposes, this actually worked quite well.

My view is that we have our normalization principles, and unless we're rethinking those, at some point we're going to have to end reinvestments because we want to get the balance sheet back down to what the normalization principles say. And I found the memo actually helpful in thinking about that. To my mind, I didn't see that much difference in either the adverse scenario or the normal scenarios with the 1 percent trigger or the 2 percent trigger. I like the fact that we're tying the end of reinvestments to the funds rate because we're using the same economic conditions. It's a state-contingent strategy.

The one thing the memo did for simplicity is not allow for us to start up reinvesting again. I would prefer to end reinvestments when the trigger is 1 percent, and then if need be—if things turn out to be worse than our baseline scenario—we can always start reinvesting again. This is a simple memo because, by necessity, it should be to be clear, but in terms of how we approach policy, we could reverse the decision at some point, and I think that's what my preference would be, because at some point we're going to have to end reinvestments.

Concerning the language, the one issue the memo didn't address is when the Committee would want to provide the public with more concrete information, and I think that's really a question for Simon and the Desk—how much advance notification do market participants need about what our strategy is going to be? If we can agree on a strategy and if you come back and say there are benefits to being clear, we might want to be more explicit in the liftoff statement about what our strategy is, including putting in, if we agree on a trigger, what that trigger is.

If you think that we don't really need to be that explicit in qualitative language, perhaps you could say something like "when normalization is further along" that would be in between the two choices on the table for alternative C. But I think it's a question really for the Desk about how much advance notification market participants need to prepare for the end of reinvestments. Thank you.

MR. POTTER. I think if it's a 100 percent stop, then that has the potential to affect market functioning, and that's one thing we could talk about. If it was a phaseout and market participants were aware it was going to be a phaseout, I think we shouldn't worry so much about those market functioning issues because the phaseout should take care of them.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I appreciated the staff memo. My comments are going to dovetail with some of the previous comments that were made by President Lacker and President Williams.

Overall, I want to think of the FOMC as just choosing the level of accommodation. That's maybe just a better way to think about it. Accommodation can be provided through two channels—either through the federal funds rate or through a balance sheet policy action. In the first set of simulations, the FOMC acts by following an inertial Taylor rule. In reality, the Committee chooses how much monetary accommodation to provide based on macroeconomic circumstances. So the effects of a particular reinvestment strategy of the type outlined in the memo could be completely offset by an appropriate choice of the federal funds rate path, as has been discussed in the previous comments. This is illustrated in the memo.

So what's the meaning of different reinvestment strategies and probably different levels of accommodation? We want to leave it up to the Committee to change policy based on whatever the Committee thinks. And surely we want that deliberation to go on, and we want the Committee to be looking at the right level of accommodation at a particular point in time. So I'm not sure it's a useful exercise, the way it's constructed in the memo. And as far as our policy is concerned, I think we might as well stick to the baseline strategy of ending reinvestments six months after liftoff, and then go ahead and let the Committee choose the federal funds rate path that it judges provides the appropriate level of accommodation.

In the second exercise in the memo—reinvestment strategies under the adverse scenario—a similar conclusion can be drawn. In this scenario, the economy is forced back to the zero lower bound in 2017 for three years. A trigger-type reinvestment strategy could provide accommodation in this scenario, but of course the Committee can simply choose the appropriate level of accommodation by choosing the appropriate level of the balance sheet—that is, presumably by reinstituting QE. I know you're swearing off QE, but if you get in the right circumstance, you're going to use the tool again. The FOMC could get exactly the right level of accommodation and not have to rely on the approximate amount offered by the trigger strategy. So why are we going through this elaborate exercise of having the trigger strategy, and then we're going to adjust our path of the funds rate that's going to give the right level of accommodation, taking into account what the trigger strategy is going to do over the forecast horizon?

I'm not sure that this is that useful of a way to think about it. It's due to the substitutability of the two approaches to providing monetary accommodation. It appears that there's little to be gained by tampering with the existing reinvestment strategy. I think we might as well just allow reinvestments to end at some point after we lift off and call it a day. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. Maybe because I'm the newer person, I'm a little more sensitive and maybe even uncomfortable on two fronts as we do the execution. I'm sensitive to the fact that we have some uncertainty regarding the effect of beginning the process of raising rates—that creates its own set of uncertainties, particularly when we start from the lower bound. I'm also particularly uncertain about the effect of beginning to phase down reinvestments. Even though I agree with the overall debate and having that second discussion about the broader costs and benefits, I think, from an execution point of view, the one way we'll find out what the effect of doing each of these is when we do it.

From a risk-management and prudence point of view, my own bent—which is why I like the "well under way" language you have here—is to first make sure we *are* well under way when going through the first exercise of raising the federal funds rate, seeing what we learn, making sure we are in fact well under way. Only after we're comfortable with that—not only what the prospects are, but what we've learned from that process—can we then think about beginning the second process, which will have its own degree of uncertainty and learning that come from that. I'd rather start that second process second, rather than intermingling these two at the same time.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. In terms of our reinvestment policy, once it's appropriate to raise rates, I'm fine with the language in alternative C that states we expect to continue reinvestments "until normalization of the level of the federal funds rate is well under way." The risk-management benefits from the 2 percent trigger exercise seem desirable to me. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. I thought the questions that were raised by President Williams were important considerations and ones we should think more about, as well as the communication issue that President Mester raised in the context of our existing normalization principles. The staff has helped us think about these triggers, but we probably need to think more.

As it relates to alternative C, I have a slight preference for the language that says "at least during the early stages of normalization," based on how we have already characterized our normalization principles. I think that language preserves optionality, whereas the alternative language could limit our flexibility to begin the process sooner if we wanted to. That would be my suggestion. Thank you.

CHAIR YELLEN. Thank you. President Lacker.

MR. LACKER. Thank you, Madam Chair. I strongly agree with President Williams's comments about this. I really think this is a big subject. I was surprised during the July meeting's discussion to hear so much sentiment for holding on to a much larger portfolio than I thought we were contemplating a year or two ago. If we get on the road to thinking through a strategy in which we've got a big buffer stock, that will be the third normalization strategy for us to adopt over the past three years—we had one last year and one a couple of years before that.

I was glad to hear there was a fair amount of recognition that on the cost side, there were some political-economy issues and questions involved, and I think those are very important. I won't go into them. I think a "global" assessment of the costs and benefits of different approaches needs to take that into account.

As for language, I was uncomfortable with "well under way"—it suggests a long time after we raise rates. "At least during the early stages"—I wasn't clear on how we are dividing up normalization into stages, but I guess it's just a figure of speech that means "early." I liked the sound of President Mester's suggestion about "until normalization is further along." Before the benefit of a more thorough discussion that convinces me that a bigger buffer would be useful, I'm more in the camp of wanting to end early, as I was at the July meeting. But these are important issues and deserve some careful consideration. Thank you.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. It's been a very rich discussion already. I have to admit that I was pretty surprised at the July meeting when it became apparent that more than a few FOMC participants viewed halting reinvestments as being a decision that would be very costly to reverse by reinitiating purchases or by beginning reinvestments again, as President Mester suggested. I think this lack of reversibility is pretty crucial in terms of how we think about the appropriate long-run size of the balance sheet, the matter President Williams raised. If, as President Bullard and President Mester suggested, we'll just turn on this tool when we need it and, if we hit the effective lower bound and we need more accommodation, we'll begin reinvestments again or we'll begin active purchases again, then I think it's a very different question than if we view halting reinvestments as having enormous costs associated with it. And then we have to weigh the political economy—assuming that those costs are coming from political economy considerations—against the political economy considerations that President Lacker pointed to, which are also very real in maintaining a large balance sheet. These are very, very challenging issues.

If we take as given this lack of reversibility—and that's the way the memo drafted the problem and, in light of what I heard at the July meeting, I am very sympathetic to that way of drafting the memo—this irreversibility leads to worse economic outcomes if we have to return to the effective lower bound. As I argued at the July meeting, to me this means we should only be willing to halt reinvestments at a point in time when we're willing to increase the effective lower bound on interest rates. Basically, halting reinvestments is taking a tool away from yourself. You should only be willing to do that if you are actually willing to take away another tool, which is to increase the effective lower bound on interest rates.

My own thinking is, in light of where I think the long-run neutral real rate is going to be and given our recent experience, I'm pretty loath to throw away these kinds of tools at this stage. My preference at this point would be to leave out any reference to reinvestment policy at the time of liftoff.

I thought President Kaplan raised some great points, too, about the learning that's going to occur. He hasn't been involved in these conversations before, so he hasn't gotten totally into the "inside the tent" kind of thinking that we all have about this, and I think that's good. I think that having an opportunity to learn about how this process is going to work before starting to talk about a new thing that we aren't sure how it is going to work is wise counsel.

At the time of liftoff, the Chair could say that this matter remains under study by the staff and principals. I think it allows us an opportunity to dovetail our thinking about reinvestments with the longer-run operating framework exercise that the Chair initiated.

One comment on the normalization principles. The normalization principles certainly have indicated that the Committee likes having a smaller balance sheet. On the other hand, the normalization principles have also said we want to keep as large a balance sheet as is necessary to be able to conduct effective monetary policy. That could be a lot larger than we thought it was going to be three or four years ago—it might be larger than we think it is today. I think this Committee will have to engage in some serious conversations about that.

Now, assuming the Committee does want to make a reference to reinvestments, I'm concerned about the vagueness of what's in the draft of alternative C. If Committee members can agree among themselves to the idea of tying reinvestments to something specific in the outlook, something specific regarding the federal funds rate, as was done in the memo, it would be really great to offer that kind of clarity.

President Evans was chastising me for smiling at Chris's suggestion that we rely on the speeches of the presidents to elucidate what the Committee means by this language. The intermeeting period has not given me the kind of confidence that maybe I would like to have with that as a communications device. [Laughter]

As I've indicated before, I think if we can agree on a tie to something like the federal funds rate, it would be really good to be able to make that connection as opposed to relying on everyone's interpretation of what that might mean. Thank you, Madam Chair.

CHAIR YELLEN. President Lacker.

MR. LACKER. Thank you. The language in the normalization principles that you referred to—large enough to conduct monetary policy effectively—my recollection is that the meaning of that was effective control of the funds rate, and I didn't envision it to be this large. But this wouldn't be the first time different Committee members had different readings of the same phrase.

MR. KOCHERLAKOTA. I think that the language is capable of bearing multiple interpretations. [Laughter]

MR. LACKER. As does most of our language.

MR. TARULLO. Which is precisely what it's doing.

MR. EVANS. We're expecting to have effective control of the funds rate with a very large balance sheet from the outset, and if not from the first move, then certainly pretty soon thereafter. So I'm not sure exactly how determinative that is for this.

MR. LACKER. You remember, it was the idea that in a corridor system you'd need lower reserves.

MR. EVANS. I just think we're bringing more assumptions to bear on what we mean by that. That's all.

CHAIR YELLEN. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I'm sympathetic with the substantive policy leaning that Bill and Stan and others have articulated, which I think is consistent with the memo, although not necessarily foursquare with all of the details of the memo.

My concern is the one I raised at the July meeting, which is about potential contingencies. I think President Williams's caution—to be clear about costs as well as benefits of keeping the balance sheet where it is—is important. As people probably don't recall, but I'll remind you, I raised a couple of things that might happen—which I don't expect to happen, but which might happen—in the early stages after liftoff. One could be a blowing-out of the ON RRP program beyond what we currently expect. Another would be a flattening, or even inversion, of the yield curve.

Under those circumstances, an earlier cessation of reinvestment might be among the more efficacious tools at our disposal. In the interest of clear communication, if we're going to say something in the statement, I hope we can find a way to put in an appropriate qualification that allows the public and markets to understand that our default position is that we're going to let rates go up for a while for the reasons Stan said, but that if some dodgy things start happening in financial markets, we might take a somewhat different approach. I don't have a formulation for that, Madam Chair—I apologize. But I think it's going to be something like that, with that phrase that we always used to stick in—"in the context of price stability." We used to talk about 19 things we were going to do "in the context of price stability," which gave the message that if inflation started to go too far one way or the other, it might vary what we were going to do. Maybe people could come up with a similarly euphemistic phrase that would do the trick.

I hope we can go in sequence here, and I hope we can get some of the benefits that Beth and Chris were talking about in their memo, but I think we need to allow for the possibility that we won't be able to keep as pristine a separation of the two policy tools as we would like. Thank you.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I have a strong desire, which I assume is widely shared, to avoid returning to the effective lower bound. I also suspect that the possibility of doing so is uncomfortably high.

On gearing up quantitative easing again, I want to say a couple of things. First, I think we've never looked at asset purchases as other than a second-best tool. I think that's been the way it's been talked about since the very beginning—uncertain as to its effect, uncertain as to bad effects, and certainly uncertain as to political economy characteristics.

I would put a decision to end reinvestments and then a decision to reverse that as not at all akin to a decision to start asset purchases again. To me, they're two completely different things. I think if the Committee were to decide to end reinvestments and then six months later there were a shock, I think it would be an easy decision to begin reinvestments again on the grounds that we would have so little to work with in the way of rate cuts to make. So I look at those decisions as very different.

Those things lead me to a strong preference for the "until normalization of the level of the federal funds rate is well under way." I could learn to like the 1 percent or 2 percent thresholds. I will say that the real economy effects are tiny, and, if I'm right they would be even smaller if, in fact, the irreversibility assumption is really not right as a practical matter. But I'm open to learning more about those. I'd prefer to work with interest rates until we get way away from the effective lower bound. Thank you.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. My judgment is animated by, first, a desire to maintain the parsimony and clarity of our policy framework and, second, by what I believe to be asymmetric risk-management considerations over the period that we are considering. Those considerations lead me to favor a 2 percent quantitative target.

The policy framework that we've agreed to over the past year makes the federal funds rate the focal point for our policy stance. It's clear, it's familiar to market participants, and it's empirically well understood, and I'd like to keep the focus on that. In addition, we've spent considerable effort over the past several meetings trying to make the public understand that our policy framework is based on the economic outlook and not on a calendar. I'd be very reluctant to have our reinvestment policy in any way migrate back toward a time-based framework.

I think the most parsimonious way to capture economic developments is to condition our reinvestment policy very clearly on the behavior of the one variable that we have focused on, which is the federal funds rate. It summarizes information from a wide variety of economic indicators on progress toward our goals.

With regard to risk-management considerations, I think the staff analysis did a very nice job of laying those out. Like others, I don't believe the bar for reinitiating QE is at all similar to a bar for a 25 basis point cut, for instance, or turning on and off reinvestment. So I do believe that that effective lower bound constraint is a very important one.

For all those reasons, I would like to see the reinvestment conditioned on a 2 percent rate. I think it's clear, it gives us that cushion, and we can easily avoid the notion that you turn off reinvestment permanently once you've hit 2 percent by making clear that only while you're above 2 percent would reinvestment cease. I think that would be pretty easy to introduce into the language. That would be my strong preference. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. Is there anybody else who'd like to comment? Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. This is not only because I failed to thank the staff for their very good work the first time around, so I asked for a second time. Thank you for the quality of the work you did.

I think the issue of whether we can stop running off the portfolio at a certain point is critical to this discussion. President Bullard made it sound like it was very easy, but I think it will actually take some thought about how to present that before we can get that as part of the solution. What Governor Brainard just said is possibly the solution and what we need—that is, we can begin reinvesting again if the federal funds rate goes below a certain level, and 2 percent sounds attractive. That gives us a conditional reinvestment policy, which I think makes a lot of sense in terms of combining the risk-management feature, as I think Governor Brainard and Governor Tarullo called it, with our desire to reduce the size of the portfolio.

We need to think about what's going to happen as the portfolio starts getting down to the target level. What happens, in that case, if we suddenly find ourselves heading off in a direction that we don't want to go with the interest rate beginning to decline for a variety of reasons and this leads us to begin to worry? We then actually want, at that point, to start buying assets, I think—that is, to do quantitative easing before it's quantitative easing at zero interest rates, which is a bigger problem. This is just another way of saying we need flexibility on the issue of when we're allowed to increase the size of the balance sheet in terms of the conditions we place on ourselves.

I think that's something the staff can work on very well. My conclusion from this discussion is that not everybody, but quite a few people, have referred to the possibility of turning on and off the end of the reinvestment process and that the 2 percent level is a good one. And then we might need to specify in more detail what it is that will happen that will allow us to explain why we're turning it on and off in terms that are clear, understandable, and acceptable to the public.

I think this has been an extremely useful discussion. What has come out of it is a way of rethinking our principles for reducing the size of the portfolio. Do we have to stick by what we said when we haven't actually implemented anything? If we have found a better way, are we not allowed to use it because we hadn't thought of using it until now? There must be an elegant solution.

Last night, I was watching an interview of Justice Souter by Charlie Rose, and there was a discussion on the topic, What do words mean? Charlie Rose kept inventing complicated situations and asking, "Is that acceptable under the law?" And Souter kept saying, "Well, words are not precise, and that's why the law can work. If there are ways of doing what needs to be done and that everybody understands needs to be done, we need to find a way within the words that exist." Well, I wonder if we can do that for ourselves as well. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Any further comments?

MR. TARULLO. Just a question, Madam Chair, for Simon, to return to a consideration that a few of us talked about last time. Simon, the consideration is the size of the maturations that are actually occurring at any one time. If I recall correctly, we have about a two-year window from around the middle of next year to 2018 when the amount maturing is relatively small with an occasional month that's—

MR. POTTER. That's in the Treasury securities market, yes.

MR. TARULLO. But then, in 2018, it picks up quite a bit.

MR. POTTER. Yes.

MR. TARULLO. If we ended up delaying cessation of reinvestment until 2018 or later, do you anticipate that would be, in operational terms and in terms of effect on markets, significantly more challenging than if it were to happen during that two-year window? Or does it depend on so many other factors that it's probably not worth using as a criterion?

MR. POTTER. The operational part for Treasury securities is not that difficult because we're rolling over at auctions. To reinvest the MBS—remember that we're purchasing in the secondary market, so that has operational cost to it. But it's the same costs that we have right now, and we also have the experience. There's one issue, which is that if we stopped reinvestment and had to restart, we still have to have the experience to restart. And that's something that we should think about after the discussion today.

CHAIR YELLEN. Okay. This has been a useful discussion. If somebody asks me at the press conference tomorrow, I'll stick with what's in our normalization principles while we consider this further. For the moment, I'm probably best saying this is something the Committee is discussing and no further judgments have been made yet. But I think this has been very productive. President Bullard, did you want to add something?

MR. BULLARD. Madam Chair, how do you want to proceed on this? Because, it seems to me, this would be a change in the normalization principles or a change in what we said.

CHAIR YELLEN. I will stick with what's in the normalization—

MR. BULLARD. For today. I mean, moving forward, is there going to be some future discussion of normalization principles?

CHAIR YELLEN. I assume we'll need to consider what came out of the discussion today and return to you with further proposals or options.

MR. BULLARD. And what would be the goal with regard to when we would want to aim to be able to tell market participants what we have in mind?

VICE CHAIRMAN DUDLEY. Well, we certainly know the Chair would be asked after liftoff about reinvestments. So the more definitive we could be at that moment the better. That's a goal.

CHAIR YELLEN. Right. And that was the purpose of today's discussion.

MR. BULLARD. Arguably, we have to do this soon.

VICE CHAIRMAN DUDLEY. Well, I think that's a goal.

CHAIR YELLEN. It's a goal. We could always say, "We don't have anything new for you now. It's a matter that we continue to discuss, and we'll let you know further details when we make decisions." We don't have to provide the information, but I agree it would be desirable to be able to do so. But we need to think through what the way forward is after today's discussion.

MR. BULLARD. Thank you.

CHAIR YELLEN. Okay. Let's go to the staff briefings on the economic outlook. We'll begin with David Wilcox.

MR. WILCOX.[3] Thank you, Madam Chair. I will be referring to the packet titled "Material for the U.S. Outlook."

[3] The materials used by Mr. Wilcox are appended to this transcript (appendixes 3 and 4).

The news since the July Tealbook torqued our assessment of the two legs of your policy mandate in different directions.

On the real-activity side, we now see the economy as having been operating, and likely to continue to operate, at a higher level of resource utilization than we thought at the time of your July meeting. This reassessment combines four main categories of information.

First, as you can see in panel 1 of your forecast summary exhibit, real GDP growth now appears to have been considerably stronger during the first half of this year than we thought at the time of your July meeting.

Second, the most recent indicators, including yesterday's encouraging report on retail sales, suggest that some of that greater momentum has carried over into the second half of this year. In particular, taking on board the stronger retail sales news, which is *not* reflected in your exhibit, we've marked up our forecast for current-quarter GDP growth about ½ percentage point relative to the July Tealbook and now have it at about 2¼ percent.

Third, we interpreted the two labor market reports that were issued during the intermeeting period to be a little stronger than we had expected. The August unemployment rate, at 5.1 percent, was 0.2 percentage point lower than we had expected. The average monthly gain in payroll employment over the past three months is currently reported to have been 220,000, essentially the same as our July Tealbook forecast; however, in line with the average experience in recent years, we expect the first estimate of job gains in August to be revised up about 60,000.

Fourth, we have also, of course, noted the more-restrictive turn in some of the key variables that shape our outlook, including the decline in equity prices, the higher path for the exchange value of the dollar, and the less-robust outlook for foreign economic activity, and we have tempered our GDP growth outlook in light of these changes.

All told, as Missaka showed in his pre-FOMC briefing yesterday, the adjustments we made in response to these four sources of information result in an output gap that is about ¾ percentage point tighter than before in the second quarter of this year, and we have essentially carried that greater tightness into our projection through the next two years. By 2018, a faster pace of monetary normalization begins to gain some traction and the delta in the GDP gap begins to narrow.

As a check on our judgmental thinking, panel 3 compares our judgmental estimate of the output gap with a couple of purely model-based estimates that I have shown the Committee before. The dotted blue line shows our Tealbook estimate of the output gap. The red line shows the production-function variant of the output gap from the EDO model, which is one of our DSGE models. The black line shows the estimate that comes out of a state-space model embedded in the FRB/US model. This FRB/US estimate is developed by pooling a range of real-side indicators including

GDP, GDI, and the unemployment rate. The model also includes a New Keynesian Phillips curve with anchored expectations, in an effort to sharpen the model's inference of the natural rate of unemployment and the level of potential GDP. These three estimates—our judgmental assessment and the two model-based estimates—are unanimous in taking the view that resource utilization has just about returned to its maximum sustainable position. However, before anyone takes too much comfort from the unanimity among these three estimates, I would note that other models in use around the System give markedly different answers. For example, the Federal Reserve Bank of Philadelphia's PRISM model shows a GDP gap in the second quarter of nearly 7 percent, and one of the models maintained at New York shows a gap of a little more than 2 percent. Also, even the confidence interval that I'm showing here around the FRB/US estimate extends about 2 percentage points in either direction, and that confidence interval surely *under*states our ignorance because it sets aside both parameter uncertainty and model uncertainty.

One important judgmental adjustment in the Tealbook forecast this time around pertained to the unemployment rate. If we had maintained the supply-side assumptions that were embedded in our July forecast and put through our normal translation of the adverse changes in the key environmental variables that I mentioned earlier, we would have shown an unemployment rate that was flat or even rising a touch from its current level. Considering the ongoing pace of improvement in labor market conditions, that did not seem the most plausible baseline forecast. To accommodate some further reduction in the unemployment rate, we needed to widen the differential between actual GDP growth and potential GDP growth. In the context of our Okun's law framework, it didn't matter much how that wider differential was achieved, but because we were already at the very low end of the spectrum of outside analysts in terms of our forecast for GDP growth, we split the difference and shaved one-tenth or so from our forecast of potential GDP growth in the period ahead and added one-tenth or so to our forecast of actual GDP growth. Even with this judgmental add factor, our GDP forecast remains near the pessimistic end of the range of outside forecasters.

Let me now turn to the inflation leg of your mandate. Our forecast here is summarized in panels 4 and 5 of your exhibit. As you can see from panel 4, we now expect total PCE inflation to turn slightly negative in the fourth quarter on a quarterly-average basis, reflecting a steeper decline in consumer energy prices that in turn results from the lower projected path for crude oil prices. We have also edged down our near-term projection of core inflation—panel 5—in response to slightly weaker-than-expected incoming data and a downward revision to our forecast for imported goods prices. Over the remainder of the medium term, our projections of both total and core inflation are essentially the same as in July. This morning's CPI release, which is summarized in a separate exhibit titled "Material for Consumer Price Index Update," had no material implications relative to our Tealbook expectations. Although the core CPI inflation rate was several basis points softer than we had expected, that had little implication for our assessment of PCE inflation, partly because some of the surprise was in airfares and medical care prices, neither of which feed into the PCE price index, and partly because the small downward surprise in housing prices receives a smaller weight in the PCE index than it does in the CPI.

The increase in financial market volatility during the intermeeting period affected the baseline through channels that have been standard in macro models for decades—mainly, lower stock prices feeding into a wealth effect, higher private borrowing rates, and a stronger dollar. But if we learned anything from the financial crisis, it has to be that disturbances originating in the financial sector can have serious implications for the real economy reaching far beyond these standard channels. Marco Del Negro and Marc Giannoni at the Federal Reserve Bank of New York have been working with one of the more interesting recent models that aims to allow a more meaningful role for financial disturbances to affect real outcomes. To shed light on the potential implications of a more serious and protracted version of the turbulence that surfaced last month, they were kind enough to generate one of the alternative simulations that we presented in the Tealbook. In their model, the Baa bond spread proxies for financial turbulence and has strong predictive power for real outcomes during periods of financial distress. Since the beginning of this year, the Baa spread has increased about 75 basis points. In the alternative scenario, we assume that it goes up in the fourth quarter by a further 200 basis points relative to baseline and then gradually returns to a more normal level. Real GDP contracts sharply almost immediately, and as you can see in panel 6, the unemployment rate—the blue dashed line—rises as much as ¾ percentage point above its baseline trajectory, the black line. As severe as these results are, they could have been worse. The funds rate in the alternative scenario runs about 100 basis points below baseline, a policy response that prevents the fallout from being even more serious. This simulation helped inform our assessment that the risks to our forecast for real GDP are weighted to the downside and, especially in light of the adjustments we made to the baseline, that the risks to our unemployment projection are now weighted to the upside.

Finally, I have updated the "Lockhart dashboard" that I first showed you in July. This exhibit, which is the last page in your packet, summarizes a few of the key pieces of information that will be available to you at the next couple of FOMC meetings. Specifically, the data that will first be available at the October meeting are in the gold-shaded region, and the additional observations that will become available in time for the December meeting are shaded in red. (The data that are newly available for today's meeting are shaded in blue.) September Tealbook projections regarding these variables are shown in regular font, while our forecasts from the July Tealbook are shown in italics. A new memo item at the bottom of the exhibit gives the revisions to equity prices and the foreign exchange value of the dollar since July, as those were two of the key drivers of the revision to our assessment of the outlook.

As in July, we expect that inflation will continue to run at a low level through the end of this year. At the time of your December meeting, the latest reading on PCE prices that you will have in hand will be the one for October. We now forecast that topline prices over the three months ending in October will decline at an annual rate of nearly ¾ percent. Over the 12 months ending in October—the next pair of lines down—we expect that topline prices will have been unchanged. Core inflation is expected to run below 1½ percent through this period, whether measured on a 3-month or 12-month basis.

As for the labor market, we have revised down our forecast for the unemployment rate and now expect that you will have a 5 percent print in hand at the time of the December meeting. We also expect to see continued solid payroll job gains. The much bigger jobs number that shows up in the September column in this display incorporates both the gain of 210,000 that we expect to be reported for September itself, as well as the upward revision that we expect to be applied to the August number.

As I mentioned earlier, we have nudged up our forecast of third-quarter real GDP growth from the 1.9 percent figure shown in the exhibit to around 2¼ percent. Steve Kamin will now continue our presentation.

MR. KAMIN.[4] Thank you, David. I will be referring to the material titled "The International Outlook."

Since your previous meeting, developments in China triggered fears of a global economic slowdown and led to widespread turbulence in markets. Turning points in the global business cycle are notoriously difficult to forecast, and though we have seen a few in recent decades, we have not predicted any of them. Bearing that in mind, even after a very rocky month and a half, we are still projecting a strengthening of foreign growth over the next few quarters. However, as indicated in panel 1 of your first exhibit, based on data that came in over the past month and a half, we now estimate that aggregate foreign GDP growth, which was already quite weak in the first quarter, dropped further, to only 1 percent in the second, the slowest pace since 2009. Furthermore, weak incoming data for the third quarter, along with the turbulence in global financial and commodity markets, led us to write down a notably lower path going forward. Finally, although we believe the financial market responses to events in China were probably overblown, we agree that downside risks have increased to a material degree.

The developments in China that Simon reviewed earlier have raised two interrelated concerns with investors. The first is that China's economy is not only slowing from the double-digit growth rates of earlier years, but may be falling into something akin to an actual recession. As indicated by the solid red line in panel 2, we do see Chinese growth coming down from its transitory surge in the second quarter, but we are looking for growth to flatten out at around 6 percent, not fall precipitously further. Still-strong retail sales suggest that the Chinese economy retains sources of strength, and signs of recovery in the property market are somewhat encouraging. Nevertheless, weak incoming data, concerns over the management of economic policy, and our sense that the authorities now face a more difficult task rebalancing

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

the economy in the context of financial vulnerabilities have led us to revise down our forecast from the July Tealbook, the red dashed line.

All that said, we are unconvinced by arguments that actual Chinese growth has fallen well below the pace indicated by the official GDP statistics. The blue line in panel 2 shows the results of our nowcasting model, which uses data on industrial production, imports, and retail sales to estimate contemporaneous GDP growth. Smoothing through the wiggles, the nowcasting model has continued to track the trend in the official GDP statistics reasonably well this year—again suggesting that growth has declined but not collapsed.

Besides prospects of a Chinese recession, a second and highly related concern for investors has been that August's 3 percent devaluation of the RMB would be followed up by substantial further depreciation. Certainly, the prospect of the world's second-largest economy allowing its currency to drop precipitously at a time of fragile global demand would be cause for worry. But barring extreme circumstances, a very large further depreciation of the RMB seems unlikely. At present, China's authorities appear to be walking a tightrope between their longer-term strategy of increasing the role of market forces in determining the exchange rate and avoiding large, abrupt movements that could destabilize financial markets. As indicated in panel 3, our sense is that, in response to further capital outflows engendered by ongoing concerns about either the economy or future exchange-market policy, the authorities will allow the RMB to slide another couple of percent against the dollar. Somewhat further down the road, assuming growth stabilizes and worries of a hard landing subside, we anticipate upward pressures on the renminbi will resume.

As Simon has described, the recent developments in China led to especially sharp downdrafts in global markets because many economies, especially in emerging markets, were already struggling with disappointing growth, pronounced vulnerabilities, and anticipations of monetary policy tightening in the United States. These market downdrafts, in turn, will likely put additional pressures on global growth over the near term. As shown in panel 4, oil prices took another sharp notch down during the intermeeting period. Although most of the declines in oil prices since mid-2014 appear attributable to increased oil supplies, the downturn in August appears to owe mainly to concerns about slowing in China—which accounts for 11 percent of global oil demand—and its knock-on effects on other economies. To be sure, we continue to view declines in oil prices as an eventual plus for the global economy. But our econometric analysis, as well as recent experience, suggests that, in the near term, lower oil prices can be a drag on global growth, as their decline may restrain spending in oil exporters more than it boosts spending in oil importers.

Besides declines in oil prices, various other market movements have affected the outlook, including widespread declines in equity prices, increases in credit spreads, and, as shown in panel 5, a further appreciation of the dollar. The modest devaluation of the RMB by itself added only about ½ percent to the dollar's value, but sympathetic depreciations of other Asian currencies, hits to so-called commodity currencies, and general gloom about EME prospects, taken together, led the dollar to appreciate about 2 percent in total. We see the dollar rising a little higher during the rest of the year, reflecting our projection of some further depreciation of the RMB as well as the assumed tightening of Federal Reserve policy, before the dollar flattens out and eventually gives back some of its gains. As shown in panel 6, the higher path of the dollar implies that net exports are a source of a bit more drag on the economy than they were in the July Tealbook.

In light of developments in China and other emerging markets, the downside risks to the global outlook appear to have increased. Your next exhibit presents three interrelated scenarios to examine the effects of a crisis in China that lowers Chinese GDP 7 percent below its baseline path and leads to a 10 percent devaluation of the renminbi against the dollar. The first scenario, which is represented by the green lines in panels 2 through 5, illustrates the *direct* effect of such a crisis on the U.S. economy, excluding any *indirect* effect that a China crisis might exert via spillovers to China's trading partners. Turning to panel 3, because China is not a dominant destination for U.S. exports, the direct effects of this shock—again, the green line—lower U.S. GDP only a little below its baseline path—the black line. Similarly, headline inflation (panel 4) and the federal funds rate (panel 5) are only slightly restrained. All told, this scenario illustrates that a hard landing in China will lead to significant damage to the U.S. economy only to the extent that it induces broader economic and financial disruptions around the world.

The second scenario is labeled "EME slowdown." In this scenario, turning to the blue line in panel 2, we assume that the China crisis described in the first scenario spills over to other EMEs to an extent consistent with past historical correlations, so that aggregate EME GDP growth falls to zero. However, we assume no financial spillovers to advanced economies, and effects on U.S. growth, inflation, and interest rates, while quite noticeable, are hardly eye-popping.

To get eye-popping, our third scenario—represented by the red lines in the panels—embeds the assumption that the recession in China generates much sharper disruptions in other EMEs, along the lines of the distress associated with the Asian and Russian crises of the late 1990s. Aggregate EME GDP growth (panel 2) falls below zero and EME currencies decline more than 20 percent against the dollar. We also assume that the turbulence in emerging markets spills over to financial markets in the United States and other advanced economies, triggering sharp declines in equity prices and a widening of credit spreads. The U.S. economy falls into recession and deflation, and the federal funds rate falls back to the zero lower bound. But taking into account the assumptions required to achieve this result, we view the likelihood of this risk materializing as fairly remote.

If I could make one final point without sounding like a complete worrywart, I would note that although the global financial turbulence of the past month was triggered by developments in China, anticipation of FOMC liftoff may have played some role in making markets a little more skittish and thus more responsive to Chinese events than they otherwise might have been. Our anticipation is that when you decide to start tightening, volatility in emerging markets will likely remain contained, but scenarios 2 and 3 in this exhibit provide some sense of the tail-risks involved should investor concerns about EME vulnerabilities and the global outlook lead markets to react much more strongly to U.S. monetary tightening that we currently expect. That concludes my remarks, and I'll pass it on to Francisco.

MR. COVAS.[5] Thank you, Steve. I will be referring to the packet labeled "Material for Briefing on the Summary of Economic Projections."

Exhibit 1 summarizes your economic projections, which are conditional on your individual assessments of appropriate monetary policy. Almost all of you project that real GDP growth this year will be at or very slightly above your assessments of its longer-run pace. And almost all of you see real GDP growth picking up somewhat in 2016 before slowing toward its longer-run rate in 2017 and 2018. As shown in the top panel, the medians of your projections of real GDP growth this year and during the next two years are a bit above the 2 percent median of your projections of longer-run growth, but a bit below the 2½ percent growth rate recorded in 2013 and 2014. Most of you project that the unemployment rate, shown in the second panel, will decline further this year and be at or below your estimate of its longer-run normal rate from 2016 through 2018. As shown in the third panel, the median of your projections of headline PCE inflation is 0.4 percent this year but climbs to 1.7 percent in 2016 and rises further in 2017. Almost all of you project total PCE inflation to be within 1/10 of a percentage point of the Committee's goal in 2018. The final panel indicates that most of you project core PCE inflation near 1.4 percent this year, about the same as in 2014, before increasing gradually over the remainder of the forecast period.

Exhibit 2 compares your current projections with those in the June Summary of Economic Projections and with the September Tealbook. As indicated in the top panel, the median of your forecasts of real GDP growth in 2015 has risen since June. Most of you noted that stronger-than-expected growth in the first half of this year more than offsets a weaker projection for the second half. In contrast, the median values of your projections of real GDP growth for 2016 and 2017 are lower than in June, with several of you attributing the decline in your forecasts to slower projected productivity growth. As shown in the second panel, the median of your projected paths for the unemployment rate shifted down roughly 0.3 percentage point throughout the forecast period, with some of you attributing a downward revision in your projections to the greater-than-expected decline in the unemployment rate in recent months. All but a few of you also lowered your projections for the longer-run normal rate of unemployment, bringing the median down to 4.9 percent. As the third panel indicates, the median of your projections regarding headline PCE inflation was marked down this year, reflecting an appreciation of the dollar and further declines in oil and commodity prices. The median of your forecasts for core PCE inflation was also marked down slightly in 2016 and 2017.

[5] The materials used by Mr. Covas are appended to this transcript (appendix 6).

The Tealbook forecasts for both economic growth and inflation are slightly below the medians of your projections for the next three years, while the staff's forecast for the unemployment rate is roughly in line with the median of your projections.

Exhibit 3 provides an overview of your assessments of the quarter in which you currently judge that the first increase in the target range for the federal funds rate will be appropriate and of the economic conditions you anticipate at that time. As shown in the top panel, many of you currently view the fourth quarter of 2015 as the most likely time of liftoff. Since June, six of you pushed your prescribed date of departure from the effective lower bound from the third to the fourth quarter of this year. Four of you now judge that it will not be appropriate to raise rates this year, while only two of you held that view in June. As shown by the bottom-left panel, most of you see policy normalization beginning when the unemployment rate is 5 percent or 5.1 percent. Most of you project that the unemployment rate at the appropriate time of liftoff will still be above its longer-run normal level. Your projections of core inflation at the time of liftoff are more dispersed, with all but one between 1.2 and 1.5 percent.

Exhibit 4 provides an overview of your assessments of the appropriate level of the federal funds rate at the end of each year of the forecast period and over the longer run. The medians of your funds rate projections now stand at 0.4 percent at the end of 2015, 1.4 percent at the end of 2016, 2.6 percent at the end of 2017, and 3.4 percent at the end of 2018. A sizable majority of you revised down your projections of the appropriate federal funds rate throughout the forecast period, and several of you cited downward revisions to the inflation outlook and to your estimate of the equilibrium real interest rate as reasons for doing so. The median of your projections declined 25 basis points in 2015 through 2017. Eleven of you also revised down your projection of the longer-run nominal federal funds rate, typically by 25 basis points. A majority of you project that, at the end of 2018, the appropriate level of the federal funds rate will be close to, albeit still below, your individual judgment of its longer-run level.

As in June, almost all of you project levels of the federal funds rate over the next couple of years that are below the prescriptions of a non-inertial Taylor 1999 rule given your projections of core inflation, unemployment gap, and longer-run nominal federal funds rate, indicating that you do not see the Taylor rule as likely to prescribe appropriate policy for the next few years. The medians of these Taylor rule prescriptions, plotted as red diamonds, have shifted up in 2015 and 2016 since June, primarily reflecting the rule's response to the downward revision in your unemployment rate projections, but have edged down in 2017. For 2015 through 2017, the gap between your projections and the rule's prescriptions, given your individual forecasts of unemployment and inflation, has widened since June, on average. For 2018, the discrepancy between your federal fund rate projections and Taylor-rule-implied rates narrows considerably as most of you project that the dual mandate can be achieved with the federal funds rate being close to its longer-term normal level.

The final exhibit shows your assessments of the uncertainty and risks surrounding your economic projections. As shown in the figures to the left, your views regarding uncertainty have not changed in a material way. Most of you continue to judge the level of uncertainty about your individual projections of GDP growth, the unemployment rate, and inflation as broadly similar to the average level over the past 20 years. As shown in the panels to the right, most of you continue to see the risks to real GDP growth and the unemployment rate as broadly balanced, though seven of you now view risks to GDP growth as weighted to the downside—three more than in June—and four more of you now see the risks to unemployment as weighted to the upside. The downside risks to GDP growth that you cited include a weaker outlook abroad and tighter financial conditions than currently embedded in your forecasts. As reported in the third and fourth panels on the right, nine of you now see risks to inflation as weighted to the downside—four more than in June. Recent declines in market-based measures of inflation compensation and commodity prices and the appreciation of the dollar were noted as factors that could place greater downward pressure on prices than currently embedded in your forecasts.

Thank you. That concludes the presentation.

CHAIR YELLEN. Okay. The floor is open for questions. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. Thanks for the briefing, as always. I found the discussion of the alternative scenarios in Tealbook A quite informative, as usual. I was struck by how many of them seemed to me as downside alternatives, especially in terms of the price stability mandate. If the staff were asked to talk about scenarios that might give rise to an overrun in inflation, what would that potentially look like?

MR. WILCOX. We actually contemplated putting in one of those. The one that I think is plausible for us is that there's some drift that occurs in inflation expectations. We debated whether the more plausible direction of drift in inflation expectations is up or down. But I do think that an upward drift of inflation expectations is certainly within our confidence intervals. At the moment, the more natural mechanism, it seems to me, is that the little bit of extra transitory restraint that's in the inflation pipeline from the dollar and the oil prices is going to put a little more gravitational pull downward on inflation. And so my own assessment is that while I see inflation expectations drift in either direction as quite plausible, I think it's a little more likely downward. But if I were to put my finger on one scenario that could provide for some upward lift on inflation, I'd point to that one, importantly out of our collective professional ignorance about the basic mechanisms that form inflation expectations.

MR. KOCHERLAKOTA. Thank you.

CHAIR YELLEN. President Evans.

MR. EVANS. Thank you, Madam Chair. David, let me pick up where you left off there, and thanks for panel 3 on output gap estimates, which makes my question a little more relevant because you mentioned the FRB/US model. When I was looking through Tealbook A, on page 79, I came across alternative models and the FRB/US model. I noticed that the core PCE projection coming out of the FRB/US model has 2017 inflation moving down to 1.0 percent, whereas in the June Tealbook it's at 1.5 percent. I wonder what features of the data and the model are generating that somewhat aberrant behavior.

MR. WILCOX. The FRB/US model has a different wage-price mechanism than the judgmental forecast does. The model pays attention to compensation trends. There's an equation for price markup over marginal cost in the FRB/US model. I'm going to look here for confirmation from my former FRB/US colleague.

MR. REIFSCHNEIDER. That's correct.

MR. WILCOX. I don't think we provide you with a graph of the markup of price over marginal cost in your Tealbook materials, but in putting together our inflation projection, the staff has pretty much written that relationship off as noninformative. The FRB/US model, partly for a bit of intellectual diversity, hasn't chucked that specification overboard and views the high level of prices over marginal costs as posing a downside impetus on inflation. And so that's mainly what's generating this difference.

MR. EVANS. So the forecast was already pretty low in the June Tealbook at 1½ percent for 2017, but the differential data coming in seem to have moved it downward.

MR. WILCOX. Yes. My guess is that two things are going on there. One—probably the more material of the two—is the recent tranche of disappointing compensation news that we got. The other—which I suspect is quantitatively tiny, but might be there in principle—is that there was a tiny upward revision in nonmarket prices in the annual revision. So the FRB/US model might be picking up on that, but I'm guessing that the larger of those two is the compensation.

MR. EVANS. Just to close this out, is it fair to say that this implementation of the FRB/US model is putting less weight on the longer-term inflation expectations anchor than other analyses that we normally are looking at or the preferred inflation model that you're using?

MR. WILCOX. I think so. There's an inflation objective for policymakers in the FRB/US model, and that has complete credibility. So households and businesses don't question the 2 percent objective.

MR. EVANS. I'm sorry. Let me clarify. Yes, it has that feature in there, but that's not enough to pull up the inflation forecast given the other countervailing data developments.

MR. WILCOX. Yes, that's evident in the projection that you're pointing to.

MR. EVANS. Yes, okay. Thank you.

CHAIR YELLEN. Further questions? [No response] An unusually quiet crowd today. Okay. Seeing none, I suggest we take a coffee break, maybe until 3:45—20 minutes.

[Coffee break]

CHAIR YELLEN. Let's return to it and get started. We'll start our go-round with President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. Since our previous meeting, we have seen further improvement in labor markets, although the recent data on wages and prices are consistent with the continued persistent undershooting of our 2 percent inflation goal. Earlier evidence of accelerating compensation in both average hourly earnings and the employment cost index has been revised away, resulting in almost all wage measures continuing to rise at a surprisingly steady 2 percent. Because both aggregated and disaggregated data on wages and prices continue to come in quite low, my own forecast does not expect us to reach our inflation target within two years. This is qualitatively consistent with the staff forecast of inflation in the Tealbook.

Because wages and prices have not responded to much-improved labor market conditions in aggregate or, really, even in the disaggregated data, I have lowered my estimate of the longer-run unemployment rate to 4.8 percent. In addition to the evidence from wages and prices, this estimate of the longer-run unemployment rate is consistent with the rising share of the workforce that is more highly educated and older, demographic groups that historically have had lower unemployment rates.

However, the most pertinent data for this meeting are probably not the government data releases on wages, prices, and real activity, but rather the financial data that have been unusually turbulent since August 24. Stock markets in many parts of the world are down 5 to 10 percent, with some emerging markets down appreciably more in dollar terms. In addition, volatility has risen significantly not only because of the sharp stock price declines, but also because of rising interday and daily volatility.

During periods of significant financial turbulence the FOMC has tended to follow easier policy, a point that will be made in a Boston Fed paper to be presented at our October conference on financial stability. After Black Monday in October 1987, the FOMC had daily calls through the end of that month to monitor financial and economic conditions and lowered interest rates. Recent stock price movements have been much more modest. On Black Monday, the stock market fell 22 percent, whereas on August 24, the Dow opened with a decline of over 1,000 points, or about 6 percent, but ended the day down a bit over 3½ percent. Nonetheless, the stock price declines did receive significant attention.

It is certainly possible that some of the eye-catching declines have more to do with problems related to financial market structure rather than a change in the economic outlook. On August 24, with the Shanghai index down a little over 8 percent, the New York Stock Exchange imposed Rule 48, which allows market makers to not post prices prior to opening. Along with a 1,000 point drop at the opening, a large number of individual stocks, ETFs, and other exchange-traded securities hit circuit breakers, with trading halted over 1,200 times across 466 securities, with 300 of the securities being ETFs.

In addition, the prices of a surprising number of large ETFs declined dramatically, with 188 declining in excess of 30 percent. Some ETFs declined by more than 50 percent. In some instances, two ETFs with similar strategies experienced materially different interday price movements. Further, the affected securities spanned different sectors and sizes—that is, they were not singularly focused. This, again, speaks to potential fragilities in the financial market structure.

It's quite possible that Rule 48 and circuit breakers in individual stocks complicated normal ETF arbitrage, leading to unusually large temporary declines. Ironically, the circuit breakers were implemented in response to May 2010's flash crash in which the Dow experienced an interday decline of over 1,000 points. In a manner similar to August 24's events, many stocks and ETFs experienced sharp price declines that reversed within a short period. If problems with market mechanics explain much of the recent volatility in financial markets, we have some significant financial stability analysis that needs to be done to better understand both the role of market mechanics and, possibly, regulatory policy solutions.

But, for now, the appropriate response to this financial upheaval is to reflect the realized loss of wealth and exchange rate movements in our model equations and assume the additional economic information content is modest. Of course, there is some risk in doing so, as it is not yet clear how persistent asset price movements will be and, generally speaking, households and firms tend to respond to such price movements only when they persist for some time. In any event, this is roughly how we folded the events into our own baseline forecast.

However, there is a darker potential story. Our models do a poor job of integrating financial market information, something that David mentioned and something we were all too aware of in 2008. It is possible that financial markets are reflecting weaker global growth or other more-fundamental problems that we do not fully understand. In this case, my modal forecast is too optimistic, and the downside risk should be significantly elevated. Unfortunately, I do not think we have enough time to fully process recent market turbulence. We certainly do not want to begin our first tightening amid a global slowdown. I can also imagine the difficulty of keeping the reverse repo facility small during a period of very elevated market turbulence, as many might flock to this convenient source of safe short-term financing during a time of financial tumult.

Although my baseline forecast involves the assumption of relatively modest effects from the recent financial turbulence, with magnitudes similar to those of the Tealbook, I think it would be wise to wait for more data that can validate the assumption of modest disruption before taking action based on that assumption. I will discuss this in more detail tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. My remarks today will be centered on what has changed and not changed with respect to the national economic outlook since our previous meeting. My view is that the general contours of the national outlook have not changed very much during the intermeeting period, and that we are on the precipice of making a decision that will demonstrate excessive sensitivity of the Committee to short-term movements in financial markets, especially equity markets.

Historically, the Committee has not wanted to react directly to equity price movements, as they are far too unpredictable over short periods and are as likely as not to reverse themselves over the medium term. If the Committee is changing its view on this issue, we should say so as forthrightly as possible and inform private-sector players about how we plan to proceed when future movements in equity market prices present themselves, either up or down, in future meetings of this Committee.

One way to get a handle on the intermeeting financial market turmoil is to consider so-called financial conditions indexes or the closely related financial stress indexes. A 2012 *Federal Reserve Bank of St. Louis Review* article by Kevin Kliesen, Michael Owyang, and Katarina Vermann documents the similarities and differences between a wide variety of such indexes.

Of course, we have a favorite, which is the St. Louis Fed financial stress index, and it has indeed risen sharply over the intermeeting period. Still, the level of the index remains well below the levels reached during the height of the European sovereign debt crisis in 2011 and

2012, not to mention far below the levels reached in 2008 and 2009. In addition, the index was arguably abnormally low during recent quarters and years, with volatility at low ebb and some interest rate spreads unusually compressed. From this point of view, one might welcome at least some of the return to a more normal market operation.

In short, the increase in the St. Louis Fed's financial stress index, or other related indexes, is not enough to cause me to make sufficient revisions to my forecast that would alter my path for monetary policy. I understand that many may be worried about a weaker growth outlook globally than would have been projected at the previous FOMC meeting, but my view is that many of the weak spots globally were clearly flagged during June and July, and that marginally weaker growth prospects globally are unlikely to have a meaningful effect on U.S. growth prospects. Accordingly, we have continued to project in St. Louis above-trend growth for the second half of 2015 and, indeed, over the forecast horizon. We think our growth call for the remainder of 2015 is close to the September 10 Blue Chip forecast, which itself is notably above the Board staff view.

Although it is always good to be cautious, we think, on the basis of the data available today, that the staff view is overly pessimistic concerning near-term growth. In addition, the Committee has now received information on the revisions to first-half real GDP growth, which now appears to have been above trend, adding to the picture of an economy that continues to push forward even in the face of a large dollar appreciation over the past year or more.

Above-trend growth is likely to continue to mean even tighter labor markets. Jobs reports since the previous meeting have generally been very good. And, if recent history is a guide, I would expect more upward revisions to currently reported jobs numbers as we go forward. The staff noted this as well.

Unemployment insurance claims per person in the labor force is at a multidecade low. Job openings per unemployed worker is exceptionally high, and the unemployment rate itself fell to 5.1 percent in the latest reading, matching what the staff projected at the previous meeting would only happen two and a half years from now, at the end of 2017.

I appreciate that the staff has now added some downward tilt to its unemployment projections, which have consistently been too pessimistic over the past several years. Still, it is probably not enough, as the unemployment rate is likely to fall below 4½ percent over the forecast horizon with above-trend growth and no major negative shocks. I think these outcomes are already in train, as the Committee has already committed to a very easy monetary policy during this coming phase of the business cycle.

There has, of course, been considerable talk about Chinese growth prospects during the intermeeting period. My assessment is as follows. The Shanghai composite index is not a meaningful indicator of U.S. growth prospects and probably not of China's growth prospects either. This index rose from around 2,000 in the first half of 2014 to 5,000 by June of 2015 before falling to around 3,000 during the intermeeting period. This was a bubble that burst because of factors specific to China. I take the signal for the United States to be small or zero.

Of course, many have commented that China may be growing slower than the official numbers indicate. I have, in fact, flagged this comment from business contacts with significant operations in Chinese markets in past meetings, especially those in the energy and manufacturing sectors. I do think that growth may be somewhat slower than official data suggest, but I do not think this is news compared with what was known at our previous meeting. It is an old issue. And, in my view, there is scant evidence at this point that China is entering a true hard landing, and on this point I agree with the Board staff analysis.

That brings us to U.S. equity prices, which are down approximately 7 percent during the intermeeting period as of the Tealbook publication. This is news, and, indeed, this is why I am concerned that our pending action will be viewed as a reaction to this development. One thought that I alluded to earlier is that this may be a more appropriate valuation than previously. We should think of an appropriate level of equity prices relative to potential GDP, and we should expect equity valuations—really, the value of the U.S. corporate sector—to return to this appropriate level regardless of week-to-week volatility. If that's the view, then temporary movements in equity valuations would not have an effect on macroeconomic forecasts and, therefore, on monetary policy.

My final comments concern inflation, which is running low today but is likely to strengthen over the forecast horizon. According to my board of directors, the firms represented there all expect wages to increase 3 percent this year, even firms that have workers that are on the lower end of the income distribution. I was surprised by that.

Low oil prices are having a large effect on inflation, but this effect will dissipate going forward. In any event, low oil prices are ultimately a bullish factor for the U.S. economy, not a negative factor. TIPS-based expected inflation measures are low and have fallen during the intermeeting period. I would normally be quite concerned about this, but these measures are unfortunately highly conflated with oil price movements and so are difficult to read in the current circumstances.

Overall, I am very concerned that the Committee does not overreact to what are essentially financial market developments as opposed to real-side developments during the intermeeting period. I see very tight labor markets ahead, barring a large shock. I also see risk of substantial financial-stability issues arising ahead, particularly if we are viewed as an enabler of asset price bubbles. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lacker.

MR. LACKER. Thank you, Madam Chair. The Fifth District economy continued to expand in recent weeks, although our survey results softened a bit. Our manufacturing report was mixed. The composite index fell to 0 in August from a reading of positive 13. As we saw when it dipped earlier this year, the index is at odds with the generally upbeat assessment by our contacts, who indicated that activity remains moderately strong despite less-favorable exchange rates and softer growth in emerging market economies.

In contrast, service-sector activity remained robust in recent weeks, according to both survey results and contact reports, especially on the retail side. The current retail revenues index rose to 44 in August from 35 in July and 15 in June, reaching the fourth-highest reading in the 22-year history of that series. The nonretail services index slipped a bit in August but, at 28, was still the third-highest reading in that series. Readings on expected activity remained strong across both services and manufacturing. Preliminary results for September are a tad softer than August—they won't be released for a couple of weeks, but they tell the same basic story.

Fifth District housing markets continue to strengthen despite supply constraints on the building side that were said to be holding back activity. Several builders report the construction of single-family homes would be higher if not for shortages of labor and lots. The time required to go from initiation to completion of a single-family home is said to have increased. There are some reports of homebuyers accelerating purchases in anticipation of rising interest rates.

Spec building is increasing at price points around $1 million, and we have heard several contacts use the term "bubble" in connection with the multifamily sector. That said, vacancy rates remain low, and I am never quite sure what people mean by the word "bubble." Contacts generally reported that commercial real estate and building activity were robust in many regions within our District. Some markets have seen a surge in hotel construction and the emergence of spec office construction.

Reports of labor shortages and difficulty finding qualified workers continue to proliferate. Contacts say the number of unfilled job openings is rising, as is the time it takes to fill openings. Employers are converting temporary workers to permanent status more rapidly to avoid losing them, and they are making more initial hires on a permanent basis rather than a temporary one. Although labor scarcity is not universal across occupations, it appears to go well beyond IT and skilled trades. Many contacts cite shortages for lower-wage jobs, such as those in the hospitality and retail sectors.

I continue to hear widespread reports of wage pressures in the Fifth District. I recognize that the second-quarter ECI number appears to have thrown cold water on the notion of nominal wage acceleration in the national data. Nevertheless, our contacts report that wage pressures are resulting in some outsized wage gains, and they suggest that such pressures are prevalent in a broadening array of industries and occupations. Additionally, the wage components of our manufacturing and service-sector surveys have strengthened considerably over the past year or so and are now quite close to historic highs.

Perhaps the gains we hear about are being offset by weaker wage gains in other occupations, but our reports do seem to indicate that a broader portion of the labor market has tightened in recent months. Despite these indications of rising labor costs, there are no new reports of broad-based acceleration in prices and inflation expectations, at least as evidenced by our survey results, and contact reports suggest that expectations appear to be well anchored.

Turning to the national picture, the most notable aspect of recent economic performance, in my view, besides the unexpectedly rapid tightening in labor markets, is the behavior of household expenditures. Real consumer spending accelerated from less than 2 percent in the years prior to 2014 to over 3 percent since. This faster pace was interrupted in the first quarter of this year by what are now known to have been temporary factors, including unusually harsh winter weather. But with that pothole behind us, consumption growth has returned to a 3 percent annual rate.

Reflecting the momentum in labor markets, real income growth is likely to continue at a solid pace. I expect real PCE growth to remain in the 2½ to 3 percent range, distinctly higher than the average from 2010 through 2014. This sustained step-up in the pace of consumption growth is important to my thinking about interest rates. I'll say more about this later, but, broadly speaking, higher real consumption growth should be associated with higher real interest rates.

Other components of GDP are showing reasonably healthy growth as well. Business fixed investment weakened beginning late last year, but recent reports indicate that capital goods orders bottomed out last spring and have been increasing since. Nonresidential construction spending, apart from oil and gas, has registered strong gains as well, as has residential investment spending. Even before the August employment report, I would have argued that we had seen substantial further improvements in labor market conditions this year. With monthly job gains averaging over 200,000 per month and growth in the prime working-age population having slowed considerably, it is not surprising that the unemployment rate has continued to decline at an impressive rate. The August employment report obviously revealed additional labor market improvement.

I have spoken in past meetings about broader measures of labor utilization. I have also spoken about alternative approaches to calculating an appropriate benchmark to gauge labor market conditions. At this point, however, it seems clear that virtually all measures of labor market utilization have fallen enough to be statistically indistinguishable from any plausible normative benchmark one might choose to represent maximum employment. As a result, I don't see how we can say we have not seen further improvement in labor markets.

Some argue that there is likely to be additional slack in labor markets if nominal wage rates are not accelerating. But real wage rates are related to productivity growth, and productivity growth has been slow for several years now. Wage growth in real terms has at least kept pace with productivity gains over that time period and, in the past year, has significantly outpaced productivity. So I don't see the behavior of wage rates as providing evidence that there is any remaining labor market slack.

The JOLTS data also seem to suggest that labor market slack is minimal. Job openings have been increasing more rapidly than hiring for several years now, but the divergence has widened at an increasing pace this year. As of July, job openings have increased by 12½ percent from their average in the fourth quarter of 2014, while the hiring rate has been virtually flat. The natural interpretation would seem to be that employers are having an increasingly hard time finding suitable workers to hire, and slack in any meaningful sense has been substantially reduced.

A solid economic outlook and the relative stability of inflation expectations, I think, should give us confidence that inflation will return to 2 percent once the temporary effect of the recent fall in oil prices and strengthening of the dollar have dissipated. The behavior of inflation following the previous oil and dollar moves should bolster that confidence. Over the past six months—that is, from January, which is when energy prices bottomed out, to July, which is the latest month for which we have this data—headline PCE inflation has averaged 2.2 percent, while core PCE inflation has averaged 1.7 percent.

One might argue that the strength in headline inflation was aided by the 7.8 percent rebound in energy prices from January to July, but core inflation was relatively close to 2 percent despite the continuing decrease in import prices this year. I think our experience following the previous disinflationary surprise is good evidence that the 1½ percent decline in the overall price level over the six months prior to last January was transitory and left no lasting effect on trend inflation. Thus, to the extent that the current disinflationary impulse from energy prices and the dollar resembles the previous one, it ought to bolster our confidence that inflation will rebound to 2 percent as it did earlier this year.

Recent financial market volatility both here and abroad has captured popular attention and seems to have shaped a great deal of market commentary about our pending policy decision. For me, it's hard to discern meaningful implications for U.S. growth prospects or inflation trends, and it hasn't had a significant effect on my policy views. These recent events bring to mind several historical instances—President Rosengren cited one or two—in which large stock market declines have occurred in the midst of extended economic expansions. The years 1966, 1987, and 1998 stand out. In each of these instances, it is clear with hindsight that stock market gyrations did not signal a deflection in the trajectory of U.S. economic activity, and, in fact, in each case the economy continued to expand.

I also think it's clear with hindsight that our policy reactions were too accommodative. For example, in the fall of 1998, we cut interest rates three times following financial market reactions to the emerging market turmoil and, as a result, fell behind the curve in 1999. I think the lesson is that we should be careful to not overreact to financial market volatility that is not demonstrably connected to weaker economic fundamentals. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. I spent a lot of time during the intermeeting period talking with business contacts, and I thank President Evans for hosting a joint meeting between the Chicago and Cleveland boards that allowed me to gain insights from a wider array of businesses and geography.

Over the intermeeting period, the Fourth District economy continued to expand but at a somewhat slower pace than in July. Our diffusion index of business contacts reporting better versus worse conditions fell to 9 in August, down from 18 in July, which is about the level it's been for most of the year. But this aggregate number masks some differences across industries. The auto industry is doing very well. Strong motor vehicle sales reflect mainly retail rather than fleet sales and include a large share of trucks for which profit margins are high. One of my directors, an auto industry executive, indicated that auto manufacturers and suppliers find it challenging to keep up with demand. Most companies expanded production some time ago by using alternative work schedules with multiple shifts, and there are few other options available to quickly boost capacity. His company is adding workers to each shift to avoid bottlenecks and to step in for absent employees.

Activity in the construction sector, particularly nonresidential construction, remains strong, and the outlook for residential construction has improved as household formation rates have begun to accelerate and house prices have increased. A director whose company is a large supplier to the construction sector has a very positive outlook. However, steel manufacturers in the District remain under pressure—feeling the effects of the appreciation of the dollar, slower growth abroad, and weak demand from the domestic energy sector.

Conditions in District labor markets remain quite positive. The District unemployment rate stood at 5.1 percent in July, and it has been essentially stable at this low level since late last year. District payrolls continue to grow at a better than 1 percent pace. Business contacts report that labor markets are tightening and compensation pressures are increasing. In the auto industry, manufacturers and suppliers have been making widespread use of bonuses and overtime.

Notable were reports we received from business contacts that wage pressures are now being felt not only for skilled workers in certain fields like construction and IT, which have faced difficulties in finding workers for some time, but also for less-skilled occupations, such as those in the restaurant industry. Another notable aspect of my conversations with business contacts was that, although they certainly noticed the gyrations in the stock market, none suggested that the volatility and decline in equity prices was causing them to change their plans regarding hiring, investment, or spending.

That volatility partly reflects renewed concerns about China's growth prospects and its implications for commodity prices and growth in other emerging market economies. The dollar has appreciated and oil prices have fallen since our previous meeting, but the recent moves were considerably smaller than those seen last summer, and their implications for economic activity and inflation should be smaller as well. Nonetheless, there has been some tightening of financial conditions in the United States—in particular, lower equity prices and somewhat higher credit risk spreads—but conditions have tended to stabilize and partially reverse over the past couple of weeks.

I see the consequences of this tightening in financial conditions as a risk to my forecast, but it hasn't materially changed my outlook for the national economy. The incoming data have been in line with my expectations for accelerating activity, further improvements in labor markets, and a gradual firming of inflation over time.

We've had confirmation that growth in the second quarter was robust, and the economy has entered the third quarter with some momentum. Averaging the estimates from the Cleveland Fed's two nowcasting models puts third-quarter growth at 2 percent, which is the median across Federal Reserve System nowcasts included in the Tealbook.

I've marked up my growth forecast for this year to reflect the strong growth we've seen in the first half. Partly reflecting somewhat slower-than-expected global growth, I've reduced my growth forecast for 2016 and 2017 two-tenths compared with my June projection. But in this projection, based partly on the revisions to past productivity growth, I've also revised down my longer-run growth rate two-tenths to 2.3 percent. So the trajectory of the economy in my forecast remains the same, with GDP growth picking up to an above-trend pace later this year and remaining above trend next year, supported by highly accommodative monetary policy and sound economic fundamentals, including improving household balance sheets and strengthening labor markets.

The labor market has made significant progress. Since our previous meeting, unemployment and underemployment rates have declined, payroll growth has remained solid, and the job openings rate has increased. Current labor market conditions are stronger than at the time we began raising rates in June 2004. Today the unemployment rate is 5.1 percent, which is the Board's staff estimate of the natural rate. At our June 2004 meeting, the unemployment rate was 5.6 percent, which was 0.6 percentage point above the Board's staff estimate of the natural rate at the time. Looking at job growth, today payroll employment is 2.8 percent above its pre-recession peak. Based on the real-time data available in June 2004, payrolls were more than 1 percent below their pre-recession peak.

I believe the economy is at or nearly at full employment. Research by Federal Reserve Bank of Cleveland and Board staff indicates that the gap between the current labor force participation rate and its long-term trend based on demographics is only about 20 basis points. If actual participation stays flat, the gap is expected to be eliminated by next spring.

In this SEP projection, I moved down my estimate of the longer-run unemployment rate to 5.2 percent from 5.5 percent. Of course, in view of the error bands associated with long-run estimates, I admit this is not a statistically significant change. Still, it recognizes that the unemployment rate has been falling more sharply than I've been anticipating, and wage pressures have not yet risen significantly. With above-trend growth, I see the unemployment rate falling to 4.8 percent by the end of next year and remaining below its longer-run level until 2018.

Currently, headline inflation is running below target, but I project inflation will return to our 2 percent objective in early 2017. This is slightly later than in my June projection to allow for the transitory effects of the most recent declines in energy and import prices to pass through. I continue to anticipate inflation will gradually return to our target because I expect output growth to be above trend, labor markets to continue their strengthening, and inflation expectations to remain stable.

In light of the volatility and flight-to-safety moves in financial markets since our previous meeting, I, like the Tealbook, take little signal about inflation expectations from the downward move in inflation compensation measures. The estimate of the Federal Reserve Bank of Cleveland's measure of 10-year inflation expectations for September was very little changed from August; it actually went up by 2 basis points, but the measure is up about 10 to 15 basis points since early this year.

Indeed, although the latest decline in energy prices was not anticipated, inflation dynamics have played out as the Committee suggested they would. In particular, the effects on inflation of last summer's decline in oil prices and drop in import prices were transitory, as expected. Like President Lacker said, if you look at the six-month annualized rate of PCE inflation, it has moved from negative readings early this year to over 2 percent in July. Six-month core PCE inflation increased from less than 1 percent earlier this year to 1.7 percent in July, and a similar pattern is seen in the CPI, core CPI, Federal Reserve Bank of Dallas trimmed mean PCE, the Cleveland Fed median CPI, and the Cleveland Fed trimmed mean CPI.

The six-month annualized change in all of these measures as of July is 2 percent or more. This pattern is consistent with the FOMC's statement that it anticipates inflation will begin gradually moving up as the effects of earlier declines in oil prices and import prices dissipate. Seeing the inflation numbers play out this way should give us more confidence in our inflation forecast. Now, it's true that the most recent decline in oil prices and import prices will send the headline readings back down again for a time, but based on past experience, this will also be transitory. Of course, as we discussed here and as the interesting papers at this year's Federal Reserve Bank of Kansas City Jackson Hole Symposium underscore, we have to be humble. There's considerable uncertainty associated with the inflation forecast, but probably not more uncertainty now than in the past.

Although there are pros and cons to any particular study, I read some of the Federal Reserve research that President Lacker cited in a recent speech as saying that we should not be too quick to throw out the models and tools we're currently using to forecast inflation, most of which suggest a gradual return to target. In the historical data, inflation surprises are frequent and large. In DSGE models, these surprises are often attributed to shocks to the mark-up of price over cost, and they play a key role in modeling inflation dynamics. We shouldn't be too surprised that our inflation measures are pushed away from target when the economy is hit by large shocks, but we also should not overreact to such shocks.

Finally, underlying my forecast is a funds rate path that incorporates a liftoff from the zero lower bound this quarter and a gradual rise thereafter. My path is more shallow than in my previous SEP submission. I revised down my long-run funds rate by 25 basis points to 3½ percent, and I anticipate the funds rate to be at that level by the end of 2017. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. I'll start with a few observations from our District contacts over the past few weeks. Those contacts were representatives of businesses and, this time around, of state and local government.

Sentiment in the business community continues to be almost uniformly positive regarding conditions and the outlook. Retailers reported good sales activity and optimism about future sales prospects. Homebuilding and commercial real estate industry participants are upbeat. Auto industry contacts remain delighted with sales, trends, and prospects. Enough of our interviews occurred during the recent period of market volatility to give us a read on concern raised by those developments. We detected little concern that momentum will be disrupted by global economic and financial events.

Over this intermeeting cycle, we were attentive to perceptions of general conditions in labor markets and, especially, wage trends. We got the clear impression that hiring challenges persist and have intensified. A number of our contacts described significant labor shortages and are implementing new strategies to attract personnel—for example, referral and signing bonuses.

Firms are increasingly willing to spend on employee training to address skills requirements. This was the fifth consecutive cycle of contacts in which we heard comments on growing wage pressures for selected job categories or in selected geographies or both. It was noteworthy that, this past cycle, the District contacts yielded a more generalized sense of rising wage pressures.

Turning to my outlook, my baseline forecast for growth falls in the 2½ to 3 percent range over the next few years, which puts me on a stronger growth path than the current Tealbook. My growth outlook is accompanied by continued absorption of labor market slack, broadly defined, and accelerating measured wage pressure. I continue to have confidence that inflation will move to target in the medium term, but I'm not very optimistic we'll see much improvement in the inflation trend this year. I expect transitory factors, such as oil and commodity prices, will exert downward pressure on headline and core inflation measures for the next few quarters at least. This view lines up with the Tealbook.

The only meaningful change in my assessment of the economy from the July meeting pertains to my sense of the balance of risks. The recent volatility in the markets, apparently a response to increased uncertainty triggered by global economic and financial developments, has not subsided entirely as of this meeting date. It's too early to know whether this episode amounts to a bona fide shock or just a nervous spasm in the markets. It's also too early to detect any significant effect on the real economy. I'm not projecting a material effect, but evaluation of that question will require some time. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I do have one comment about the Twelfth District economy, specifically the Bay Area economy. I don't know if you saw this in the news, but our housing crisis is so extreme that the Salesforce conference, which is going on all week in San Francisco—another reason I'm happy to be here and not at home—brought in a luxury cruise ship to provide housing for the people coming to their big conference because the hotels were all booked. At Airbnb.com, which is very popular in San Francisco, the rates were described as "astronomical." I think, the fact that people are now living on luxury cruise ships gives you a sense of the state of the San Francisco economy.

Over the past five years, real GDP growth has averaged a little over 2 percent, and the unemployment rate has fallen nearly 1 percentage point per year. All indications are that this pace of expansion, both in terms of growth and the labor market, is continuing despite the sizable global headwinds.

Now, my contacts point to a virtuous cycle of job growth and consumer spending across a broad set of regions and sectors, and I see moderate GDP growth combined with a still-subdued pace of productivity growth, implying that the unemployment rate should continue its downward trajectory at least through next year.

This ongoing strengthening of the labor market is in the context of an economy that's already at or very near full employment. Therefore, my forecast, like that in the Tealbook, implies that the unemployment rate will fall significantly below the natural rate of unemployment next year and remain there for quite some time. Now, like President Bullard, I see this as already in train, in that the momentum in the economy is already in place to create those circumstances, and it doesn't depend on any policy decisions we make at this time.

Running such a high-pressure economy arguably has some benefits, at least for a while. It may speed the processes of squeezing out remaining pockets of labor market weakness and drawing in some of those who are still sitting on the sidelines. It should also accelerate progress in reaching our 2 percent inflation target. But there are risks as well, especially if this is allowed to go on for too long. The economic pot may move from a healthy simmer to a full boil and eventually boil over. Managing this risk requires that we respect the lags between monetary policy actions and the effects they have on the economy, and that we not allow imbalances to emerge and grow that can ultimately destabilize the economy.

The paths to expansion provide a cautionary tale in this regard. In both cases, the unemployment rate drifted lower and lower, falling below the natural rate, and eventually the economy outran its fundamentals and became increasingly fueled by excessive optimism. In the end, the high-pressure economy proved unsustainable, collapsing under its own weight, at great social and economic cost—a topic I will return to tomorrow.

Of course, managing this risk also requires one to know how far is too far, and that brings me to the question of the natural rate of unemployment. I've argued in the past that I view the unemployment gap, the gap between the unemployment rate and its natural rate, the long-run equilibrium value, as being a good gauge of overall slack, but that leads us, of course, to think hard about what the natural rate of unemployment is and how to best estimate that.

We have spent a lot of time in the Federal Reserve System, and especially the San Francisco Fed, thinking about this issue over the years. And on the heels of the Great Recession, my staff and many others in the System really wrestled with the possibility that the persistent labor market dysfunction related to mismatch or worker scarring might have substantially increased the natural rate, and our conclusion then and now is that the long-run natural rate wasn't, in fact, much affected by these factors.

And now we're faced with a different question, and that is, with the unemployment rate so low today, we're asking ourselves whether the natural rate may actually be lower than its pre-recession levels. Now, of course, a recent analysis by Board staff, as Governor Tarullo commented on at one of our previous meetings, considers this possibility, and that definitely spurred some further research at the Federal Reserve Bank of San Francisco. The Board staff analysis concluded that the secular decline in the labor share of income, which is well documented, has pushed down the natural rate of unemployment as well in recent decades. They argue that, basically, the decline in the labor share reflects a decline in worker bargaining power which lowers labor costs and makes it more profitable for businesses to hire workers. With the greater profitability of hiring workers, firms want to go out and create more vacancies in order to take advantage of this opportunity to hire more workers and make more money. In addition, with this increase in job vacancies, it also should be easier for workers to find jobs. So we should see some signs that job-matching rates are going up.

In their paper, they find some evidence for the first hypothesis. There is a positive correlation between labor share and the ratio of vacancies to unemployed across industries and states. And we found this idea intriguing—in fact, provocative. But after a deeper look at the theory and the evidence, I'm unconvinced.

First, the theoretical implications of a declining labor share for the natural rate of unemployment are far from definitive. Some work by my own staff shows that a decline in labor share doesn't automatically imply that firms can get higher profits by creating new jobs. There's an example they studied, that if financial intermediaries are receiving an increasing share of the surplus from output, businesses and workers are both being squeezed and job creation will fall along with the labor share. So, in their model, you would find a fall in labor share could actually push up the natural rate of unemployment.

But, more importantly, the evidence is inconsistent with the theory. Looking at the time series data for the United States, vacancies per unemployed worker have not increased as the labor share has fallen over the previous couple of decades. If anything, the data show somewhat of a downward rather than upward movement in recent decades. And looking at the worker side of the equation, you see the same thing. The job-finding rates appear to have fallen, not risen, as the theory would suggest, and we've looked at this across different subgroups—short-term and long-term unemployed, and people out of the labor force. Again, the consistent finding is that job-finding rates are not rising the way the theory would suggest. So I really don't see convincing evidence that the natural rate has come down because of a fall in labor share.

With little evidence that the labor market has become more dysfunctional, my staff has gone back to the tried-and-true method of thinking about the natural rate of unemployment, building on some research that was done at the Federal Reserve Bank of Chicago, and that's to focus on the composition of the labor force. Basically, we're going back to George Perry's work from 1970 that said the time needed to find a good job match varies across worker groups, depending on age and other things. Think about young workers—they tend to have less-stable employment patterns than older workers. That translates into higher unemployment rates on average.

It's an old and well-studied idea in labor markets, and studies differ in how they account for this influence on the overall unemployment rate. What my staff did is, they looked at the pre-recession average unemployment rate for groups defined by age, gender, education, and race.

They weighted them up by changes in the population shares since 2007, and based on average unemployment rates for the 20 years before the recession, this method yields an estimate of the natural rate prevailing today of 5.0 percent.

Now, the Federal Reserve Bank of Chicago staff did a very similar analysis and used similar methods. They looked at a shorter period of time, and they got a somewhat lower estimate. But, again, going back to this research that we've been doing about labor market dynamics and whether there have been structural shifts in the labor market, we're not really finding any evidence of that. We decided to stick with looking at a 20-year pre-recession sample, and that's where we came up with the 5 percent number. Now, I don't expect demographic factors to actually change much over the next few years. So that is my long-run view of the labor market.

As I said earlier, I expect the unemployment gap to turn negative later this year and remain so in coming years. This will push up underlying inflation more quickly toward our target, and that is a good thing. In my forecast, we achieve our 2 percent inflation objective in early 2017 when the effects of the dollar appreciation and of falling oil prices have dissipated—I think this is similar to President Mester's view.

I'd just mention, we did spend quite a bit of time with the annual revisions, thinking long and hard about some of our long-run views. And, similarly to President Mester, I did bring down somewhat my estimate of not only the natural rate to 5 percent, but also long-term growth to about 1.9 percent—based on our research on trends, demographics, and productivity—and the real natural rate of interest to 1.5 percent.

And for those who like to read all the details or they can't sleep at night, I am respondent number 6 in the SEP. Thank you.

CHAIR YELLEN. Thank you.

MR. ROSENGREN. There's a two-hander.

CHAIR YELLEN. Yes. President Kocherlakota.

MR. KOCHERLAKOTA. I don't want to ask President Williams to give away his punch line from tomorrow, but I was wondering what you have in mind when you talk about the economy boiling over. Are you talking in terms of inflation, or are you talking in terms of low unemployment leading inexorably to, unfortunately, very high unemployment? On the real side, or on the nominal side?

MR. WILLIAMS. I'll give a very short answer to that. I am thinking in this case about an economy that's basically becoming unsustainable—living off froth, if you will—and then when it turns, it turns into recession. I'm really not thinking about the inflation aspect in this particular case, but more that the economy is running off a cliff and then falling. So that, really, is the example.

MR. KOCHERLAKOTA. Okay. Thank you.

CHAIR YELLEN. President Harker.

MR. HARKER. Well, thank you, Madam Chair. As President Mester just pointed out, in the Philadelphia District we don't have a luxury cruise ship, but you can spend the night on the Battleship New Jersey if you want to. [Laughter]

VICE CHAIRMAN DUDLEY. Sounds attractive.

MR. HARKER. Well, they thought about it with the Pope. They were going to open it up for the Pope—not for him, but for others. [Laughter] So, back to business. Although there has been a slight deceleration in economic activity in the Third District, growth is continuing at a modest pace, and our contacts, for the most part, remain optimistic. While employment growth slowed measurably over the past three months, all of the slowdown can be attributed to a 1.6 percent decline in New Jersey's job creation rate during July. There's some evidence, though, that this outsized decline may be due to seasonal adjustment.

With slower job growth, our region's unemployment rate held steady in July at 5.6 percent. Total compensation, however, has picked up a bit, with 2.6 percent growth in the ECI in the Philadelphia metropolitan area now exceeding that of the nation. Our coincident indexes for the region, which are largely driven by labor market conditions, have grown between 3.02 and 3.88 percent year over year, roughly in line with the nation.

Reflecting the softness in manufacturing nationally, the general activity index in our August business outlook survey came in at 8.3, which is slightly below its nonrecessionary average. Shipments were a bit stronger at 16.7, and the employment index returned to positive territory after a small negative reading in July. Optimism remained high, as the Future General Activity Index rose to 43.1, well above its nonrecessionary average. However, the August survey was conducted before the recent turmoil in financial and oil markets, so the preliminary data we have for September's report, which will be released tomorrow morning, is of particular interest.

As expected, some of the nervousness in global financial markets has spilled over into survey respondents' views, but, with the exception of the headline index, the spillover was relatively minor. September's Current General Activity Index declined to negative 6, although the indexes for new orders and employment increased somewhat to 9.4 and 10.2, respectively, and shipments held fairly steady at 14.8. Also, the Future General Activity Index was largely unchanged in September at 44.0. Broadly speaking, the tenor of the report is slightly upbeat.

My take on the numbers and what we are hearing is that we are not seeing much spillover from financial markets to the real economy, at least not in the Third District.

The service sector has shown some limited improvement since we last met, but the indexes for activities, orders, and sales still remain below historical averages. The relative bright spot is the region's tourism industry, which is reporting record summer activity.

Housing in the region continues to recover and appears to be gaining some momentum. Recent months have seen record-high multifamily permits, and single-family permits are improving modestly. In the Third District, multifamily construction is outpacing the nation as a whole. House prices, however, continue to grow more slowly than in the nation as a whole, in part because of much lower house price depreciation during the housing crisis. Regionally, nonresidential construction has also improved, with the value of contracts for both commercial buildings and all nonresidential buildings rising appreciably in July.

Turning to the nation as a whole, I believe the real economy remains on solid footing, and that the waning in price pressures is a temporary phenomenon. Although recent negative developments in foreign economies and the stock market are of some concern, I do not anticipate that they will have a large or persistent effect on U.S. growth. Specifically, my forecast calls for real GDP growth of about 2.3 percent this year, as the economy has rebounded from a weak first quarter. I expect healthy consumer spending to underpin output growth that is modestly above my longer-term trend of 2.3 percent over the medium term.

The recent data continue to point to a healthy labor market, and I expect the unemployment rate will edge slightly below my estimate of the natural rate over the next three years. Although the recent data on inflation have been on the weak side, I see this mostly due to the fall in energy prices, so I expect the weakness to be temporary and inflation to begin moving up.

In addition, I am encouraged by survey evidence showing that business owners plan to increase labor compensation. Research by my staff indicates that movements in actual compensation or earnings lag survey measures by 9 to 12 months, so we may soon see increases in wages that get passed through to inflation. That said, I am a bit concerned about the seeming downward tilt in inflation expectations and will be watching this closely going forward.

On balance, I expect that inflation will rise gradually over the next three years and reach our 2 percent target in 2018. Underlying my forecast is a path for the federal funds rate that is somewhat stronger than the Tealbook, although it is within the range of outcomes suggested by monetary policy rules that we look at. The recent data have not altered my view that the real economy will grow at a pace not too far from trend growth over the next few years, and that it is able to sustain a gradual renormalization of monetary policy. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. I am going to start by talking about the outlook for the energy sector. This will build on some of Steve Kamin's comments.

Oil price uncertainty, as measured by the oil volatility index, is approaching exceptionally high levels, similar to what we saw at the start of this year and in 2011. Our view, informed by discussion with industry contacts, is that there is likely to be more downside than upside risk at current prices. That is, we believe oil prices may well fall further from here and stay lower for longer than had been previously expected.

Let me explain some of the reasons why. First, on the demand side, a significant issue, which we have all talked about, is a possible further slowing of growth in China and China-linked economies. Second, the summer driving season—which, by the way, was very strong—has ended, and we have yet to enter the peak winter heating season. Third and lastly, refineries are now shutting down for normal scheduled maintenance, and that will go on for the next few months.

On the supply side, inventories of crude are large and growing. Global production is more than 2 million barrels per day above global consumption. And although rig count has notably declined, this is more than offset, in our view, by a very large shadow inventory of drilled but uncompleted wells that could be brought into production rapidly, depending on oil prices. We have accumulated this supply overhang even as supply outages outside the United States have restricted world oil production by an estimated 3½ million barrels per day. If any of these outages are resolved—for example, in Libya or Iran—the additional production could easily offset supply declines expected in the United States in coming months.

In addition, much of the world's marginal cost production is located in the United States, and, to a much lesser extent, in Canada and the North Sea. So if supply adjustments are required, which we think they will be, they are going to need to take place mostly in the United States. In our view, this is going to be challenging and very painful economically, and it is going to be primarily in the area of the shale producers.

In response to all of this, producers, as you would expect, are cutting their capital outlays—in some cases, for the second or third time. For North America as a whole, we expect energy industry cap ex to fall as much as 10 to 15 percent in 2016 versus 2015. Despite the initial surge of capital that came into the sector early this year, multiple Beige Book contacts reported that the credit situation is in fact worsening for many small- to mid-cap independent producers. And potential new capital is now resetting its expectations much more realistically to lower prices for longer. We believe this will likely lead to more defaults, debt restructurings, and merger activity. Based on all of these factors, it is our view that it may not be until sometime in 2017 that global supply and demand get into some reasonable degree of balance.

With that backdrop, let me talk about the Eleventh District. There certainly will continue to be negative spillovers from all of this in the Eleventh District. We see it in the manufacturing survey, and, in fact, our most recent survey shows that the new orders component dropped 13 points to negative 12½ after having reached positive territory in July for the first time this year. The service sector is stronger and more resilient and still growing at close to its expansion average, but we are seeing signs that retail sales are beginning to weaken. In addition to the effect of the energy sector, Beige Book contacts suggest some of this retail weakness is due to the strength of the dollar, which really affects Texas maybe more than other states because it hurts the purchasing power of Mexican shoppers who contribute significantly to retail sales in the state of Texas.

Despite all of this, employment in the Eleventh District has been surprisingly resilient, probably because of the diversified nature of the economy. Even factoring in these negative energy developments, our regional economists still predict that Texas jobs will grow at an annualized pace of 1.3 percent over the final five months of this year, which is the same rate as the first seven months.

Although reductions in energy-related jobs have been a negative factor, as of yet they have not affected the regional unemployment rate as much as we would have expected. What is happening is that many of the people who moved to the area to work in the oil fields have now left and returned to their previous locations. Those who have remained have taken lower-paying jobs in other sectors, which, until recently, have struggled to attract new employees.

One of the pronounced features of our District is severe labor shortages in various areas—construction trades, manufacturing, food, nursing, truck driving, retail, and restaurants. Because of that, despite all of these negative factors from energy, we still see upward wage pressure. And, related to that, we see a very strong real estate market.

If you look at the areas of the state which are less dependent on energy, the real estate sector remains robust. Our latest reading of Texas home values is up 8 percent year over year in the second quarter. And we didn't see much deceleration from quarter to quarter during the first two quarters of this year. With that, downward price pressures actually accelerated notably in surveys in August. According to our manufacturing surveys, and in the service sector, our selling price index slipped below zero, which is its first negative reading in nearly five years.

So, with all of this, there are a lot of crosscurrents in the state. But all in all, even though the Eleventh District has remained resilient, we believe the negative effects of a potentially lower oil price for longer are continuing to unfold, and that probably means the risks in the District are to the downside.

Turning to the national economy, we expect to see the unemployment rate reach its longer-term sustainable level by the end of this year—that is, 5 percent—and then fall below that level. With unemployment low and falling, and with longer-run inflation expectations well anchored, we believe inflation should begin moving up toward our 2 percent objective as the effects of the fall in oil and the rise of the dollar eventually pass through inflation calculations.

By the end of 2017, we believe we are going to be very likely near our inflation target of 2 percent. We believe conditions outside the United States do pose a real threat to the scenario I just described, though. Major economies—including China, Europe, Brazil, and Japan, for example—face serious demographic, fiscal, and structural challenges. These challenges have the potential to create spillovers, which could negatively affect the United States, and we believe these challenges are likely to take years versus months to unfold and address.

Lastly, regarding the recent volatility in U.S. and other global financial markets, for us this is not, as of yet, a major factor in our assessment of overall conditions, and let me explain why. Although a decline in market value certainly could have negative wealth effects, we believe it has to be viewed in the context of overall valuation levels. And, in that regard, we believe valuations heading into the summer were fulsome by historical standards—certainly in the United States, but you can make the same argument about non-U.S. markets, maybe even to a greater degree.

When we look at expected earnings, price/earnings ratios, and other key valuation factors, we believe that, in that context, an equity market correction like the one we recently had could potentially be healthy and, in fact, indicative of appropriate reassessment of risk–return by market participants. Thank you.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. As we evaluate progress toward achieving our employment mandate within a reasonable period of time, I think we can check the box for "reasonable confidence." Most of my business contacts thought domestic demand was relatively strong. In the auto industry, low interest rates and incentives have continued to support very robust light vehicle sales. Meanwhile, my director from a large credit card bank indicated that growth in consumer spending, other than gasoline, has been healthy but not spectacular. He and other bankers also noted that consumer credit performance outside the category of student loans has been very good, with delinquency rates near all-time lows. A number of contacts reported gains in residential and commercial construction. Indeed, real estate markets are quite strong in some areas. However, construction equipment manufacturers are not so upbeat, with Caterpillar seeing only modest gains and Deere reporting flat demand. Each had stronger expectations for the year back in January.

We did hear a few other notes of caution. United Airlines reported that business travel was down for the entire industry. And Manpower Employment Services said orders for temp workers have softened, reflecting clients' uncertainty about the demand for their products. Manpower's permanent placements were up, but only for skilled workers. Similarly, wage gains were confined to these hard-to-fill occupations.

On the international front, most contacts expressed caution about the prospects for global growth. I did hear a number of positive reports on activity in Europe, with some of the strongest being about Spain. The gains, though, are coming from low levels. Not surprisingly, just about everyone was pessimistic about China, and there were some dire comments about Latin America, especially Brazil, which one large manufacturer described as "going off a cliff."

Turning to the national outlook, my own assessment has not changed a great deal. I expect growth will average about 2½ percent over the forecast period. That is above the Tealbook, reflecting in part my somewhat higher path for potential output. I expect the unemployment rate will fall to 5 percent by the end of this year, which would match my assessment for the current level of the natural rate. I agree with the Tealbook that, on net, other labor market indicators point to some additional slack beyond what the unemployment rate shows. But I expect these gaps will diminish, too, as we move through this year and next.

But inflation continues to be another story. I think we are still quite a way from reasonable confidence that inflation will rise to target over the medium term. Indeed, the news since July has been disappointing. We have been expecting that the disinflationary influences of energy and import prices would dissipate soon. Instead, over the intermeeting period, oil prices and the dollar have broken in the "wrong" direction.

The glimmer of higher wage growth we thought we saw in the ECI in the first quarter also has vanished. President Rosengren was pretty accurate in forecasting this second-quarter change at our previous meeting. And the year-over-year increase in core PCE inflation is still just 1.2 percent. Not long ago, some were putting more emphasis on three-month inflation, which had picked up. Now the three-month change in core PCE has moved back down. The Tealbook speculated that the elevated second-quarter core number was an aberration, in part due to residual seasonality, and that was a pretty good call.

My own forecast is very close to the Tealbook. I also see inflation only slowly marching up to 1.9 percent in 2018. But getting up to this 1.9 percent inflation assessment continues to be tough for me. None of the inflation models we regularly run at the Federal Reserve Bank of Chicago get us to 2 percent within the forecast horizon. Nonetheless, like the Tealbook, and like most of us around this table, my judgmental forecast embeds the assumption that inflation expectations will exert a substantial upward pull on actual inflation. But this projection is fraught with uncertainties.

The recent memo by Travis Berge, Brad Strum, and Kei-Mu Yi summarized the inflation models used around the Federal Reserve System. The collection of models reported suggests that one needs to put a good deal of weight on survey measures of long-term PCE inflation expectations, which are flat at 2 percent, in order to get a model projection up to target. But relying on long-term inflation expectations isn't always enough. As I have discussed here before, our Chicago DSGE model also uses the SPF 10-year CPI expectations to inform its latent inflation trend. The declines in those long-term CPI expectations over the past year and a half as well as other data keep the model's core PCE inflation forecast down at only 1½ percent in 2018.

In a somewhat similar vein, the Board staff's long-run inflation attractor is currently anchored at 1.8 percent rather than 2 percent. I still find that worrisome. Taken together, these results highlight that current survey inflation expectations could be less helpful than we think, and, to the degree that they are less helpful, any slippage in long-term inflation expectations could put our inflation forecast at even greater risk. An important ingredient in my SEP forecast is that we avoid such slippage, and that we instead have long-term expectations that are firmly anchored at our inflation target. It is crucial, then, that the public's inflation expectations be well supported by monetary policy.

In my SEP forecast, long-term inflation expectations are anchored by a policy rate path that aggressively aims to achieve our symmetric inflation target and is not overly averse to inflation outcomes that run moderately above 2 percent. Given what we know today, in my SEP forecast such a policy is consistent with a mid-2016 liftoff in the funds rate and a subsequent shallow path that reaches 3 percent by the end of 2018. My premise is that it will be the middle of next year before we and the public finally see core inflation moving up more consistently. By then, I hope we will also have experienced a few months of relative quiet on the energy and dollar front. This delayed liftoff also provides some extra buffer against important downside risks to the outlook. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. The Tenth District economy expanded only modestly since the previous meeting, as weakness in commodity prices and a stronger dollar continue to weigh on the region's energy, agriculture, and manufacturing industries. As a result, District bankers are monitoring closely their loan portfolios and reviewing collateral values. Our business contacts continue to note difficulty finding qualified labor, and with this, along with the headwinds in the agricultural and energy sectors, we are seeing slowing in employment growth throughout much of the District.

Turning to the national outlook, since our July meeting, the recent revisions in incoming data have led me to slightly raise my overall expectations of 2015 growth. After expanding only modestly in the first quarter, output growth bounced back significantly in the second quarter. I expect more modest growth in the third and fourth quarters that is sufficient to push 2015 growth to 2.1 percent, which is about 0.3 percent higher than my previous forecast. And although I see current growth as somewhat above trend, I did mark down my longer-term estimate of growth to 1.8 percent, incorporating some of the soft productivity readings and recognizing the demographic factors pulling trend growth lower over the next several years.

Labor market indicators, as others have noted, continue to signal further improvement and a return, in many cases, to pre-crisis characteristics. The NFIB survey, for example, reported almost half of its respondents as seeing few or no qualified applicants for job openings, and that almost 30 percent of businesses are not able to fill some positions. Both of these indicators are above their July 2007 levels and consistent with reports from our District contacts.

Likewise, the number of unemployed people per job opening is near its pre-crisis level. And if you consider the pool of unemployed workers plus people who want a job but are not in the labor force, that measure is also near its pre-crisis level. These factors not only point to ongoing labor market improvement, but also support expectations of stronger wage growth.

Given projected growth and labor market advances, I continue to see reasonable evidence that inflation will rise over the next few years toward 2 percent. Although market-based measures of inflation compensation have softened, both the median CPI and PCE survey-based five-year, five-year forward measures of expected inflation rose slightly in the most recent SPF. Over the past six months, core PCE inflation has been running at 1.7 percent, compared with a 0.8 percent pace last January.

I also find it encouraging that over the past six months, the trend in the broad components of the PCE price index appear to have shifted. For example, in February, the services component was running at 1.6 percent, its softest six-month pace since 2011. Most recently, the annualized six-month change is 2 percent. The patterns are similar for durables and nondurables.

In general, there is a distinct bottom based on the six-month change in inflation since last January. Since that time, the broad components of core PCE inflation have all moved higher. In addition, the BEA revised up inflation in 2012 and 2013 by about ¼ percentage point each year, which means that the price level is about ½ percent higher than we thought it was at the time of our July meeting.

In terms of emergent risk, the recent concerns regarding global growth are worth keeping in mind. The downward trend in the New Export Orders Index from the ISM manufacturing survey suggests exporters are facing real headwinds. As a result, I have taken a bit softer export growth into my baseline forecast.

Concerns about global growth have also spilled into financial markets, as is evident from the recent stock market volatility. Markets have priced in some headwinds through lower equity prices, although not enough to cause me to alter my forecast for consumer spending. In addition, the VIX is already back to what can be considered a relatively normal range, so any knock-on effects to the real economy from the recent bout of market volatility are likely to be rather modest. Thank you.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. Before I go into my prepared remarks, I will offer a brief comment on remarks that others have made. I thought President Bullard offered some great perspectives on how financial market data should be influencing this Committee. I think it is important that we use financial market data only as a signal of the underlying real conditions and not as a driver of policy itself, which I took to be his admonition.

The one point on which my perspective might diverge most sharply from his is on interpreting the behavior of market-based measures of inflation compensation—or inflation expectations, I would say. I continue to be quite concerned about the downward movement there. It certainly influenced my Summary of Economic Projections submission. Some of you might have noticed that I am number 13, and I offered a negative funds rate as being appropriate monetary policy. I think, in view of the decline we have seen in longer-term inflation expectations, this is an appropriate response. Obviously, the consensus of the Committee is to view this decline with sanguinity. I hope that that turns out to be the correct attitude.

In terms of the flight-to-quality issue, one way to get rid of that issue that President Mester noted is in Treasury breakevens is to look at zero-coupon inflation swaps, which are not contaminated by that. Zero-coupon inflation swaps are also showing that same downward movement, really going back at least a year, possibly a year and a half. So I think these are, at least to me, markers of real concern to take from financial market data.

Now, Madam Chair, for the rest of my time, I really ask for the indulgence of the Committee, as I intend to spend my time today in a somewhat unorthodox fashion. And for the benefit of Presidents Kaplan and Harker, I advise you don’t try this at home. [Laughter] Rather than speaking about the current state—

MR. TARULLO. Actually, if they are going to do it, they should do it at home. [Laughter]

MR. KOCHERLAKOTA. Perhaps a better point, Governor Tarullo. Rather than speaking about the current state of the economy, I will offer some thoughts about the strategic framework that guides the Committee's policy decisions. This framework will inform the Committee's decisions about liftoff but, of course, will also inform the long sequence of decisions to be made after liftoff. Governor Fischer has made the point several times that, really, it's not just liftoff that we have to think about, it's also the framing of the decisions afterward that really matters.

Now, currently, the Committee has said relatively little publicly about what its policy framework will be. This state of affairs has some obvious downsides in terms of creating policy uncertainty, but there is a silver lining in this cloud of uncertainty. I think the Committee has room to choose the desirable policy framework without being seen as having violated prior commitments of some kind.

My sense from the internal discussions here is that there is a strong desire to return to the "normal" policy framework that was employed during the Great Moderation. My sense, too, is that the Committee's unwillingness to communicate openly about its post-liftoff framework tends to foster this perception among outsiders that we are going to go back to the way business was conducted before 2008.

I am going to suggest over the next couple of days that this would be a mistake. In my view, a good policy framework should automatically engender something that approximates a desirable monetary policy response to severe shocks like the one that hit the economy in 2008.

Our pre-2008 policy framework failed in this dimension. It led the Committee to deliberately promulgate persistent shortfalls in prices and employment. What I'll do today is point out what I see as being the key conceptual flaw in the pre-2008 framework, and tomorrow I will suggest what I see as a better framework and describe what that better framework would imply for current decisions.

To understand my criticism of the pre-2008 framework, it's useful to go back to the November 2009 meeting, which was the very beginning of the recovery. At that meeting, the latest unemployment reading was 9.8 percent and the staff's nowcast for core inflation was 1.4 percent. The median participant's assessment was that, under appropriate monetary policy, the unemployment rate would still be 7 percent in three years. At the same time, the median participant's assessment was that, under appropriate monetary policy, PCE inflation would only rise back to 1½ percent three years later. So, three years later, we had unemployment at 7 percent and inflation at 1½ percent.

When I was reading these numbers, I found them quite surprising. You can draw one of two conclusions from them. On the one hand, you can say that the Committee was willing, in November 2009, to forgo the timely creation of hundreds of thousands, possibly millions, of jobs in the absence of any inflationary threat that was perceived by the Committee. On the other hand, you can focus only on the price-stability mandate and say that monetary policy can't do much about unemployment. That is a view that has been expressed around this table before. Or, you can focus only on the price stability mandate and say that the Committee was willing to make policy choices and put the credibility of its then-informal 2 percent target in jeopardy.

However you put it, it is hard to understand these projections—7 percent unemployment and 1½ percent inflation three years later—as representing the outcome of appropriate monetary policy. Why did the Committee view such a persistent and extreme shortfall with respect to its objectives as being appropriate?

A quick side note: Labor market recovery actually turned out to be much worse than that. Unemployment was 7.8 percent three years later, and labor force participation declined much more than the Committee anticipated—or anyone else anticipated, for that matter. Inflation ended up being around what the Committee viewed as being desirable—thanks, I think, in no little part, to choices made by the Committee. But why did the Committee, in November 2009, view such a persistent extreme shortfall with respect to its objectives as being appropriate?

The answer, I believe, lies in the pre-2008 policy framework, which centered on variants of the Taylor (1993) rule. And this framework continues to live on in the collection of interest rate rules that we see in Tealbook B. In my view, all of these rules have a key conceptual shortcoming. The Committee has a dual mandate, which is to promote price stability and maximum employment. The Taylor rules are based on the presumption that the Committee has other objectives in terms of the time path of interest rates that are independent of the objectives for employment and prices.

The original Taylor (1993) rule implicitly presumes that the Committee does not like interest rate gaps. The FOMC desires to keep the federal funds rate close to its long-run level. The rule then trades off the Committee's unmandated aversion to interest rate gaps against its mandated aversion to unemployment and inflation gaps. Otherwise, if you saw unemployment and inflation gaps going in the same direction—unemployment too high, inflation too low—you should just lower rates some more. But the Taylor rule says, wait a second, you shouldn't be doing that, because actually you don't want to move interest rates around too much.

The way that the Taylor rule resolves this tradeoff—interest rate volatility and gap volatility—especially when the Phillips curve is as flat as it's proven to be, can result in very odd outcomes. So, in November 2009, the staff's outlook was based on the Taylor (1993) rule. That outlook had unemployment above the natural rate for four years and inflation at or below 1.6 percent for five years. We didn't get to see the staff outlook beyond a five-year horizon, so I don't have any sense of when it ever got back to 2 percent.

My reading of the transcript, in terms of participants' contributions, is that aversion to accommodation, as opposed to inflation or unemployment, was really at the heart of that discussion. The big debate at that meeting was, should we plan to raise rates when the unemployment rate is in the 9s or in the 8s? The Summary of Economic Projections shows that the key motivating factor for this debate was not really inflation. Rather, it was the Committee's willingness to give up on its dual-mandate goals in order to get back to normalizing policy more rapidly.

Madam Chair, the Federal Reserve did such a heroic job of successfully healing extraordinary financial market turmoil in the latter part of the past decade. But our monetary policy response was not as successful. I attribute this to the Committee's policy framework, which deliberately directed the economy toward relatively persistent large employment and inflation shortfalls. I think we need to have a policy framework that works considerably better in the face of adverse shocks than we had available in November 2009.

I have argued today that shortcomings of our pre-2008 framework can be traced to its reliance on variants of the Taylor rule. These rules implicitly impose a large penalty on historically unusual settings of the federal funds rate and other forms of accommodation. We need to have a policy framework that is much less averse to an unusual use of our tools as opposed to achieving our objectives. Tomorrow I will talk about such a framework and some of its implications for our current decisionmaking. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. Just going back to President Kocherlakota's comments, I don't remember November 2009 quite that way. Just for the record, we didn't have tools at the time that could generate a more rapid return, and we were gradually inventing them.

CHAIR YELLEN. We had already cut the funds rate target to zero. We had already engaged in some asset purchases. The way I remember it, I think it's fair to say, it took a while before we decided we could and should really scale up our asset purchases—

VICE CHAIRMAN DUDLEY. Yes. We learned by doing.

CHAIR YELLEN. —yes—and use more unconventional forms of forward guidance that would push expectations way out.

VICE CHAIRMAN DUDLEY. Our toolkit today has a much better, deeper set of tools to help us achieve our objectives than the one we had in November 2009 did. I remember that, at the time, we were very uncomfortable with actually buying Treasury securities. And the initial Treasury purchase program was quite small, if I remember correctly, because we weren't even sure how markets were going to react to that purchase program and whether we were actually going to get the desired effect in terms of financial market conditions. But anyway—

MR. KOCHERLAKOTA. This is a great conversation. We should continue it—

VICE CHAIRMAN DUDLEY. We can take it offline.

MR. KOCHERLAKOTA. I will say that the framework the Committee had in place shaped the way market participants were thinking about when interest rates would rise. A lot of the surveys, for example, done by the Open Market Desk had a number of primary dealers seeing interest rates going up when the unemployment rate was still in the 9s. There were tools that were under our control and at our disposal. But I think this is certainly something we can talk about over drinks.

VICE CHAIRMAN DUDLEY. And beyond. [Laughter] Over many drinks. Okay. Switching gears, as far as I'm concerned, the economy has been on essentially the same trajectory now that it has been on for some time, growth slightly above trend and sufficient to lead to a gradual tightening in the labor market. To me, the key question is whether this is going to continue. When I look at the key sectors of the economy, I agree with others. Consumer spending seems to have relatively firm underpinnings because it has solid job gains and low inflation, and the inflation shocks actually are boosting real income.

The housing sector also seems to be a positive, with activity encouraged by strengthening sales and rising prices. Sturdy job gains and low mortgage rates have provided, I think, significant support for the sector, and I certainly expect the housing sector to continue to recover over the year ahead.

Nevertheless, I do think there are risks in terms of growth, and I think they've very much swung to the downside. Despite what I think is a relatively sturdy second-quarter GDP report, I believe the economy has somewhat less forward momentum than maybe some others around the table think, and, most significantly, I think the risks around that baseline outlook are tilted to the downside.

Turning to the economic growth outlook, I think there are a number of reasons for concern. Most importantly, we do have a quite dicey international situation, with growth slowing in China and commodity prices weakening broadly, and I think this is putting considerable strain on a wide array of emerging market economies. For example, last week we had the downgrade of Brazil's sovereign debt rating to junk bond status by S&P. So we'll see how that actually plays out.

I think generally what's happening is that we're undergoing a pretty significant regime shift from a few years ago when strong Chinese demand was keeping commodity prices well above the marginal cost of new production. The result was a very favorable terms-of-trade shift for many EMEs that are commodity producers and a very strong impetus to investment in those countries. Now, all of that has been reversing, and I think the risks are that the consequences for global growth could turn out to be stronger and longer lasting than we'd expected.

The terms-of-trade reversal we've already seen is leading to a sharp slowdown in EME growth, currency weakness, a deterioration in many countries' fiscal positions, and significant political stress. I think there is a nonnegligible risk of an unfavorable dynamic that could persist for some time. So let me just sketch this out. I'm not saying this is going to happen, I just think there's some probability mass on this outcome.

Weakness in commodity prices leads to further stress on many EMEs. That leads to corporate difficulties, which we haven't seen much of yet, further capital flight, and further currency weakness. For us, it means that dollar strength persists, and this erodes our own growth momentum and puts further downward pressure on inflation. Also, the strong dollar increases the stress on EME corporates that have significant dollar-denominated debt exposure.

The stronger dollar also squeezes U.S. profit margins, leading to weaker corporate earnings and a softer U.S. equity market. U.S. financial conditions keep tightening. I don't know how much weight to put on this scenario, but what I think is interesting about this scenario is that it has several important reinforcing feedback loops. We saw in the financial crisis that that's how you can get pretty bad outcomes.

It strikes me that the risks here are not zero. When we went around the table, a lot of people were just saying, "There's stuff going on in the markets." I think the markets are reflecting fundamental developments that are occurring in the global economy, and as a consequence of that, I take those financial market developments more seriously.

Financial conditions have already tightened significantly as the dollar has appreciated on a broad trade-weighted basis, and the U.S. equity market has weakened. I, like others, don't put much weight on the equity market decline yet because it hasn't been in place for very long, but the dollar strength has been persistent and does threaten to undermine U.S. net exports. I'm particularly struck by the weakness of the Canadian dollar and the Mexican peso versus the U.S. dollar because we generally think that those countries have pretty good economic policy and institutional structures. Yet currently the Canadian dollar trades at 1.32 per U.S. dollar; a year ago it was at 1.10. The same for the Mexican peso, which has depreciated about 30 percent over the past year and nearly 10 percent over the past three months. These are two major U.S. trading partners whose currency has moved a lot, and I don't think we've really seen the consequences of that in terms of our trade.

Moreover, apart from international developments, I think there are other reasons to be concerned about the growth outlook. So let's just set aside the international stuff for a minute.

First, job gains have been strong relative to the underlying growth trajectory. People have said, "Well, that's just going to continue." It's not obvious to me that that would continue because one thing that is happening is, profit growth is really slowing down. And we've heard that a number of corporations are now really looking at how they are going to raise earnings, and maybe they're going to have to start being tougher and begin to think about downsizing.

Second, I think we've had a pretty significant climb in inventory investment, and that provided a significant contribution to growth in the first half of the year. In the second quarter, the real nonfarm inventory build was almost $120 billion at an annual rate. That's probably more than double what's sustainable over the longer term.

Third, earlier this year, we were talking about how the household savings rate seemed high relative to what was implied by the historical relationship between household net worth and disposable income. That was making us feel more optimistic about consumption, that consumption could grow faster than income for a time because the household savings rate was high. But after revisions, it doesn't look high anymore. We're back at 4.8 percent of disposable income. That's the same level we saw in 2013 and 2014, so I don't think we have so much support from that.

With respect to inflation, with the exception of the softness in commodity prices, I also don't think the situation has changed much, and I don't think it is particularly worrisome as long as the economy continues to grow at an above-trend pace. If you could guarantee that the economy was going to grow at an above-trend pace, I wouldn't be that worried about the inflation outlook, but because I'm worried about the strength of U.S. growth, that does make me worry about the mechanism that's going to push inflation back up toward our objective.

The fact is that, despite falling energy prices and weaker import prices, the trend for core inflation has flattened out. This suggests to me that if growth does remain above trend, then the low inflation problem will take care of itself. That said, the fact that nominal wage growth has not picked up yet implies that we still, in my mind, have excess slack in the labor market.

Combined with the sluggish growth trend and the downside risk to growth threatened by international developments, this suggests to me that the costs of waiting, in terms of beginning monetary policy normalization, are pretty low right now.

My preference would be to wait a bit longer so we can better assess the consequences of developments in China and among the EMEs in terms of the implications regarding U.S. growth and inflation. As I see it, the risks around liftoff right now are asymmetric. If we go now and the international market developments prove to be of sufficient intensity to deflect the U.S. economy away from our objectives, the cost could be quite high to us. Conversely, if we wait a little bit longer and the effect turns out to be insignificant, then we can go before year-end, and I don't really think we give up much in terms of our ability to achieve our objectives. Speaking for myself, I won't feel particularly bad if we waited and then it turns out everything is fine. I think I'll feel pretty good about that. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. My views about the likely trajectories of economic activity and inflation are not very different from the views I held in July. I believed then that we were closing in on full employment, and I believe that is even more true today. And I said then that I was reasonably confident that inflation would move back toward 2 percent in the not-too-distant future, and that is still my view.

However, like most of you, I've become more concerned about the situation abroad over the past several weeks, and this leads me to attach more downside risk to my projection than I would have done at our previous meeting. The effect of foreign developments has been reasonably small so far, though, of course, these developments may well take longer to affect us than the short period since China's exchange rate adjustment, and we shall simply have to keep monitoring these developments.

There has been a lot of discussion about inflation over the intermeeting period and during this meeting so far. That is no surprise, considering that this is the part of our mandate on which we are most obviously missing our target, and so I'd like to focus the remainder of my remarks today on inflation.

Many discussions of inflation start with the 12-month core PCE inflation rate, which is currently 1.2 percent and projected to be 1.3 percent by the end of the year, although total PCE inflation is projected to be only 0.3 percent at that time. The main reason for the 1 percentage point difference between the core and the total rates of PCE inflation arises from the recent declines in oil prices, which are expected to be temporary. However, changes in oil prices have an effect on PCE prices that goes beyond the prices that are excluded by using the core PCE inflation rate. Oil prices affect the cost of production of many goods. Moreover, the appreciation of the dollar has direct effects on the prices of many goods.

The additional effect of recent changes in oil and import prices on the inflation rate—over and above what's picked up in food and energy prices—is estimated by staff at approximately 0.4 percentage point this year. Accordingly, we can conclude that the declines in oil and import prices together have reduced the overall inflation rate by approximately 1.4 percentage points. More-rigorous methods of stripping out the transitory factors, such as using the Dallas Fed trimmed mean PCE or a weighted median PCE price index and other measures, yield a reasonably similar conclusion on balance.

But regardless of the exact figure we use, I think that a good portion of the factors holding down underlying inflation are transitory, the result of changes in oil and other commodity prices and of the exchange rate. If the exchange rate stops appreciating, and that is highly likely, its downward pressure on core inflation will gradually stop. Similarly, if the price of oil eventually stops decreasing, its drag on core inflation will also abate. Although it's difficult to predict when the exchange rate and the price of oil will stop rising and falling, respectively, it is almost certain that current trends in these two variables will stop in the medium term. As a result, I am reasonably confident that inflation will move back toward 2 percent in the medium term. I leave the rest for tomorrow, Madam Chair. Thank you.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. Like, I think, most of you, no matter your disposition on monetary policy, I haven't changed my baseline outlook very much over the course of the past six or seven weeks. But as Vice Chairman Dudley explained a couple of minutes ago, the downside risks are palpably greater than they were, even though, in July, I and people to my left—I don't mean ideologically, I mean geographically [laughter]—were also concerned about potential downside risks.

I would embrace everything Vice Chairman Dudley said and just add one other piece of information here. I think if it had just been U.S. equity markets going down, even if it had gone down 6 percent over the day rather than 3 percent, I truly would have taken no notice of that, particularly after a long period of appreciation of equity markets. And even if it had just been China's equity markets in isolation, I wouldn't have taken too much signal from that. But it's a combination of what have long been known to be building concerns with the amount of leverage and credit in China in the background as Chinese officials responded in a less-than-fully-considered fashion to what was going on with the correction in the job market. And I believe the reason they responded in a less-than-fully-considered fashion was not because they're bad or uninformed or inept policymakers. To the contrary, they're really quite good at what they do, but it's a difficult situation, and whenever you're in a difficult situation, there are no great policy options.

My impression is that the thing that worries Chinese officials most in the near term is the amount of margining that lies behind a lot of those holdings in equity markets, and the margining is connected very directly to the amount of credit extended through the shadow banking system. I think what is less fully realized is how closely that connects to the regular regulated banking system as well in China.

I read the concern with putting a floor under Chinese equities to be indicative of the level of concern with the state of credit and leverage throughout the Chinese economy right now. Obviously my impression is based on incomplete information and selected contact, but the impression I have is that if the decline in Chinese equity markets was to renew and continue for a while, there would, notwithstanding the concerns and the failures last time around, be some sort of effort to put another floor under it because there's going to be another point at which the amount of potential losses are such as to provide more-direct risks to the banking system.

So, I think, as Bill was suggesting, it's what lies behind both the market movements and the policy responses and some of the policy uncertainty about the market movements that suggests potential for longer-term problems. And, like Vice Chairman Dudley, I think we really don't know how this will play out. I think it's almost certain that over the next several years, China is going to have challenges, but whether those challenges translate into the somewhat lower growth hypothesized by the Board staff or something a little more disruptive, we just don't know.

I want to spend the rest of my time on labor markets, and having made a joke about what Narayana is doing, I'm going to proceed to do something not dissimilar, which is to try to give a bit of perspective on how we've been assessing labor markets, not monetary policy as a whole. There is a lot of talk within this room, by many of you outside this room, and by many other people about how we are close to or at fill-in-the-blank: the natural rate, full employment, maximum employment, whatever it may be.

And what I want to know is, how do people know this? I mean, it is tautological to say that we're closer to full employment, maximum employment, the natural rate, than we were at the July meeting and the June meeting and the meetings before that because, during this period, unemployment has been going down and job creation has been such that we're creating more jobs than the number of entrants into the labor market. Almost tautologically, we are closer. But how much closer are we, and how do we know how much slack remains?

Conventionally, the way in which we collectively made judgments about labor market tightness or getting to the natural rate or getting to the non-accelerating inflation rate of unemployment was by looking at prices or, oftentimes, actually, more directly at wages, which were thought to be a leading indicator of prices. Remember that the "I" in NAIRU stands for inflation, and that was where we and other analysts were trying to make that connection.

Now, I didn't count, but six or seven of you referred to wage pressures being reported from your Districts. I have to say, a number of presidents have been reporting wage pressures from their Districts for some years now, and I take it to be the case that the number of you now talking about it suggests that we may be closer to the point at which wage pressures start translating into the data. But as of this moment, they really haven't translated into the data as a whole. That, of course, is a reminder of what people have also commented on, which is that the

Phillips curve broke down as a predictor of what would happen to inflation based on unemployment well before the crisis and the recession, during a period in which labor markets were changing significantly in what quite likely seems to have been a secular, rather than a purely cyclical, fashion.

Now, people, including the people around this table and their staffs, have subsequently made efforts to assess labor market tightness based on some set of past relationships, but to date I don't think these relationships really panned out as particularly robust. It's not the fault of anybody. I don't think anybody knows what those relationships are now.

A few years ago around this table, I remember people were talking about how the persistence of the rightward shift in the Beveridge curve showed that there was structural unemployment and, therefore, the natural rate must be higher, and we were all of a sudden going to begin seeing wage inflation. That didn't happen, right? Remember there was a suggestion a couple of years ago that since short-term unemployment rates were now back to pre-recession levels, we were functionally getting close to the natural rate of unemployment. It was a good try, but that one didn't work out either.

President Williams has just suggested another approach—to use demographics and try to project where the "natural rate" would lie. But I think if you disconnect the concept of the natural rate of unemployment from at least wage inflation, if not price inflation, then the whole concept actually gets more than a little bit squishy, because what is it that we're talking about now? Are we talking about "satisficing" unemployment? Do we think it's good enough, it's low enough? I think we're not actually any longer in the realm of doing analysis, but instead acting on some intuition. Just because U-3 is toward the low end of where it has been over the course of the past couple of decades doesn't tell us much. Maybe it's temporarily lower now because of elevated part-time employment for economic reasons and the lower-than-trend labor participation ratio. Maybe not.

For me, this dilemma—and I mean to project it as a dilemma rather than people being wrong, because we're all wrong, in a sense, because nobody actually has a convincing set of explanations. But for me, it was crystallized in the staff briefing to the Board at yesterday's meeting when I noticed that the projected path of wages over the next couple of years was rising, and the explanation given in the briefing was not principally because of labor market tightness, but because productivity gains would be passed through and inflation would pull up wages. Of course, I asked about the productivity gains issue because, I think my understanding is that productivity gains matter for how much wages can go up over the medium-to-long term, but in the short term, wages really should be about the supply and demand of labor rather than near-term productivity increases. But even so, productivity gains clearly haven't been passed through in anything like one-to-one or even 50 percent fashion in recent years. They might be at some point, but it's a little hard to predict.

Then, what about inflation? Well, where did the inflation come from that was going to pull up wages? It came from inflation expectations, and we're back, as David Wilcox noted a little earlier this afternoon, into a reliance on a mechanism that we don't completely understand, and what we really don't understand is how those expectations change. They seem to have worked, and I think the reason the staff has hit upon the approach they've taken is, they've found some things that had been working reasonably well over the past five or six years. Assuming anchored expectations and assuming that the now-low productivity gains will get passed through seems to be working, but not because there's a theory regarding why this is all working this way.

Instead, it just kind of seems to be working. And, in the absence of anything better, that's what we're going to use.

As is almost always the case, I admired the staff's straightforwardness in explaining what they knew and what they didn't know, and why they were doing what they did. But in the absence of that theoretical understanding that comports with empirically observed facts, we're left not knowing whether we're just in an extended period of reversion to a certain set of correlations and causal relationships that existed for a long enough time to produce a bunch of economic laws and curves that then find their way into people's textbooks, or whether the changes that have been noticed in labor markets over the past 15 to 20 years have now cumulatively created a new set of correlations and causal relationships that are nontransitory and that we don't fully understand.

And, President Williams, the Board research paper that you referred to by Andrew and David is another effort to get into that. I think you were slightly unfair because I think you were referring to the aggregate data and they made a big point of trying to disaggregate the data. I don't think anybody thinks you can figure out much from the aggregate data. But even if we abstract from that, they're being very tentative, as I think everybody has to be right now.

So, this level of uncertainty, as I've said before, about even the theories on which we're operating, seems to me to argue for more than the normal amount of doubt about the reliability of forecasting based on past observed relationships, particularly medium-term forecasting. And I cannot resist this. I pulled out the September 2014 SEP. With the exceptions of Presidents Harker and Kaplan—who weren't here—everybody around this table was wrong, and we were all wrong in the same direction on both inflation and unemployment for 2015. We all projected unemployment as being higher than it actually is, and we all projected inflation as being higher than it actually is. And that was just a year ago.

And I suspect, again, it's because of the difficulty of reading what's going on now, and to me that suggests reliance on a more pragmatic policy approach, which is a little bit more—sorry, Jim and Esther—a little bit more of a show-me approach. I actually want to see some hard data before acquiring reasonable confidence in the direction in which we're going and a little bit more skepticism about projecting what will happen based on past observed relationships.

Let me end by saying that I honestly do not mean this to be an argument of "low rates forever because of uncertainty." We saw an example just this morning in the United Kingdom. After a period of growth being noticeably above trend, their wage report was really quite strong. We would love to be getting a 2.9 percent wage report like that, and it may be that the kind of pressures that more of you are now hearing about anecdotally will translate into that in the not-too-distant future, in which case I think we can all feel more confident about the fact that we really are getting somewhat closer to a meaningful concept of the natural rate. But I do think that the reliance on past correlations is something that can lead us astray in a period that has, maybe only temporarily but certainly for a while, really disrupted a lot of those correlations. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I used to succeed Jeremy Stein in these events, as most of you will remember, and in many cases I would think, you know, I'd really rather think about what Jeremy just said than read my remarks. And I sort of feel that way now. Dan has raised some very thoughtful points, which will take me some time to digest.

Anyway, domestic developments since the July meeting have been mixed but positive on balance. Abroad there are increased risks of a global slowdown that could create headwinds for U.S. growth and inflation, and, in particular, we face tighter financial conditions here in the United States in the form of a stronger dollar and lower equity prices, among other factors.

Governor Tarullo made this point, and I was going to make it tomorrow, but I'll just echo it today, which is that this really has nothing to do with a drop in the U.S. stock market. I have been a stock market investor for a long time. I would say that a 7 percent stock market decline after a very long period of expansion would mean just about literally nothing for the U.S. economy. This is about a story of a plausible tail risk, or maybe more than a tail risk, of a global economic slowdown. There is nothing about an equity put. And to the extent there is any confusion, our communication should be clear publicly on that.

Data on the real economy have come in better than expected. Payroll growth has been strong. Unemployment has declined faster than the staff forecast. First-half GDP was revised up by 1 full percentage point since the previous meeting. Inflation has come in about as anticipated, but it is likely to be held down at least for a while by the stronger dollar and the additional decline in oil prices. Looking forward, the tighter economy should move inflation higher in the medium term, but for now inflation is both below mandate and declining—a situation that complicates the setting for our policy decision, as I will discuss tomorrow.

Wages and compensation have continued on their path of 2 percent growth or a little better, disappointing hopes, including my own, that they would be moving to a higher plane. However, with very low inflation and trend productivity, real unit labor costs have actually been rising modestly—rising about as fast as they were before the crisis and as fast as they have for a long time. And employers may be taking the view for now that the current wage increases fully compensate workers for their real marginal product. Now, a real employer would never use those words, but it's not hard to imagine an employer thinking, Why would I be paying higher wages in a world in which inflation is incredibly low, growth is slow, and productivity increases are quite slow? I find that to be quite a plausible narrative, although I also believe that wages are sending a signal about slack.

I think the Chair has been very careful not to make wages a litmus test for a rate increase, and I would say, I think that's the right place to be. I can imagine a world in which we had price inflation that went up and wages that don't respond, no matter how low unemployment goes. I can imagine a different world in which wages go up more than price inflation does, and the long-time decline in labor share starts to reverse. I wouldn't want to stand in the way of that if it was to happen. I think we ought to focus on price inflation, which is, of course, our statutory mandate.

Although my September SEP forecast is close to the Tealbook baseline, I expect the unemployment rate to fall faster and inflation to move to 2 percent sooner than in the baseline. In the Tealbook, growth for 2016 to 2018 continues at 2 percent, which is almost exactly the average over the past four years. But there is a sharp slowdown in the number of payroll jobs, from an average of 2.6 million over the past four years to an average of 1.5 million for the next three years. I understand that to be a way of returning productivity growth closer to trend. But this is a key assumption that has critical implications for policy.

For the four years ending in 2015, again, growth was 2.1 percent and unemployment declined at 0.9 percent per year. For the next three years, growth is 2.0 percent and unemployment declines 0.1 percent per year. Now, productivity may increase in the next three years, and I certainly hope that it does. But, of course, predicting it in the short term is treacherous, and it seems to me there is a reasonable probability that there won't be such a sharp break in the data. If there isn't, then taking the growth forecast as given, the result would be higher payroll growth, lower productivity growth, and a substantially faster decline in the rate of unemployment, what might be called the "more of the same" scenario, and that is, in fact, my forecast.

With growth much like that in the Tealbook, I have the unemployment rate declining to 4½ percent, or perhaps even below, in 2017, well below my estimate of the natural rate of 4.9 percent. By the way, I am number 2, as we are giving out our numbers [laughter]. And that path is consistent with the idea that we ought to be prepared to let unemployment decline below the natural rate to help lift trend inflation and support a more robust recovery from the ravages of the global financial crisis.

While my point forecast is reasonably optimistic, as others have noted I think we need to acknowledge the risk of a period of global economic weakness, which has clearly increased since the previous meeting. Weakness and policy misfires in China have meant declining commodity prices and financial turmoil, putting pressure on a range of emerging market economies, and tightening financial conditions globally. In recent years, we have had frequent briefings focused on the potentially significant ramifications for the U.S. economy of a slowdown or a crisis in the emerging market economies, and there are two such alternative simulations in this cycle's Tealbook.

Although China faces significant structural difficulties and very challenging longer-term transition issues, I see it as unlikely that there will be a near-term crisis. But China's growth is slowing, and that is having sizable effects on the rest of emerging Asia and other emerging market commodity producers. The usually reliable hand of China's technocrats has seemed much less sure of late. As capital flows from emerging market economies have increased recently and some key countries like Brazil and Russia are already in precarious economic situations, the risk of a broader crisis has clearly risen.

I think the Committee has gone to extraordinary lengths to be both patient and transparent about the path of policy. The rest of the world has had plenty of warning and time to get ready for U.S. tightening. Still, tightening into an actual emerging markets crisis scenario is something else again. And although I see that as unlikely, I am at least inclined to pause to allow this risk to evolve. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. As I always do, I benefit from hearing from every member of the Committee, save for the Chair, which I appreciate, and it helps inform my perspective.

Recent developments reinforce, perhaps, or intensify the crosscurrents that we have seen in the economy for some time, and, I think, in a material way that affects current and expected future progress toward our objectives. On the one hand, the underlying momentum on domestic real activity has strengthened, and we have seen some nice progress on the employment leg of the mandate. On the other hand, the foreign economic outlook, I think, has again contributed materially to financial tightening and poses downside risks to the outlook. We see no indication of an acceleration in either wages or prices, and inflation remains stubbornly below our target.

Let me just spend a moment on each of these. As you all have noted, the labor market has continued to improve nicely. The three-month moving average of payroll employment growth was 220,000 in August, similar to average gains so far this year, and August payrolls are likely to be revised up. In addition, there continues to be improvement, on balance, along the three main margins of labor market slack. Despite this, the ongoing diminution of slack has yet to result in any noticeable acceleration in our three broad measures of wages.

Average hourly earnings through August as well as compensation per hour and the employment cost index through the second quarter all suggest that nominal wage growth is only in the 2 to 2¼ percent range, which is little different than the pace we have seen over the past several years. The absence of such acceleration suggests that resources still are not fully utilized, and I think other data send a similar signal. Participation for prime-age adults remains well below pre-recession levels and below what pre-crisis trends in participation for this group would suggest. The share of employees working part time for economic reasons remains well above longer-run norms, even allowing for some move-up in the equilibrium level in recent years. As others have pointed out, although it is difficult to know with any precision what the natural rate is, the absence in recent quarters of any upward movement in nominal wage growth and price inflation has to be seen as some indication that the natural rate is below the current level. And I think it's interesting to note that since our submissions in June, it appears that nine Committee members—and I'm just staring at the dots—have moved their point estimates for the natural rate below 5 percent.

More broadly, domestic activity has been proceeding at a reassuring pace on most dimensions, suggesting demand is solid. Although inventory investment in the second quarter looks elevated, suggesting a negative contribution in the second half of the year, other components of business investment look better than they did in July. In particular, nonresidential building investment rose strongly in the second quarter, offsetting the weakness that we had seen in drilling investment, and indicators of equipment investment have also turned up of late.

Strong auto sales and growth in other components of retail sales suggest consumer spending is rising at a welcome pace moving into the second half. Continued job growth and lower gas prices should continue to support this. And the latest data on building permits and starts continue to paint a picture of gradual recovery in housing.

Overall, despite an anemic contribution from government spending, domestic demand is advancing. Domestic final sales rose 2½ percent in the first half of 2015, and the Tealbook expects similar growth in the second half. By contrast, manufacturing exports are on the soft side, and that brings me to the crosscurrents.

Looking back over the past year, it is very clear that foreign economic conditions are weighing on real activity and inflation as well as on financial conditions in the United States. At the end of last year, persistently weak aggregate demand in the euro zone and in Japan, as well as the policy response, were kind of the main story. More recently, weakness in foreign demand has really focused on emerging market economies. Growing recognition of this weakness has pushed the dollar up further, so after the 12 percent we saw earlier, we now have an additional movement, and the dollar now lies 15 percent above its level last summer.

China, in particular, has been the focus of an intermeeting reassessment of global growth prospects. I think China's contribution really has to be seen in the broader context of spillovers both in real activity and the financial sector, not directly through trade channels to the United States but as they reverberate around the global economy. In particular, China has been at the center, really, of a commodity supercycle that has now endured for over a decade and has been a very important source of demand for many commodity exporters and is also very closely connected to many of the other neighboring economies in the region.

Most immediately, the buildup of past property and more recent stock market bubbles, together with a rapid run-up in business debt levels and growing perceptions that Chinese policymakers are not managing policy or communications as deftly as previously anticipated, have raised concerns, I think, about broader global growth prospects and potential downside risks. And those risks are compounded and perhaps amplified by well-known weakness in the quality of macroeconomic data that, I think, risks perpetuating the fog around the growth trajectory.

Looking forward, in terms of the U.S. economy, I, like several other members of the Committee, really don't see the intermeeting developments as narrow equity market corrections centered on the United States. I really see it as a broader reassessment of global growth prospects and questions about China's trajectory. I think there is a nontrivial probability that we will see, sometime in the next few quarters, an additional adjustment of China's exchange rate regime. I can't tell you when or by how much, but it does seem like they are in the midst of an adjustment process, and that in turn is likely to reverberate, particularly because many other foreign economies facing weak internal demand—including in East Asia, the euro zone, and Japan—will have to adjust their policies accordingly. The direct and indirect effects of that further adjustment will remain a material risk to our own outlook.

Moreover, my sense is that the effects of dollar appreciation, even the dollar appreciation we have seen so far, are likely to be quite persistent, and those effects, if the dollar appreciates further, are likely to lead to additional restraint both on real activity and on U.S. inflation.

That comes against a backdrop in which U.S. core PCE inflation remains quite subdued. The underlying trend, as many have noted, remains between maybe 1¼ to 1½ percent, similar to the pace that we have seen in the past couple of years and noticeably below our target. If you look at the 12-month change in core PCE prices, or even if you look at the change in the Dallas Fed trimmed mean, we are still substantially below our target and have not made any progress. And although survey expectations provide some reassurance, the risks seem tilted to the downside, as inflation compensation has moved back to the historically low levels reached at the beginning of the year.

For all those reasons, I do see considerable value to waiting, and that value outweighs the cost. But because we will have an opportunity to return to this tomorrow, I'd be particularly interested to hear from those who put the start of policy normalization in the third quarter of this year about the potential risks of waiting, because I think that would be helpful in informing my own policy outlook. Thank you, Madam Chair.

CHAIR YELLEN. Thank you, and thanks to everyone for a very interesting round of comments and, I think, some very interesting observations on the current situation. I thought I would wrap things up, if you wouldn't mind, by giving a summary of my own assessment of the incoming data and their implications for the outlook.

Starting with the labor market, as almost all of you noted, we've seen continued solid gains in monthly payrolls. And at 5.1 percent, the unemployment rate stands just a touch above the median of our estimates of its longer-run normal level. Broader measures of labor utilization like U-6 also have moved down as the number of discouraged workers continued to decline, and involuntary part-time employment edged down further.

Consistent with the views I heard expressed around the table, I think these developments confirm that labor market conditions have improved considerably since earlier in the year. For me, they're also consistent with the conditions that, at the July meeting, I said in my own view could warrant raising the funds rate in September.

But back in July, I also indicated that stronger readings on wages would strengthen the case for liftoff, and instead, exactly the opposite has occurred. And so, for me, wage developments weaken the case. At the time, the available data seemed to suggest that wages were finally beginning to respond to diminishing slack. Since then, new readings on the ECI, hourly earnings, and compensation per hour all indicate that we're still stuck at wage increases in the vicinity of 2 percent, a very subdued pace if the economy really is near full employment.

I don't want to make too much of the news. The relationship between nominal wage growth and slack is far from tight, and other factors you've mentioned around the table, such as weak productivity growth and global competition, may explain why wage gains remain anemic. Still, firms continue to attract and retain workers without raising wages, and even though we've seen an impressive increase in job openings, the quits rate has flattened out, and that is despite all the reports we hear about how difficult firms find it to fill some jobs. On the margin, the disappointing wage data have reinforced my sense that we are still a ways from full employment, even if the economy is very close to the longer-run normal rate of unemployment.

The current rate of involuntary part-time employment remains more than 1 percentage point above its pre-recession level, and the labor force participation rate remains below the staff's estimate of its trend. Moreover, with the public dissatisfaction with the state of the labor market so widespread, I suspect that the current level of the trend participation rate is actually higher than the staff's estimate, although I'm fairly confident in the trend's downward slope, which I think can be estimated more reliably.

Eliminating slack along these additional dimensions may well necessitate a temporary decline in the unemployment rate below its longer-run normal level. For example, pulling discouraged workers back into the labor force may require a period of especially plentiful employment opportunities and strong hiring. Similarly, firms may be unwilling to restructure their operations to use more full-time workers until they encounter greater difficulty filling part-time positions.

Beyond these dynamics, which effectively imply that the natural rate of unemployment is likely to run below its longer-run value for a time, a temporary undershooting of the longer-run level of unemployment could have other advantages, including speeding the return of inflation to 2 percent and even possibly reversing some of the adverse supply-side effects of recent years.

Turning to growth, like most of you, I anticipate that labor market conditions will improve somewhat further over the rest of this year and into 2016, helped by continued moderate growth in real GDP. My forecast is not too different from the one I had back in June. The data on spending and production received since then, in fact, have been somewhat stronger than I expected and—I think this coincides with what I heard around the table—stronger than what many of you expected. Most prominently, real GDP growth in the first half of the year has been revised up by more than 1 percentage point to 2¼ percent. Readings on consumer spending and residential construction into this summer have been solid, while the remarkable contraction in drilling activity appears to have bottomed out.

Nonetheless, I would not describe overall growth as robust. First, the strong growth in real GDP in the second quarter was most likely a payback for transitory weakness in the first. And, second, overall growth is being held back by an appreciable and continuing drag generated by the behavior of net exports. After factoring in the recent monthly trade data and the expected restraint from dollar appreciation and weak foreign growth, the staff estimates that real GDP is likely to expand at an annual rate of only 2 percent in the second half of the year and in 2016.

One implication of the incoming data and the near-term outlook is that the economy's equilibrium real interest rate remains low and shows no obvious signs of rising this year. That's an inference that follows directly from the combination of continued moderate growth and a real funds rate that remains well below zero. This stasis would seem to conflict with the story told by our medium-term forecasts, which imply a significant increase in the equilibrium real rate over the next few years as various headwinds restraining economic activity continue to fade.

The explanation, of course, is that one headwind—namely, exchange rate appreciation and weak foreign growth—has strengthened over the past year. This restraint has increased further since our previous meeting with the recent appreciation of the dollar, especially as it has been accompanied by an appreciable fall in stock prices and a modest rise in risk spreads on corporate bonds.

FRB/US model simulations suggest that these intermeeting financial and international developments, if they persist, would have demand effects similar to those generated by a 50 basis point hike in the federal funds rate. Whatever their implications for the modal outlook, recent movements in the dollar and other financial factors, coupled with increased concerns about the prospects for growth in China and the emerging market economies, certainly suggest that the downside risks to the U.S. economy have increased to some degree, and several of you have noted the same thing.

Turning to inflation, information received since our previous meeting, specifically lower oil prices and a higher dollar, suggests that the transitory factors currently holding down inflation are likely to fade a bit more slowly than I previously judged. For example, the Tealbook now shows overall PCE inflation on a four-quarter basis running at only 1 percent through the first three quarters of next year. That's down ¼ percent from the July Tealbook. Nonetheless, I still expect that inflation will gradually return to 2 percent, provided—and this is key—that the labor market completes the return to full employment and long-run inflation expectations remain well anchored at 2 percent.

As I mentioned a moment ago, I anticipate that the labor market will continue to improve in coming quarters and, barring some adverse shock to the economy, I expect that the economy is likely to stay in the general vicinity of full employment over the medium term, assuming appropriate adjustments to monetary policy over time. That said, we can't say with certainty what those adjustments will be, as we do not know how foreign economic conditions will evolve, how financial conditions will develop, or how rapidly the remaining domestic headwinds will fade, as recent events amply illustrate. But I'm cautiously optimistic that this condition for meeting our inflation objective will be met.

I also judge long-run inflation expectations to be reasonably well anchored and at a level consistent with the gradual return to 2 percent inflation. That said, the decline in inflation compensation over the past year concerns me somewhat, even if staff analysis suggests that it's primarily related to shifts in risk and liquidity premiums. I said at our previous meeting that from my standpoint, a renewed decline in inflation compensation would give me pause, and, in fact, it has declined quite substantially. All in all, my confidence that inflation will gradually return to 2 percent over the medium term has not increased during the intermeeting period.

Let me stop there. I look forward to hearing your views during the policy go-round. I suggest that we break now and have dinner, but I would suggest that we begin early. There is a press conference tomorrow. I want to give everybody adequate time for what's bound to be an interesting policy discussion. I would like to propose that we start off tomorrow morning at 8:30, and Thomas will then begin his briefing.

[Meeting recessed]

September 17 Session

CHAIR YELLEN. Good morning, everybody. I think we're ready to begin our policy go-round. Let me call on Thomas to brief us on the monetary policy alternatives.

MR. LAUBACH.[6] Thank you, Madam Chair. I will be referring to the handout labeled "Material for Briefing on Monetary Policy Alternatives."

As has been the case at each meeting since June, the key issues for your decision today are whether or not the criteria for beginning policy normalization have been met and, in either case, how to communicate in an effective way the reasons for the decision and the Committee's thinking about the likely response of policy to economic developments going forward.

Since you submitted economic projections in June, the incoming information on economic activity and the labor market has been stronger than you anticipated, and the unemployment rate is now lower than you expected—developments that clearly mark further progress on the Committee's labor market criterion for liftoff. Inflation has continued to run below the Committee's 2 percent objective, held down importantly by declines in energy prices and prices of non-energy imports. In addition, as discussed earlier, global economic and financial market developments over the intermeeting period have led to a tightening of financial conditions and could pose downside risks to economic activity while putting further downward pressure on inflation in the near term.

As summarized on exhibit 1, alternatives A, B, and C provide policy options that reflect differing assessments of the potential effects of recent economic and financial developments on the outlook. Starting with alternative B, paragraph 1 states that "economic activity is expanding at a moderate pace"—in line with the Committee's previously stated expectations—and indicates that, apart from the continued softness in net exports, the expansion has been somewhat more broadly based than earlier in the year. The paragraph also presents a more confident assessment of the diminution of economic slack than in previous statements, suggesting that, in the Committee's view, labor market conditions are quite close to meeting the criterion for liftoff. In contrast, it casts recent inflation developments less favorably, suggesting that the effects of the declines in energy prices are not yet behind us and recognizing that market-based measures of inflation compensation have moved lower.

Paragraph 2 continues to describe an outlook in which economic activity will expand at a moderate rate and labor market indicators will move toward mandate-consistent levels. In describing the risks to the outlook, alternative B acknowledges that developments abroad "may restrain [domestic] economic activity somewhat"—a concern that many of you cited in your SEP comments on the outlook. However, paragraph 2 indicates that, while the Committee is monitoring developments abroad,

[6] The materials used by Mr. Laubach are appended to this transcript (appendix 7).

those developments have not, at this point, tilted the balance of risks to the outlook for economic activity and the labor market appreciably to the downside. Regarding the outlook for inflation, alternative B indicates that recent global developments "are likely to put further downward pressure on inflation in the near term." This assessment seems consistent with the fact that many of you have lowered your projections for inflation over the near term as well as with the increase in the number of you who see the risks to inflation to be to the downside. With this assessment of the outlook for inflation, and the decision to leave the target range for the federal funds rate unchanged, the Committee would convey that it is not yet reasonably confident about its expectation that inflation will move back to 2 percent over the medium term.

As summarized in the middle panel, the Committee's characterization of the recent information on economic activity and the labor market in alternative A would be the same as in alternative B. Nonetheless, its description of recent inflation developments would show greater concern, and it would indicate that recent global developments have shifted the risks to the outlook for economic activity to the downside and will impose some additional restraint on inflation. As a result, the Committee would signal that it does not expect to begin normalizing policy for some time. Moreover, alternative A states that if the Committee did not "soon" see incoming information indicating "that inflation is beginning to move back toward 2 percent," the Committee would provide additional accommodation to achieve that goal within one to two years.

As indicated in the lower panel, alternative C would begin normalizing the level of the federal funds rate. In summarizing the economic background for such a decision, paragraph 1 offers the perspective that economic growth has been moderate, on average, so far this year, and, after citing some key factors showing further improvement in the labor market, it states more definitively that resource slack has diminished. Paragraph 2 provides further support for the assessment that labor market conditions have met the criterion for liftoff by indicating that labor market indicators are "approaching" mandate-consistent levels. In evaluating the risks to this outlook, the Committee would acknowledge the need to monitor developments abroad but would not suggest that those developments are likely to be consequential for the United States, or that they have altered the Committee's assessment of risks to the outlook.

In alternative C, the Committee would also state that, although inflation is anticipated to remain low over the near term, policymakers have gained sufficient confidence that inflation will move back to 2 percent over the medium run to begin to remove policy accommodation. In paragraph 2, the Committee would state its assessment that the transitory factors holding down inflation "will dissipate," and that the key determinants of the inflation outlook—continuing improvement in the labor market and stable longer-term expectations—are in place.

I should note that even if you view the policy choice in alternative C to be premature in the present circumstances, you may want to comment on whether paragraph 4 should include the bracketed "balanced approach" language that you discussed at the July meeting. Beth and Chris already highlighted in their briefing the language options regarding reinvestment policy.

Your second exhibit reviews market and participants' monetary policy expectations and some factors likely to shape the market reaction to statements like in the drafts for alternative B or C. As shown in the top-left panel, market participants' assessment of the probability of a September liftoff, as derived from federal funds futures, varied significantly over the intermeeting period, as Simon already mentioned. The probability appeared to respond to the turbulence in global financial markets, policymaker communications, and incoming economic data. The probability distribution of the timing of liftoff derived from the responses to the Desk's latest Survey of Primary Dealers—shown to the right—suggests that the perceived odds of policy firming at this meeting are slightly less than 30 percent. As shown by the table in the middle-left panel, although federal funds futures imply notably lower perceived odds of an imminent rate hike than was the case a day before the 1994 and 2004 tightening moves, they still indicate significantly higher odds than were attached to liftoff right before the June meeting.

The measures of expectations also signal a considerable degree of uncertainty about the timing of liftoff. Market participants, on average, place fairly similar odds on liftoff this week, later this year, and next year, as indicated by the fairly uniform distribution of the blue bars in the upper-right panel across the September, December, and later meetings. This could, in principle, reflect disagreement among survey respondents who individually are quite certain in their views. However, even among respondents who selected September as the most likely date of liftoff, the median probability attached to a September liftoff was only about 50 percent. This fact highlights that, indeed, many of them do not seem to hold strong convictions about any one given date. Moreover, as shown in the middle-right panel, views are considerably dispersed. As the distribution of the dots in the leftmost column shows, respondents to the Desk's surveys of primary dealers and market participants report probabilities for a rate increase at this meeting that range from zero to 60 percent, and the degree of dispersion is similarly high for the December and March meetings.

In sum, the current state of market expectations seems consistent with your communications that have for some time emphasized data dependence and, in light of the mixed signals coming from the labor market and inflation, created optionality for when to move. At the same time, as discussed in the bottom-left panel, whether or not the FOMC decides to raise the target federal funds rate, there could be a revision in investors' policy expectations that may result in a noticeable market reaction—and one that is hard to predict. A key point, however, is that the overall market response will be shaped not only by the decision about whether to lift off, but also by the Committee's communications, including the language in the statement, its economic projections, and the SEP dots. The dots, in particular, indicate that your outlook has not changed materially. The path of the federal funds rate based on the median projection in the SEP, shown in the bottom-right panel, not only remains fairly shallow, but also has shifted down a bit. Such a shallow path might diminish the risk of an outsized market reaction to a statement like alternative C because it conveys the Committee's intentions to continue to provide a high degree of accommodation for some time. Similarly, as your projections of the federal funds rate continue to indicate that many of you see policy normalization likely to begin later this year, a draft statement like alternative B might be read as clearly keeping interest rate increases later in the year on the table and need not lead to a significant change in the expected path of policy.

Having said so, as noted back in the bottom-left panel, there are certainly some risk factors that might trigger an outsized response, especially when you decide to first raise the target range. The fact that longer-term Treasury term premiums are on the low end of their historical range raises the possibility that, after years of the federal funds rate at its effective lower bound, the first rate hike may trigger an abrupt rise in term premiums toward more typical levels, as witnessed during the taper tantrum. In addition, technical factors and market dynamics could play an important role in amplifying movements in interest rates, as witnessed during the taper tantrum. If investors were to unwind positions abruptly in response to a monetary policy surprise, this could amplify interest rate movements.

Thank you, Madam Chair. That completes my prepared remarks, and I'll be happy to take questions.

CHAIR YELLEN. Thank you. Does anyone have questions for Thomas? President Rosengren.

MR. ROSENGREN. I have one quick question on the middle-left panel of exhibit 2, "Probability of Tightening the Day before the FOMC Meeting." My memory of the 1994 tightening cycle was, not only was it a little bit of a surprise when we started, but also that the pace was somewhat surprising. As a result, the 10-year rate went up quite abruptly. How do you think about not only the start of tightening, but also the pace of tightening once we begin?

MR. LAUBACH. In fact, there is, as you may have noticed, a box in Tealbook B that looks in greater detail at some of these events. It's interesting that, actually, the pace of tightening expected over the first six months in 1994 wasn't all that rapid, and, as you point out, there was then a substantial surprise over the course of the year. So that clearly could lead to stronger market responses subsequently over time. Here, in my exhibit, I try to focus essentially on the liftoff event, not on, say, the six months or a year following that event.

Now, while I certainly don't want to downplay potential financial stability challenges for some institutions if such a scenario came to pass, I think it is still noteworthy that that, of course, happened basically against the backdrop of an economic situation that was more favorable than expected. So that should be a positive, all else being equal.

MR. ROSENGREN. Thank you.

CHAIR YELLEN. Are there other questions? President Evans.

MR. EVANS. Thank you, Madam Chair. Simon, could you give us any indication—do market commentators or the people you talk to provide any information about how the SEP funds rate numbers might inform their assessments of the pace of liftoff or anything like that?

MR. POTTER. We added a new question to get numbers back on the SEP medians, because you're now presenting the medians. In terms of the dot plot, I'd say that the medians we got back from the responses look pretty close to what will be published today. They're basically expecting about 25 basis points to be knocked off the medians, and that's what I think the SEP shows. Could you just repeat the second part of your question?

MR. EVANS. Will the dispersion of the dots or anything about the distribution of what we give them and how they—

MR. POTTER. I think they'll be focused on how many participants have moved liftoff to 2016. I'd say that, having read some of the commentary, the notion of four participants putting liftoff in 2016 is probably about what market participants expected—I know this sounds a little bit strange because I'm talking about your choices here. There will be focus on dots 4 to 7, and that's where a lot of people look for a median, as opposed to taking the median of all 17 responses. My answer was probably a little bit confusing.

MR. EVANS. No, that's helpful. We've said things like that before, too. Thank you.

CHAIR YELLEN. Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a question. Conditional on not moving today, where do you think the probability mass for today would shift, based on how B is currently written and the SEP dots? This question is for either Thomas or Simon.

MR. LAUBACH. The one thing that struck me when reading the dealers' responses was, I did not find a lot of evidence for the, as it has come to be called, "one or none" view—namely, that not moving in September would immediately lead dealers to assume that, therefore, there is not going to be any move over the remainder of this year. So I didn't find in the write-ups anything that pointed in that direction.

VICE CHAIRMAN DUDLEY. Do you think the mass would move to December so that December would go up a lot, or would it be spread across—

MR. POTTER. You're seeing a little bit more weight on the next meeting. Part of that will depend on how they assess whether there has to be a scheduled press conference for a move at the October meeting. What I think Thomas was saying is, we definitely expect mass to go to December. We're unsure, and it might depend on the press conference, exactly where it goes relative to October. And then some mass will go into next year, and that's basically because stuff can happen over the next few months. There are a lot of things that can happen regarding the debt limit that will push people to move further out, I think.

VICE CHAIRMAN DUDLEY. Thank you.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. I would guess that what will happen to the market's views depends very heavily on what is said in the press conference and what guidance we give for the coming months. So I'm not sure we get a very good guess independent of that.

MR. POTTER. Yes, but there's also one market commentary I saw, which indicated that, if everyone was given the transcript, the statement, the SEP, and the transcript of the press conference in advance, most people could still not guess what the market reaction would be. [Laughter] It's useful to be humble when trying to predict what might happen, whichever outcome is chosen.

CHAIR YELLEN. Does anyone have other questions for Thomas? Okay. Seeing none, with your indulgence, I would like to start off today's policy go-round by recommending to the Committee that we adopt alternative B and keep the federal funds rate target range unchanged. Let me explain the basis for this recommendation.

I recognize that a good case can be made for moving today. The data that we've received since our July meeting on the labor market and domestic spending have been strong, arguably stronger than we expected. Domestic spending appears to be on a solid course, and the labor market has continued to improve, with the unemployment rate declining into the central tendency of the longer-run normal rate of unemployment.

There may well be enough domestic momentum to overcome the slightly greater-than-anticipated drag due to the behavior of the external sector and the tightening of financial conditions. Inflation is way below our target, but there's no news there. We expected that to be the case. A significant portion of that shortfall is due to transitory factors, particularly oil prices and the dollar. Although core inflation, even abstracting from the depressing effect of import prices, is running below our objective, with the labor market continuing to improve and survey measures of inflation expectations remaining stable, we should eventually see upward pressure on inflation, returning it to target. There are lags in the effect of policy, so we need to move in a timely fashion to avoid overshooting our 2 percent objective.

In terms of communications, we've prepared the markets for the beginning of normalization later this year. We've consistently argued that the significance of a decision to make a small upward adjustment in the funds rate range should not be overblown. What matters is the path of the funds rate, and we've said that we see good reasons why that path is likely to be shallow.

Conceivably, raising the target range for the funds rate might even boost the confidence of households and businesses, spurring rather than retarding domestic spending, and perhaps the incessant market focus on the timing of liftoff has itself become a source of uncertainty that's roiling markets and raising volatility. Perhaps our credibility is at stake if we don't get on with the job. We may seem as though we're overreacting to market volatility. I see this as the case for raising rates.

I also see a case for not raising rates today, however. And, in the final analysis, I think that case is stronger. Perhaps most important, my judgment that we should stay on hold reflects my assessment of the balance of risks. In particular, should it turn out that we've waited a bit too long to raise rates, thereby raising the odds that inflation overshoots our 2 percent inflation target, or that we're forced to move rates up less gradually than we'd prefer—I see those risks as less severe than the risks of moving too soon.

I do not want to repeat the experience of other central banks that have tried to free themselves of the zero bound prematurely and later had to reverse course, allowing inflation to move lower during the process. I'm also concerned about what we will communicate to markets and the public about our reaction function and our likely future behavior if we move today, at a time when concerns about the global outlook have created uncertainties that have been reflected in the recent market turmoil and after financial conditions have already tightened notably.

We'd be moving when additional deflationary pressure from further dollar appreciation and lower oil prices is working to delay at least slightly our likely return to our inflation target and when it's hard to find evidence of any fear whatsoever in the marketplace of a 1970s-like inflationary spiral or any sense that the FOMC is "behind the curve." I'm concerned that we will appear to be hell-bent on raising rates, with the consequence that the dollar might rise significantly and market expectations about the likely future policy path could also shift up substantially. The fact that markets attach only around 30 percent odds to a move today heightens this concern.

We set out two criteria for raising rates—that we see some further improvement in the labor market, and that we have reasonable confidence that inflation will move back to our 2 percent target over the medium term. As I said during the economic go-round, we clearly have seen some further improvement in the labor market. But as I also noted yesterday, incoming data pertaining to the inflation outlook have not, on balance, improved my confidence that inflation will move up to our target over the next few years. The dollar has strengthened yet further during the intermeeting period. Oil prices have moved yet lower. And, importantly, those initial indications of an acceleration in wages we thought we had seen have disappeared entirely from all of the main national wage and compensation measures.

I've gone out of my way to insist that wage acceleration not be viewed as a litmus test for raising the funds rate. But wage trends are not irrelevant to assessing the remaining degree of slack in the labor market, and the absence of any broad-based wage pressures adds to the case that there remains significant labor market slack. In effect, I see the short-run natural rate of unemployment as considerably lower than my estimate of the longer-run normal unemployment rate. This means that there is more scope for improvement in the labor market before inflation pressures emerge, and I see no penalty in allowing the unemployment rate to drift below its estimated longer-run normal value if such an outcome has no adverse implications for inflation.

I'd ask you to recall simulations in past Tealbooks of an optimal control path that attaches no weight to unemployment outcomes—it weights only inflation outcomes. Those simulations of an optimal control path tell us that we should be acting more aggressively, pushing unemployment down well below its longer-run normal level. And the benefit would be that we would promote a more rapid return of inflation to 2 percent. Indeed, this is a reason why I think it makes sense to continue setting as a condition for a first increase in the federal funds rate that we see some further improvement in the labor market.

Lastly, I'd note that inflation breakevens have moved yet lower, significantly lower. Despite all of the familiar reasons, this isn't a definitive indication that inflation expectations have moved down, but it's certainly disquieting. While the decline in inflation compensation may not reflect any change in the modal outlook for inflation, I think it plausible that at least a portion of the decline reflects increasing downside risks to inflation. After all, market participants are increasingly concerned about the global outlook. They appear to perceive the equilibrium real rate as quite low. And, with the funds rate at the zero bound and inflation already well below our target, they likely worry that the Fed will have very little ammunition to respond to negative shocks. This means that inflation could easily fall short of the target in coming years.

I share these concerns, and that's an important reason, I believe, that the risks around our projection that inflation will return to 2 percent are unbalanced to the downside. Of course, the tighter the labor market becomes, the more balanced the risks also become.

There are additional reasons to hold off raising rates today. They pertain to the global outlook and the fact that overall financial conditions have tightened materially in recent weeks. As we discussed yesterday, risks to the global outlook have certainly increased. The continuing decline in commodity prices is restraining growth in a number of countries that are commodity exporters. Two of our most important trading partners, Mexico and Canada, have been significantly affected. The prospects, as we discussed, for Chinese growth are highly uncertain, with rising downside risks. Net exports placed a considerable drag on U.S. growth during the first half of the year, and we could see a yet greater effect. In addition, I'm concerned that we could see significant further appreciation of the dollar. Thus, I believe it would be prudent to have some additional information to inform our evaluation of the global outlook before raising rates.

Finally, we have seen a material tightening in financial conditions in recent weeks, with U.S. equity prices down and the value of the broad dollar and risk spreads higher. We must always be careful not to allow monetary policy to respond to volatility in the markets. But the shifts we have seen represent a material tightening in overall financial conditions. Not surprisingly, recent indicators of consumer confidence have retreated somewhat. It's conceivable that markets will rebound in the coming weeks and the perceived risks to the global outlook may subside. If so, a failure to move today will not leave us far behind the curve, if at all.

So my recommendation to the Committee is that we not raise rates today, and that we explain that decision by highlighting that global economic and financial developments have imparted some restraint to the economic outlook and have placed further transitory downward pressure on inflation. We would explain that we have seen continued improvement in the labor market and gained greater confidence about the outlook for domestic spending. The U.S. economy in that important sense is doing well, but we want to wait for some additional evidence, which could include further improvement in the labor market, to bolster our confidence that inflation will rise to 2 percent in the medium term.

We would also emphasize that, despite these recent developments, we have not fundamentally altered our outlook, and that an initial increase in the federal funds rate is a real possibility later this year and what most participants still expect. I believe communications along these lines would be entirely consistent with the criteria we've established for an initial hike in the funds rate and with sensible risk-management considerations.

Let me stop there, and we'll continue our go-round. We'll start with President Lacker.

MR. LACKER. Thank you, Madam Chair. I think now's the time to raise the federal funds rate target. I've felt this way for some time, as you all know, but I haven't been hell-bent on dissenting. I'll be listening to this morning's discussion with great interest, but, at this point, my sense is that it's going to be difficult to persuade me to support further delay.

Our decisions about policy are inevitably decisions about the appropriate level of the short-term real interest rate. There are a number of approaches to assessing the appropriate real rate, but I'll start with consumption growth. Basic economic theory tells us that a sustained increase in consumption growth should be associated with higher real interest rates. Granted, this connection isn't always tight in the data, but the underlying reasoning strongly suggests that a negative 1.2 percent real interest rate is unlikely to be appropriate for an economy with persistent consumption growth at the rate we've been seeing.

Now, admittedly, there are good arguments for why today's short-term real interest rate should be lower than historical norms, and these include the global savings glut, an increase in demand for safe assets in the wake of this financial crisis, and ongoing caution on the part of American households. Indeed, a range of attempts at quantification yield measures of the natural real interest rate that are relatively low by historical standards, yet all of these estimates are markedly higher than the actual current level of the real federal funds rate of negative 1.2 percent as reported in the Tealbook.

The Laubach-Williams estimate that we've been discussing in the past couple of meetings is approximately zero right now—minus 0.1 percent. Economists at the Federal Reserve Bank of Richmond have developed an alternative approach to the Laubach-Williams exercise, one that's somewhat more agnostic about identifying assumptions and yields an estimate of 0.72 percent. But the error bands encompass the Laubach-Williams figure, so it's a very similar estimate.

The Tealbook's estimate of what they call the longer-run funds rate is 1.25 percent, and this is what's used in the Taylor rule implementations that they report on in Tealbook B. The Tealbook's FRB/US-model-based estimate of what they call the equilibrium real funds rate is now positive 0.47 percent. Taking any one of these measures as a guide, short-term real interest rates are too low now. Taken together, I think they argue strongly for a rate increase.

A related and complementary approach to assessing interest rate policy is to compare current interest rate settings with patterns of behavior that have been successful for us in the past. The standard approach to summarizing our past behavior is through algebraic policy rule formulas, such as the various versions of the Taylor rule. Tealbook B, as I said, lists the predictions of several of these, and all but one now support raising the nominal funds rate. The one that does not support an increase in rates is the first-difference rule, which, in a sense, is predicated on the assumption that a zero federal funds rate was appropriate last quarter, an assumption that is by no means obvious.

The intercept in a Taylor rule is often identified with the natural rate of interest, and some argue that if the natural rate has declined, we should make a corresponding downward adjustment to the prescriptions of those rules. I point out, however, that the Tealbook already uses a lower natural interest rate assumption than it used to. Now it's at 1¼ percent in the way it implements those rules. One would have to argue for a natural interest rate that's far lower than the estimates I cited—implausibly lower, I might argue—in order to rationalize the current real federal funds rate in the usual Taylor (1993) or Taylor (1999) rule as well as in the inertial Taylor (1999) rule.

Of course, one should be wary of using any of these Taylor rules to dictate how to behave at any one meeting. However, I think the consistent story they tell reinforces the view that the time has come to raise rates. The historical pattern of behavior that's encapsulated in these rules has delivered generally good outcomes over the past several decades and has conditioned public beliefs about how we're likely to behave in the future. Such beliefs provide essential foundational support for the monetary stability that we currently enjoy, and we should not take this stability for granted.

If we were to continue to delay, we would be departing even further from the pattern of behavior that has served us well in the past. The historical record strongly suggests that such departures are risky and raise the likelihood of bad outcomes. In particular, the most damaging departures have been associated with the pursuit of estimates of full-employment unemployment rates that proved, in hindsight, to be too optimistic.

The prospect of inflationary risks may seem remote right now. "Disinflationary pressures" appears to be the catch phrase of the day. We should remember, however, that the economic outlook can change rapidly. In mid-2003, for example, falling core inflation evoked a state of high anxiety. But just over half a year later, growth and inflation were rising, and the need for tighter policy became clear. In hindsight, we moved too late and too little in that episode as well.

One might reply that because conditions might change, why not just wait and see? That strategy often seems attractive, particularly when financial market volatility appears to have increased uncertainty. Waiting for the resolution of uncertainty can be a trap, however. There's always something new around the corner about which one could be uncertain, or, to quote Governor Fischer quoting a former colleague of his, "It's never clear next time. It's just unclear in a different way." As I noted yesterday, we have a history of letting financial market developments affect our policy in ways that we later regret, and we should be mindful of this.

The deeper response is that we know that policy affects the economy with lags, so we should strive to position ourselves in a way that balances future risks. Those risks have been shifting steadily over time as household spending has accelerated and labor market conditions have tightened. Growth in this expansion may have been disappointing when compared with historical averages, but not so much when compared with currently realistic assessments of our capabilities, given productivity and population trends. In fact, U.S. economic conditions have improved quite significantly over the past six years, all things considered. It's time to recognize the substantial progress that's been achieved and align rates accordingly. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. Although I think the policy decision at this meeting is a close and difficult call, I support the policy decision in alternative B. I will also support the statement as written.

I have sympathy for Chair Yellen regarding the challenge, even the danger, associated with significant editing of the statement on the fly, particularly just before a press conference. So I will not suggest any changes, even though I think the statement, and the Committee's communications more generally, may fall short of what's needed—a point that I'll get to in a moment.

By the standard of some further improvement in the labor market, I believe liftoff is justified. At the same time, I do accept that the inflation data on their face could discourage a liftoff decision at this meeting. The combination of declining year-over-year core PCE inflation and weakening market-based expectation measures is troubling. Nonetheless, I was prepared to look through the inflation data and base a liftoff decision on an assumption, obviously a critical assumption, that the positive forces at work in the economy will eventually result in upward inflation pressures pushing us toward target in a reasonable time frame.

Why not lift off with the decision at this meeting? As I stated in the economic go-round, recent global economic and financial developments have raised the risk to the outlook, in my estimation, and present a challenging environment for executing liftoff. This is the deciding factor for me. The uncertainties that are the likely cause of the recent market volatility justify delaying liftoff a meeting or two. A delay would give the Committee time to gain confidence that the real economy is not being derailed by these developments.

Let me turn to post-statement communication of an alternative B decision and communication in general. I increasingly feel the statement, and our approach to communication more generally, requires a rethink as we approach the next couple of meetings. Said differently, I'm concerned about our approach to forward guidance, and I'd like to offer some thoughts in that regard. I'm concerned the Committee's communication has contributed and is contributing to market volatility. I'm concerned we have allowed our mantra of "data dependence" to become a liability. The shift from strict time-dependent guidance to a more flexible approach based on economic conditionality was appropriate. Over the past several months, however, data dependence has become, effectively, the barest-minimum practical guidance. The phrase provides too little basis for the public to grasp what will drive the Committee's decisions in the near future. I perceive the need for an attempt to achieve greater consensus on what will both trigger liftoff and drive rate decisions of the Committee as we go forward and then find a way to communicate that consensus to the public. My concern is that, without firming up our guidance, we will continue to fall short of providing the needed clarity about our policy intentions. I'm concerned the guidance status quo will work at cross-purposes with attaining our objectives. We will continue to foster a guessing game in the markets that could contribute to unsettled conditions.

I recognize the impracticality of trying to engineer substantial statement changes in the remainder of this meeting. To offer something concrete, however, I suggest that in the intermeeting period, building on our answers in our SEP submissions 3(c), the Committee conduct a virtual go-round on options for forward guidance as captured in a variety of statement alternatives. This discussion might also include statement language at liftoff.

Again, I will not suggest actual changes to the alternative B statement. But if asked what, concretely, I have in mind to make guidance more substantive, I would have liked to see, after the first sentence of paragraph 3, something in substance more along these lines: First, "the

Committee is satisfied that there has been sufficient improvement in labor market conditions." Next, "the Committee expects that, with continued improvement in labor markets and momentum in economic activity more generally, inflation will rise gradually toward 2 percent over the medium term." Finally, "in making its policy decision at this meeting, the Committee recognized the elevated risks associated with recent economic and financial developments. When the Committee views these risks to have dissipated—and absent material negative changes in economic conditions—it is prepared to initiate increases in the federal funds rate range."

Because I see an alternative B decision at this meeting as a deferral or a delay, not just a normal course "no decision" in which the Committee holds off for more or better data, I prefer communicating a strong predisposition—with the usual caveats, of course—to lift off at an upcoming meeting. Statement guidance substantively along the lines of what was just suggested would serve this purpose, in my view. Thank you, Madam Chair.

CHAIR YELLEN. Those are very interesting suggestions. We will follow up. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. In my view, we have met the conditions for liftoff, and I therefore prefer alternative C. On the employment side of the mandate, we are at or very near full employment. Unemployment is at or within sight of the natural rate. And many other measures of labor market conditions have approached or exceeded their long-run or steady-state values. This reduction in slack gives me confidence that inflation will return to 2 percent over the next few years. The only reason inflation has not made much progress toward that goal is the offset from the drop in commodity prices and the appreciation of the dollar. However, these facts will only temporarily depress the inflation rate. Furthermore, alternative measures of inflation, such as the Federal Reserve Bank of Dallas's trimmed mean rate, suggest that underlying inflation is already closer to our objective than some other measures would suggest.

In considering the appropriate stance of policy, I start with commonly used benchmarks for monetary policy, such as policy rules and the optimal control simulations. Based on my forecast, nearly all suggest that we should raise rates now or already should have raised rates some time ago. But that's just a starting point for thinking about policy, and there are valid arguments for delay and continuing to err on the side of caution relative to these benchmarks. First, the zero bound remains a constraint on our ability to deal with adverse shocks. We've already done a great deal of keeping rates lower for longer, but this remains a concern. Second, there are some notable downside risks at present, as many people mentioned, including further dollar appreciation and concerns about growth abroad. Finally, inflation has been running below target for quite some time, and a low-inflation environment remains in effect around the globe.

There are also compelling arguments in favor of moving sooner rather than later, however. First, the long lags of monetary policy require taking out some insurance against the possibility that the high-pressure economy in train for next year will boil over. We do not have the luxury of delaying liftoff until we've reached or exceeded both of our policy targets. At that point, we'd be hopelessly behind the curve.

Second, there are some upside risks to our outlook that balance the downside ones. Lower oil prices haven't yet sparked a surge in consumption, but that may change as households start interpreting the decline as more permanent. Housing starts, which remain well below historical averages, could also surprise on the upside.

Finally, I'm concerned that, by staying at the zero bound for too long, we may be creating new economic and financial imbalances. Although these risks appear contained for the present, we already have elevated price-dividend ratios in equity markets, high and growing house-price-to-rent ratios, continued capital movements into emerging market economies, and other riskier investment vehicles that could become problematic. Further delay in raising rates will incite additional search for yield and exacerbate our exposure to costly reversals.

At this point, I want to respond to President Kocherlakota's question about what it means to boil over. And I'm going to go back to June 2005, when I was one of the briefers of the FOMC. We were talking about the housing bubble. You may disagree with the word "bubble," but house prices were very elevated in June 2005. There was a discussion of what that meant for the economy, and I was one of the presenters as a member of the staff of the Federal Reserve Bank of San Francisco. I remember then Vice Chairman Geithner asking me during a break, "What do we do about it now? It's mid-2005. House prices are, by our own estimates, 25 or 30 percent overvalued. This is already in place. Do we raise interest rates and prick the bubble? Or do we wait around and clean up?"

Now, it's important to remember that this was not in the context of a financial crisis—that's not what we were worried about at the time. That was perhaps a mistake. We were worried about what would happen if house prices fell 20, 25, or 30 percent, and then about what effect that would have on the economy, just from purely macroeconomic concerns. What I realized personally in that sidebar conversation was, I didn't actually have a good answer. Once the overvaluation of house prices had already occurred, we didn't have good options regarding how to reduce these imbalances. Raising interest rates sharply would create, clearly, huge negative repercussions and probably would accelerate the decline in the housing market, which was unsustainable. Waiting around to see what happens and clean up afterward obviously wasn't a good answer.

I came away from the conversation thinking about that for the past 10 years, and I realized, you know, the time to have that conversation was in 2002 and 2003. That's when we first saw signs that things were getting out of whack—concerns about and risks to the economy were rising. And thinking about where the tradeoffs really were at that point—not being driven by housing or stock market bubbles, because we went through this in the 1990s, too, but really weighing what the costs are of seeing how far this economy will go and taking into consideration those risks before they actually become problematic.

Let me put that in context. Today, according to a standard measure, the house-price-to-rent ratio is about 30 percent above historical norms. We can disagree about what the average level is—and the Board's staff has its own views on this—but if you take historical norms between 1980 and 2000, the standard price-to-rent ratio is about where we were in 2003. And house prices are rising very dramatically today.

Again, I'm not talking about a financial crisis, because regarding our bank supervision and financial stability, I think we're in a situation that's 10 times better. In terms of macroeconomic risk—the risk that, a couple of years from now, we'll be in a situation in which the economy is threatened, whether by asset prices in general or other imbalances—I believe there are real concerns. I don't want to get into the position, once we're in the situation that we faced 10 years ago, of having to ask, "Well, what do we do now?"

In the past, I've weighed these pros and cons and come down on the side of delaying liftoff. But the ongoing improvement in the labor market and the general economy has tilted the balance of these arguments in favor of raising rates sooner rather than later. I therefore believe that a rate increase today will be the best policy choice. That said, I recognize that it is a close call, and I did listen very carefully, Chair Yellen, to your weighing of these issues. Obviously, a different weighting of the pros and cons that you described may lead one to prefer delaying liftoff until the next meeting or even the one thereafter.

As such, I'm willing to be patient and support alternative B today as written. However, I do think it is important, picking up on the comments of President Lockhart, that we do keep all future meetings live, including October. If developments between now and then argue for liftoff, we should be ready to take that action, call a press conference, and provide an opportunity for the Chair to explain our decision at that time. Thank you.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support alternative B. I did not view this decision today as a close call. With little time to process recent financial market movements and international concerns, we need more time to understand whether there's been a more significant underlying change in economic fundamentals. The first footnote in Tealbook A makes clear that the economic effect of delaying a tightening by a meeting or two would have a de minimis effect on variables we care about.

Tightening at this meeting, with excessive volatility and using new tools to get us off the zero lower bound, risks a much more complicated start to our tightening cycle. It also risks the possibility of tightening at the start of a more significant global slowdown, which is not in my modal forecast but is now a more elevated risk. Reasonable risk management leads me to want to see more data before acting.

That said, I do view the time to raise rates as being near. While the U-3 unemployment rate is not a sufficient statistic to summarize labor market conditions, it also should not be ignored. Employment growth has been pretty strong this year, and broader measures of slack—U-4, U-5, and U-6—have also improved significantly. As we've underestimated how quickly unemployment rates would decline, it is possible that we will face much tighter labor markets sooner than I have in my forecast. If that were to happen, I would expect less delay in reaching our inflation target.

In light of the recent market volatility and the uncertainty about the inflation forecast, I would prefer that our tightening, whenever it begins, be quite gradual. A risk to waiting too long to lift off is that we may need to tighten more quickly than is in my SEP forecast. For example, waiting until next year risks a more pronounced decline in unemployment than is in my modal forecast and a more rapid return to 2 percent inflation than we currently envision. Under those conditions, we would be caught behind the curve and need to make a more rapid adjustment to policy. I'd prefer to avoid such a circumstance.

I would like each of the meetings, whether they coincide with an SEP release and a planned press conference, to be live. If the domestic and global economy is slowing down, there will be no need to tighten. However, if labor markets continue to improve and the recent financial market turbulence does not leave much trace in the data going forward, it seems prudent to me to begin a gradual tightening process relatively soon.

I have a couple of quick comments on the reinvestment discussion. I didn't comment yesterday because I wanted to process people's comments. I had a couple of quick takeaways. First, when we don't know what we will do, I don't think we should provide forward guidance. [Laughter]

MR. KOCHERLAKOTA. I disagree. [Laughter]

MR. ROSENGREN. I can imagine a scenario in which we actually sell long-term assets. It is the tabletop scenario, where we meet our dual-mandate goals but commercial real estate and residential real estate are in a bubble, somewhat like what President Williams was talking about.

In that case, I would certainly consider selling long-term assets, with the very purpose of steepening the yield curve.

I can also imagine a scenario in which we maintain a large balance sheet. If the equilibrium real federal funds rate is low, we may want to keep long rates low and short rates higher than otherwise to minimize the chance that we return to the zero lower bound. It has been costly to be at the zero lower bound. I would prefer to minimize the chance that we return there. If we are not willing to raise our inflation target, we should consider maintaining a higher balance sheet. The discussion yesterday was very good but implied to me that we should maintain balance sheet flexibility as prudent risk management. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I support alternative C for today. In paragraph 4, I support adding the bracketed "balanced approach" language. In paragraph 5, I suggest using the language in the bracketed choice "at least during the early stages of normalization."

I remain very concerned that a decision at this meeting to adopt alternative B will essentially cement the idea of a "Yellen put" in the eyes of financial markets. The added language in alternative B, paragraph 2, basically says that the global selloff during the intermeeting period is our basis for nonaction. No amount of explaining will disguise this fact. The message will be lost on no one.

I think we're kidding ourselves about what this means for the future of the Committee. The problem with this is that it will create questions as to how the Committee will react to future selloffs or booms in financial markets.

Many argued yesterday that the implications for U.S. growth and inflation, not the global financial turmoil, were the key determinants of this decision. However, most of the weak spots around the world have been well known—Brazil and Russia were cited yesterday—and were widely discussed at previous meetings.

The Chinese devaluation was indeed a surprise to markets during the intermeeting period, but it was not a big enough event to have a meaningful impact on U.S. monetary policy strategy. Chinese growth is, indeed, slowing and will continue to slow in coming years, but this has been well known for some time and hardly qualifies as news. The evidence of an actual hard landing in China is very limited, and our own staff assessment is that such a scenario is unlikely, on the basis of the data available today.

In a nutshell, we are making a decision today that emphasizes vague, unspecified, and likely quantitatively small effects on the U.S. economy emanating from the RMB depreciation decision. This is not a good basis for U.S. monetary policy strategy. Some are claiming that global commodity price declines are the driving factor here, but, on balance, this is a bullish factor for the United States, not a bearish factor.

One of my concerns is that we are sending a very muddled message about our reaction function. We have in many ways become very discretionary in our policy choices, citing different factors on different days, even when the general nature of the economic situation has not changed appreciably.

Concerning inflation, I'm delighted to learn that there's been a sudden shift in sentiment on the Committee toward strict inflation targeting—that is, running monetary policy with heavy emphasis on inflation and little or no emphasis on output or employment gaps. I actually think this would be a reasonable way to proceed and could lead to reasonably good policy in the

United States, but it has not enjoyed as much popularity in the past as it has recently. However, there is a problem with what I'm calling strict inflation-targeting approaches in the current circumstances. Strict inflation targeting says that the reason we are still at the zero lower bound is that inflation is below target. This would be a good reason to be at perhaps a 2 percent policy rate, still well below long-run normal levels. But it is not a good reason to be near zero on the policy rate, 350 basis points below normal levels. That suggests a very high elasticity of the federal funds rate to the inflation gap. In other words, a relatively small inflation gap implies a lot of accommodation—a 0 percent federal funds rate. What that means is, as inflation rises, the federal funds rate will, at least if you are taking this approach, rise very quickly, and that is not what the Committee is saying.

I agree with Governor Fischer's assessment from yesterday on the idea that temporary factors are influencing inflation, as many have said around here. As these abate, a strict inflation-targeting approach would suggest a rapid increase in the policy rate. We're evidently not planning to do that, so it's exactly this process that will lead to perceptions that the Committee is far behind the proverbial curve.

I see this as a poor decision today, and I just want to think about what the fallout will be and how the Committee has to manage going forward. Even though I think we're not making a good decision here, we can make good decisions in the future. I see four consequences. First, I think that the Committee will be viewed as shifting to a "late and fast" strategy and away from an "early and gradual" strategy. The perception in markets, which is already there, will be that the Committee will not move until we're forced into action. It also suggests that the Committee is perhaps more willing to scramble to catch up, if necessary—or at least that's the way we're weighing that risk.

Second, this shift toward a late-and-fast strategy, combined with an undefined reaction function, will mean even more volatility in the future due to uncertainty about Fed policy than we would otherwise have. What we're saying, essentially, is that when the Committee moves, it may have to move faster. In addition, it is not that clear what the Committee might react to, because we're taking a very discretionary approach to our policy and a very eclectic approach to what variables we want to cite in making our policy decision.

Third, I think there's more risk now of an outsized increase in rates at some point in the future, not unlike the moves of 50 or 75 basis points that were made in 1994. If you're going to play the late-and-fast strategy, then you've got to possibly be ready to move more quickly than I think the Committee is currently ready for. Markets will sense this, and this will create additional uncertainty in financial markets.

Finally, I think there will be a continued and exacerbated mismatch between market expectations and FOMC expectations about future policy. The Committee will now put out its SEP. It will have a policy rate path, but those in the markets that think the Committee will never move will be emboldened to move even further into the future. So there will be more of a gap now between what the FOMC expects regarding monetary policy and what the market expects. Those gaps can't persist indefinitely. They have to be reconciled at some point, and that process leads to additional volatility in markets and is part of what was going on here, I think, during the summer.

Those are my four takeaways for the consequences of today's decision. Again, I support alternative C. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. I believe there's a strong case for moving the federal funds rate up at this meeting. The Committee has laid out two criteria for liftoff—some further improvement in labor markets and reasonable confidence that inflation will move back to our target of 2 percent over the medium term. In my view, those conditions have been met.

Labor market conditions certainly continued to improve over the intermeeting period, and, in my view, the economy is at or nearly at full employment from the standpoint of the Fed's dual-mandate goal. The inflation criterion for liftoff is appropriately based on the expected path of inflation and not on its current level. No doubt inflation has been running below our goal of 2 percent, but the effects of last summer's oil price decline and fall in import prices have been passing through to the headline inflation numbers. This, combined with the fact that the labor market has been tightening faster than expected and inflation expectations have been generally stable even in the face of commodity price declines, should give us more confidence in our inflation forecast. Starting normalization before we reach our dual-mandate goals is prudent if we want to minimize the risk that we'll have to move rates up considerably more aggressively than we're currently anticipating.

We've been indicating for some time that we expect a gradual path. I would like us to take actions that help maintain the credibility of that scheme. As Governor Fischer said at our July meeting, the data control the gradualness. However, our policy actions can influence the data by influencing how the economy evolves.

Now, should the recent volatility in financial markets give us pause? I think not. The economy has fared well through it. Volatility measures and risk spreads remain elevated but are moving back down. As Chair Yellen pointed out, the decision to act depends on an assessment of the risks. I view the change in financial conditions and reassessment of global growth since our July meeting as a downside risk to the outlook rather than implying much change to the modal outlook. But we've taken out insurance against this downside risk by keeping interest rates considerably lower than almost all of the policy rules suggest, even as the Tealbook-consistent equilibrium interest rate has been rising—in this Tealbook it's now 0.47 percent.

I believe that Chair Yellen's insightful leadership of the Committee has prepared the public for liftoff. In the current environment, after keeping the funds rate at zero for over six years, I would expect some residual uncertainty surrounding the decision. The fact that there's not unanimity across market participants and forecasters that liftoff will occur at this particular meeting doesn't deter me. Most are still expecting a rate hike this year, and a resolution of some policy uncertainty might actually be viewed favorably. In addition, no matter how well we have prepared and signaled such a change, I'd expect some volatility in the markets at liftoff. I don't think we should be too bothered by that, either.

What would concern me more is if, on liftoff, the public's expectation about the path of policy after liftoff changes and becomes much steeper than the path we're currently anticipating. In other words, might liftoff be read as the beginning of rate increases at each meeting thereafter so that we have a steep path going up?

The Chair has emphasized that the Committee anticipates that economic conditions will evolve in a way that warrants keeping the funds rate below its longer-run level for some time. This certainly shows up in our SEP. But the market path implied by market data is considerably shallower than in the SEP, which suggests that the message of a gradual path is coming through loud and clear. Thus, while there is some risk that the act of liftoff may appreciably change policy expectations, I believe appropriate communications at liftoff will be sufficient to mitigate this risk.

Chair Yellen and the Committee have navigated some very difficult waters over the past year, as the start of normalization is near. With considerable effort, we've reached a point at which there is a favorable alignment of expectations of a rate increase and the data that support such an increase. I don't believe this is something we should take for granted. Current economic circumstances are very favorable in terms of being able to communicate the rationale for action and post-liftoff policy, and careful communication is a crucial component of a successful liftoff.

Yes, there are risks to moving. But there are also risks to not moving, including having to move more aggressively later on if we delay too much further. Action is going to send a signal, but so will inaction. We may not see such favorable conditions for communications for some time. Thus, I believe we should seize the day and act. Of course, I do understand that this is not the majority view, and I respect colleagues who see things differently. Thank you.

CHAIR YELLEN. Thank you. President Harker.

MR. HARKER. Thank you, Madam Chair. Given my economic forecast, I continue to hold the position that it is quite important that monetary policy begin to raise rates. However, I am not adamant that it be done at this meeting.

The recent turbulence in financial markets and the softening of energy prices and price pressures in general probably make this meeting less than optimal for liftoff, although I expect these are temporary headwinds. It is, however, my strong belief that we should begin our normalization process sooner rather than later, and that the process should be gradual. At the least, the statement language should make clear that if we continue to see improvements in the labor market over the next couple of months, the Committee will move to raise rates.

Earlier liftoff makes a gradual path of policy firming more likely, and it will still allow us to maintain an accommodative policy stance for some time. I'm becoming concerned that we will find ourselves treating every bump in the economic road as a reason for delay, with the effect that monetary policy moves further and further from what can reasonably be viewed as normal. The longer we wait in anticipation that all signs point in the same direction, the more likely it will be that future policy adjustments will need to be very aggressive, and I worry about the economic consequences of being in that position.

Beginning normalization should send a reassuring message and will underscore the belief that the economy is on solid footing, and that inflation will return to target. It seems that the least normal element of the current economic environment is our inability to return monetary policy to a more normal mode of conduct.

Like Presidents Williams and Rosengren, I also encourage the Committee to consider every meeting, including October, as a potential and appropriate time for liftoff. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. Based on economic data and the outlook for the economy discussed yesterday, I do believe we're at a point at which it's appropriate to begin the process of removing accommodation—if not today, then very soon.

I do support alternative B today because I am of the view that economic conditions abroad might have the potential to spill over to the United States, thereby increasing the uncertainty about the U.S. outlook and negatively affecting data in the months ahead. However, I would say that I believe these non-U.S. economic uncertainties will continue for some extended period. That is, I don't believe the overall level of this uncertainty is going to diminish in the coming months. The nature of the weakness and spillover threats from abroad relates to deeply embedded, in some cases, structural, demographic, and other issues that are likely to take years, versus months, to manage and address. So my preference would be that we soon begin the process of removing accommodation and address these potential spillover threats by adjusting the expected path of accommodation, versus delaying much further the start of the process.

In my view, delaying for too long the start of the process of removing accommodation at this stage carries a cost. While a lower unemployment rate, of course, is desirable, it has the potential to create unhealthy imbalances if it's supported by artificially accommodative financial conditions. Such conditions maintained for too long may encourage investment and borrowing decisions that cannot easily be reversed or unwound when policy eventually normalizes, as it must. This increases the chances, in my view, of a hard landing, which, to me, means excess investment, inventory buildup, and financial asset valuations that are more likely to lead to negative economic effects later when more normal policy is put into place. In my experience, imbalances like these are often not obvious until after the fact, and they need not be accompanied by above-target inflation. So I would say that, on the upside, prudent risk management dictates that we begin the process of scaling back accommodation as the economy approaches our best estimate of potential.

I can and do support alternative B as written at this meeting, though, because I believe that it is prudent to use the next several weeks or months to confirm that conditions for liftoff are sustainable, allowing us to act in October or December. But I would suggest that, in the statement, we send a signal that the economy has moved closer to satisfying the conditions for liftoff by substituting the word "approaching" for the phrase "continuing to move toward" in the third sentence of paragraph 2 in alternative B. So, in that third sentence, it currently says "continuing to move toward," and my suggestion is to instead substitute the word "approaching." Thank you.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. I appreciate your earlier comments today, and let me say I have full confidence that, in your press conference today, you'll describe the conditions for our decision.

I support alternative B, which leaves our policy rate unchanged. Even with unchanged policy, I expect that inflation will remain too low for too long. And if we start moving rates up too soon, I fear the FOMC could lose credibility on its commitment to a symmetric 2 percent objective. This loss could risk de-anchoring inflationary expectations, with profound consequences in the longer run.

The Bank of Japan, the ECB, and other central banks have risked and arguably lost credibility with regard to their inflation targets, and they may well be facing more difficult economic circumstances because of those earlier policy choices. We should continue to tread warily so that our own policy choices don't lead us down the same path.

When I consider the outlook, I find it difficult to have much confidence that inflation will sustainably get to 2 percent over the medium term. Indeed, if we don't keep an appropriately high level of accommodation in place, we risk this cycle ending with inflation topping out below 2 percent. That would certainly jeopardize faith in our target.

Around the world, downside inflation risks abound. Since our June SEP round, the United States has been buffeted by additional disinflationary headwinds from low energy, commodity, and imported goods prices. In the U.S., the improvement in the labor market has not yet produced any meaningful signs of wage or cost pressures. It's no wonder that none of my business contacts cite any concerns about rising inflationary pressures.

There's another reason I find it hard to be confident that we are headed to 2 percent inflation at an appropriate pace. I'm referring to what I think must be a concern by many on this Committee about a modest overshooting of our inflation target. Madam Chair, I will say that in my initial prepared remarks here, I had "tacit concern." But it turns out you were much more explicit in your own concern about overshooting, and I think others have been today as well.

I sense that many participants' SEP forecasts are trying to thread the needle to get to 2 percent without any risk of overshooting. With inflation so very low, that's the only way I can rationalize some of our SEP policy rate paths, at least given my outlook. I infer that these paths reflect a serious aversion to PCE inflation heading to, say, 2½ percent. But after six or seven years of inflation averaging 1½ percent, whether we briefly touch 2 percent during that time isn't really relevant. And with forecasts for several more years below target, we should be very nervous about advocating policies that seek to eliminate any chance of 2½ percent inflation.

Outsized concerns over exceeding 2 percent inflation will risk signaling that our price objective is a ceiling and not a symmetric target. It also risks us joining other central banks that are struggling with the consequences of not sufficiently defending their inflation objectives from below and of ignoring the added risk emanating from the zero lower bound.

Furthermore, I don't see much risk of inflation running anywhere near 2½ percent over the forecast period. To the contrary, the inflation risks largely seem to be to the downside. The Tealbook alternative scenarios highlight this. Like President Kocherlakota, I can't recall the last time every alternative simulation was more pessimistic about inflation than the baseline scenario, which isn't that optimistic to start with. From a risk-management perspective, these adverse alternatives suggest there could be significant benefits to delaying any substantial increase in the funds rate in order to build up a buffer stock of inflation pressures. In turn, such a buffer would reduce the risk of returning to the zero lower bound if these plausible shocks indeed come to pass.

Another way to put this is that our policies should allow a higher probability of inflation rising to the range of 2 to 2½ percent for a time. To achieve a symmetric 2 percent objective in the face of the likely asymmetric policy risks emanating from the nonlinearity of the zero lower bound, we have to allow ourselves a reasonable chance of going above 2 percent. Less bold action could signal that we were content to have PCE inflation settle in at 1.5 to 1.9 percent, the latter being the Tealbook outlook in 2018.

My SEP date for policy liftoff is June 2016. This is not as extreme as the dot chart might suggest. After all, my overall funds rate path is not all that different from the implications of the Tealbook's path. If things play out as expected, the differences are mainly around near-term timing. My SEP submission delays liftoff both to build a risk-management buffer and to allow us time to better assess the outlook before making a policy move. At the end of 2016, I have the funds rate range at 75 to 100 basis points. From today, that's a total of three increases of 25 basis points each. My subsequent path is a touch steeper than the Tealbook's, so we both arrive at about the same rate by the end of 2018.

I believe that lower rates in the near term, followed by a bit faster ascent after we have more confidence in the inflation outlook, would allow for better risk assessment and would be appropriate as long as our inflation outlook is below 2½ percent. Again, the way to get to 2 percent within a reasonable period of time, or at all, is to make sure you give yourself a reasonable chance of getting to 2 percent.

Finally, I think our medium-term policy focus should be on communicating our commitment to a 2 percent symmetric PCE inflation objective. Like President Lockhart, I feel that the term "data dependence" hasn't been sufficient for the public to understand how policy will react to incoming data. But I believe President Lockhart's suggestions are limited to clarifying when liftoff will take place. We need more than that. Providing more information with respect to our funds rate path milestones and how they relate to the inflation outlook would be quite valuable for supporting the achievement of our 2 percent objective.

The SEP dot chart should be helpful on this score if we focus most of our communications on the central portions of the chart. Saying "more gradual than normal" isn't enough unless we say it a lot. Beyond today, if inflation headwinds continue to challenge our outlook even as we begin liftoff, then I think our communications, especially those discussing data dependence, will need to signal even more aggressively our full commitment to achieving our 2 percent symmetric inflation objective.

I support alternative B. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. Alternative C aligns with my own views of the economy's continued expansion, even in the face of various headwinds over the past several years—an economy that warrants a continued accommodative stance of policy but not zero interest rates, in my view.

The benchmark policy rules that supported the Committee's decisions to add accommodation via LSAPs several years ago are the same ones that have been signaling for some time that a shift in policy is appropriate. However, for a Committee that has lacked reasonable confidence to begin a gradual normalization over the past few meetings, the prospects of liftoff in the face of global growth uncertainty and the related headwinds to the United States are actually less compelling, I think, today.

I understand the desire to wait for a few more meetings, with the intention of having a clearer picture of the outlook. Waiting for more certainty over the course of a few more meetings may seem comforting and costless. I think it carries its own cumulative risk. The potential exists to get caught in a time-inconsistency trap by projecting liftoff in the near future but, when the time comes, lacking the conviction to carry out the policies underpinning our projections because of wanting to see just a few more data points.

I'll offer three brief thoughts for today's decision. First, in view of the continued improvement in labor market conditions, the decision not to lift off at this meeting must surely reflect the Committee as not yet having reasonable confidence that inflation will return to 2 percent over the medium term. If this point is not emphasized, markets may view our reaction function as now incorporating things like market volatility and foreign developments into our near-term decisionmaking process.

Second, I believe the heavy emphasis on data dependence is injecting substantial uncertainty into markets and is too backward looking. So, in addition to data dependence, monetary policy needs to emphasize being forward looking. We should place more emphasis on how incoming data are affecting our assessment of the outlook rather than inadvertently sending a message that we're responding to the most recent data points.

Finally, postponing liftoff increases the probability that rates will have to be increased more rapidly than we currently anticipate. Waiting until inflation is nearer to 2 percent and unemployment is below its longer-run normal rate may put the Committee in a difficult position of having to adjust rates more steeply and, as a result, create heightened risk around financial stability and our growth outlook. Thank you.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I'm going to do the risky thing here and try to be more reactive to comments that have been offered around the table than I customarily would be.

I will start with what President George just said, which is that the Committee should do more both internally and externally to emphasize the need to condition monetary policy on the outlook. We should always be seeking to make policy to align the medium-term outlook for our goal variables of prices and employment with our longer-term objectives. Now, when I say the term "outlook," I mean to include risks to that outlook as well. As President Evans emphasized, those risks really are all asymmetrically on the downside at this stage because of the zero lower bound and our inability to be able to respond effectively to those risks.

What I heard from many around the table is a desire to incorporate other considerations besides the outlook into our thinking. President Lacker started off by talking about how the Taylor rule had given very good outcomes for us in the past. Embedded in the Taylor rule is a sense of the desirability to have interest rates close to their long-run normal level.

President Lockhart talked about being satisfied with gradually moving back toward 2 percent over the medium term. I think we want to be aligned between our medium-term outlook and our long-run goals. We have to be more aggressive than that. We want to be actually back to 2 percent. And, as President Evans suggested, taking into account the closeness to the effective lower bound, we might want to be willing to have some overshooting in the medium term in terms of our modal inflation outlook, just to guard against those downside risks.

Several people talked about being concerned about disliking rapid increases in interest rates. Again, this is introducing a non-goal-oriented consideration into your policy decisionmaking. To offer some context, when we're talking about rapid increases in interest rates, we're talking about increases faster than 25 basis points a quarter. I want to offer that the baseline in the SEP is 25 basis points per quarter. I think the Committee—again, as President Evans mentioned—would have a better alignment between its medium-term outlook and its long-run objectives by waiting and then raising rates at a slightly faster pace. Something more like the 2004–06 pace, which I believe was actually viewed as fairly measured, would deliver a better outcome.

The next few meetings and the decisionmaking around liftoff are really critical not just for the course of policy in the near term and how it's going to affect the economy, but also in terms of setting up the strategic framework of how the Committee is going to think about policy. We continue to be overly influenced by a collection of Taylor-like rules. I suggested yesterday that this had served the Committee extremely poorly during the course of the recovery.

To try to clarify one of my points in that discussion about November 2009, that was not a QE meeting. It was a meeting in which the Committee had terminated QE1, and was thinking about, how do we best time the removal of accommodation—specifically, the increase of interest rates—with the improvement in the economy so as to best support the recovery? The debate within the Committee, shaped by Taylor rules, had the dovish side in the 8s in terms of the unemployment rate and the hawkish side in the 9s. I was there. I was on the Committee at the time, so this is about self-reflection and self-criticism as much as anything else.

This is about the problem with our framework that was in place before 2008 imprisoning the Committee into an unduly slow recovery. We do not want to have that happen again. The way you don't have that happen again is by conditioning the policy decisions now about liftoff and afterward much more firmly on the outlook for prices and employment and by building in, I think, risk protections along the lines that President Evans has suggested.

I look at what's happening in the world, and we look at all of the experiences countries have had in trying to escape the zero lower bound. And I am drawn, Madam Chair, to alternative A. I do not think that this is the time to be considering liftoff. I look at what's been happening with regard to how financial markets are considering the credibility of our target. Without meaning to be overly critical, as I listen to this debate, I can understand why financial markets are doubting the credibility of our target, because there's just a comfort level with, "Eventually, we have to get back to 2 percent. It's got to happen." That only happens if we make decisions to make it happen. That is how we get credibility for our target. That's how Paul Volcker got credibility for the target in the 1980s. That's how we have to get there. It's through our decisions. If we remove accommodation now, with inflation running as low as it is and projected to take as long as it is to get back to target, we are not sending the right message about credibility.

I am drawn to alternative A. I think that will set us up better to have a framework that is explicitly goal oriented. It'll allow us to respond more effectively to shocks going forward, as opposed to putting weight on having interest rates at some normal level. The only thing that "normal level" should mean for this Committee is that we are hitting our price and employment objectives over the medium term.

I'll close in terms of President Williams's point. I thought it was a very telling and compelling one, in part because I bought a house in June 2005, so it really—

MR. WILLIAMS. It hurts. [Laughter]

MR. KOCHERLAKOTA. It did hurt. This is a challenging issue, and it deserves a lot more attention from the Committee. Is the fact that house prices are 30 percent overvalued right now a reason to be less accommodative? It's a subject that should be discussed.

I will point out that, as I'm sure President Williams knows, if the Laubach-Williams natural real rate is going to be low for a long time to come, house prices are going to be elevated relative to historical norms, and that's something we're going to have to live with if we want to hit our goal variables. That's the only comment I'll offer on that.

Madam Chair, I appreciated your setting out the alternatives at the beginning, but I felt you left out the most compelling one, which was alternative A. Thanks.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. I thought we had an exceptionally interesting discussion yesterday, and I'd like to start by reflecting on it.

Broadly speaking, two sets of views were expressed, and they were also mentioned by the Chair in her opening remarks this morning. The first set of views starts from the two criteria we specified earlier this year that would have to be met before we first raise the interest rate. The criteria we set out were, first, that there be further progress in the strengthening of the labor market and, second, that members of the Committee believe with reasonable confidence that the inflation rate will reach 2 percent in the medium term. As I explained yesterday, I believe we've met those criteria. To justify that view, one has to explain why, when the actual inflation rate is so far from 2 percent, we can say that we've met those criteria.

The explanation is simple—that the current low inflation rate is due largely to declines in the price of oil and to the appreciation of the exchange rate, both of which are temporary. By the calculation I described yesterday—which takes into account not only the difference between the actual and core PCE price deflators, but also the indirect effects on the inflation rate of the decline in the price of oil and of the exchange rate—the underlying inflation rate is approximately 1.6 percent at present.

To be sure, those two criteria are only necessary conditions for raising the interest rate. I'll say more on that later, for I'll end by making the case that we can delay raising the federal funds rate beyond the end of this month, but that if current conditions continue, we should raise the federal funds rate before the end of the year.

The second set of views starts from the fact that there is no inflation in sight, and that we should not raise the interest rate even though, in the view of many, the labor market is close to the natural rate of unemployment. Rather, we should stay at the effective lower bound, possibly allow the unemployment rate to decline below the natural rate, and raise the interest rate only when we clearly need to deal with the inflation rate, which, if we were writing for the newspapers, we'd say is "when we see the whites of the eyes of inflation."

In this view, we can and should wait before raising the federal funds rate either because the natural rate of unemployment has fallen to well below 5 percent or because we can allow the actual rate of unemployment to fall below the natural rate and thus contribute to dealing with aspects of the labor market that are not yet at what we think is their normal condition—we're talking about the participation rate, the long-term unemployment ratio, and part-time employment for economic reasons. When we reach reasonable levels of those variables, we can raise the interest rate and move toward the natural rate of unemployment from below. I think it's important to note that, at least in my view, the explicit adoption of such an approach would be widely viewed as a change in the FOMC's monetary policy strategy.

Now, both of these views have merit. The choice between them has been complicated by developments abroad. Just over a month ago, on August 11, China devalued its exchange rate rather clumsily and after a Shanghai stock market bubble had burst. And there was a bubble. Even the governor of the Chinese central bank described it thus. The Chinese exchange rate move created shock waves, one of which arrived at the New York Stock Exchange on August 24, when the Dow Jones index declined in the morning by over 1,000 points and then closed down by 588 points, about 3.8 percent. By the way, I wonder whether we're not going to have sharper, more rapid changes in prices in the stock markets as electronic trading develops further.

Subsequently, emerging market and developing-country problems, many of which had started well before the Chinese devaluation, began to draw the attention of markets in the industrialized world. For example, the Brazilian economy is in trouble. The Russian economy is doing badly. So are other countries in Latin America. So are some countries in Southeast Asia and Africa, and even Canada and Australia are suffering from effects of the declines in the price of oil and of other commodities. Less mentioned are the improvements in the euro zone, the fact that the United Kingdom's economy is moving ahead well, the expectation that the Indian economy will grow this year at over 7 percent, and the possibility that India is going to be the China of the next I-don't-know-how-many years.

What are we to do? Well, the choice between going now and going soon is very close. In light of the genuine uncertainty caused by the Chinese devaluation and the subsequent realization that there were other difficulties in the global economy, I can support not raising the interest rate now and waiting until either October or December to raise the rate.

I've got a series of observations on our discussion that I can't figure out where to put in this statement at a logical place. So I'll talk about them now, and, if they're out of order, you'll make the appropriate corrections and let me know what they are so that I can improve this in retrospect. First, we're all very concerned about the problems in foreign economies. When I listen to them, they sound much larger than what I found in the Tealbook in terms of their effects on the U.S. economy. I think the Tealbook forecast was made in full knowledge of the situation in the global economy, and we can be sure that the staff attempted to take into account the quantitative effects of the external situation on the U.S. economy.

I do believe it appropriate that, besides expressing our worries about foreign economies and describing links between their economies and ours, we should try to make a quantitative estimate of how large those effects are likely to be. These are, admittedly, early days, but the evidence so far is that those effects will not derail the impressive recovery of the United States' economy since 2009, where, in particular, the labor market has continued to strengthen at a remarkably steady—indeed, impressive—pace.

The next comment I'm going to make is that one keeps hearing about this "unduly slow" recovery. I don't think it's unduly slow. I think it's remarkable, in fact, what has happened to the unemployment rate. If you're thinking about GDP, that hasn't recovered. But the difference between what's happening to labor and what's happening to GDP is productivity, and I don't think monetary policy is responsible for that.

I have a few other points. We keep saying we will look through supply shocks, but we don't. We keep talking about how low the inflation rate is. That is largely a result of two large supply shocks, and we'd better remember that we look through supply shocks when one day we find inflation above 2 percent because of supply shocks. We also tend to forget that we have a cushion of 40 basis points as a result of the enlarged balance sheet, as the discussion yesterday of the effects of beginning to run off our portfolio made clear.

Another point is, remember that the price of housing is high because we put the interest rate very low. So it may not be a sign of a pathology. It may be a sign of health that monetary policy worked as planned. That, nonetheless, does mean that there's possibly going to be some pain when we start raising interest rates from the housing market.

There are two more things in the collection of random—but not totally random—observations. Regarding the question of whether the real wage should start rising independent of the behavior of productivity is an interesting one. I've had some discussions with people who say, "Well, tell me where productivity comes into the Phillips curve." Productivity comes in, in fact, in a way that was mentioned yesterday by Governor Powell and, I believe, by someone on the other side of the table—probably President Williams. Productivity affects the demand for labor, and that's where it comes in.

Finally, this is not a scientific observation, but this is one that is useful to remember. I think that the experience of what happens when stock prices begin to go down or when something goes wrong in the financial markets is summarized by something Warren Buffett said, which I'm sure is more correctly attributed to someone else. You know, in the United Kingdom, everything was said by Shakespeare or Churchill. In France, it was de Gaulle. In the United States, it's Lincoln or Buffett. [Laughter] Buffett said that when the tide goes out, you see who's been swimming naked. And mostly, as you start unwinding some excitement in the financial markets, you discover that there's a whole lot more that's been going on than you knew about. That is something that gives me pause when we say, "Well, we're not seeing much in the way of problems right now." But that's a general comment.

I clearly support alternative B. But I'd like to add that, while we may not yet be at the maximum-employment level and are certainly not at the target inflation rate, I think we can soon comfortably start, and should start, the gradual process of returning to a normal stance of monetary policy.

I would like to deal with one issue that is frequently mentioned at this point in the discussion. It's that of the foreign central banks that raised the interest rate prematurely. Well, I know one of those examples very well. The Bank of Israel was the first central bank to raise its interest rate in 2009. It raised the rate from 50 basis points to 75 basis points. It did that because the economy was growing and inflation was above the target range, largely due to the fact that housing prices were rising rapidly. It stayed on this path of raising rates until they reached about 3 percent, when the European crisis developed and the effect of the Federal Reserve's QE, which had begun after the Bank of Israel had raised the rate, began to become obvious. That is to say, they followed Keynes's advice—when the circumstances changed, we changed policy.

That's what I think has happened in most of these cases. I regard the proof that if you raise the rate, you're going to raise it too early as not recognizing the dynamics of what was happening in the global economy, where 2009, as was mentioned yesterday, looked like the end of the recession for many. Then, sometime around 2010, we began to realize that, actually, it was more complicated than that and we had to do more. I could say the United States reversed policy. Why? It invented QE. So it also cut interest rates. I don't think that that example is worth a whole lot, though it's become part of, certainly, what I read in the newspapers whenever I see a discussion of this.

Now I've spoken for too long, but I'm going to speak a little bit longer. Once we become more confident that the global economy is not at the start of a serious crisis, and that the external effect on U.S. economic activity and inflation of foreign developments is likely to be subdued, I believe we should get started. I gave a lot of reasons for that in the July meeting. In the interest of saving time, I won't repeat all of them now. But let me briefly mention four of the main reasons, with apologies for repeating myself. First, monetary policy will continue to be very expansionary even after we start moving, for we are not about to lift off vertically. We are about to begin the process of gradual normalization. I recommend that we think very hard about the assertions made by even highly respected economists and policymakers that raising the federal funds rate at this meeting or in the near future could be an epochal mistake and realize that they're almost certain to be wrong. Even after we make our first move, monetary policy will be extremely expansionary. Furthermore, this will be a surprise to no one, and many around the world agree that this change should come soon. Some in the emerging market countries even want it as soon as possible.

Second, we've now held the nominal interest rate at its effective lower bound for six years and nine months. In so doing, we're sending a signal that the situation in the U.S. economy is still extremely far from being normal. The interest rate aside, I do not believe that is the current situation. If the Federal Reserve sends a well-reasoned signal that we think the U.S. economy is now strong enough to begin normalizing, we would be providing an important boost to confidence of businesses and households. That's something the Chair mentioned as a possibility in her opening statement. The improvement in confidence would have a positive effect on spending and job creation.

Third—and this is also an important point—beginning normalization when we've met the criteria that we've set out to meet will enhance the credibility of the FOMC. Conversely, if we continue to delay despite meeting these criteria, market participants and Fed watchers will not know what to make of our communications, and our credibility will suffer. Now, there is a statement that has recently been made that practically any argument that's made on the basis of credibility is bound to be wrong. I think that, while we should always examine arguments that rely on credibility with suspicion, credibility really matters for a central bank, particularly for the most important central bank in the world. In this regard, I have considerable sympathy with President Lockhart's view that the markets need to understand better what we intend to do. One of the best ways to achieve that is by doing what we have said we will do.

Fourth, the decisions we make this year are going to affect the economy next year and after that, so we need to be moving our policy stance with future conditions in mind. If the situation in foreign economies stabilizes—note that I am not saying "if foreign economies stabilize," just "if their situation stabilizes"—and if, as the SEP suggests, most of us agree that we should start normalization this year, we need to think about whether to start it in October or December. There is an attraction to the idea of going in October, because, if the objective situation so justifies, that would demonstrate to the public that we can, indeed, make decisions eight times a year, not just four times—at press conference meetings. But, of course, I do understand the preference of not a few FOMC members for December.

To conclude, I support alternative B and believe that in our statements, we should emphasize that we stand by our frequently repeated statement that we expect the beginning of normalization to occur in 2015. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I wasn't going to comment on our external communications, but I have to say I'm now going to do so because of this reference that was made to a Yellen put.

I want to recall what the Chair has said, both externally and internally. At her June press conference, she laid out a way of thinking about when, whether, and how we are going to raise rates. She made reference to the SEP, which, as a factual matter, indicated that most, though not all, participants in the FOMC, under expected conditions, thought that it would be appropriate to raise rates later in the year. She scrupulously stayed away from any reference to a particular month.

In our July meeting, the Chair at one point said, "Opining in public on the exact timing of the first move, in my own view, not only detracts from our consensus-driven deliberative process, but also can easily confuse markets and the general public, adding to volatility and, ultimately, diminishing the effectiveness and credibility of our policy." A few minutes later, she went on to say, "So my suggestion for all of us is to refrain from speculating about the time of liftoff." Within days of the end of our FOMC meeting, many FOMC participants were out talking about when they thought liftoff might be appropriate. There was always some formalistic caveat stuck in there, but we all know what happens with the press when you talk about a particular month. And that's exactly what happened.

Maybe their intent was to try to move public expectations toward a September liftoff. At that juncture, understandably, sentiment began to shift toward an expectation that September was going to be the month. Then, with the China developments, there was renewed speculation about whether that would, in fact, be the case. Now, assuming we go with alternative B—which it sounds as though we're going to do—with that outcome, there is, indeed, some risk that some commentators and observers out there say, "Oh, they were ready to go, but then you had this market instability. So, once again, the Fed feels as though it has to support markets." I genuinely do not believe that that risk would be as high as it is had everyone followed what the Chair asked for in the July meeting, because it would not look as though we had done a reversal—we lean toward September, and then, when the market instability arises, we don't do it.

The Chair herself had set out an analytical framework that, by definition, was withholding judgment on that.

I realize that any plea for self-discipline and collegiality is probably not going to have much effect, but I think this is an instance in which we do run some risk of someone saying something along those lines. But it's because, I think, we didn't follow the guidance that she gave both in her June press conference and just among us in the July meeting.

Turning to the substance of this decision today, as I mentioned yesterday: I'd looked at our SEPs for the past few years, seeing how wrong we had all been, myself included, about where both inflation and unemployment were going to be. So I went back to look at what I said during the economic and monetary policy go-rounds late last year, and I confirmed my own memory that I actually expected us to be in a different place. I did expect to be on the cusp of a decision to raise rates, based on the way I thought the economy would go. But that isn't the way things have turned out, and I wanted to explain why, as I said in July, I didn't think it was likely that I would be for a rate increase in September, although I was open to the possibility that some things would happen in the interim that would change my mind.

I guess what I'm saying is, it didn't take the China problems to get me to the position I am taking today. People have alluded to this already—actual inflation, both core and headline, is not moving in the direction of our target, and it hasn't started moving there over the past couple of meetings. Market measures of inflation compensation have actually drifted down a little bit, as people noticed. Even the talismanic inflation expectations, on which we put so much emphasis—they're still there, but, even at the edge, there's been a little shakiness as well. People refer to the transitory factors, and, surely, both the dollar and oil prices themselves at some point are going to start to have less effect on inflation.

But I do think it's worth noting that it's been several years now that there's been some reason why inflation is held down, contrary to the expectations that almost everybody on this Committee, to a greater or lesser degree, has had during that period. This is the old Roseanne Roseannadanna line on *Saturday Night Live:* "It's always something." It's always something that fades, but then something else comes in. It's a little hard to escape the observation that inflation has been running lower—and by a significant amount—than we all were projecting it would be moving a year or two or three ago.

In that context, I think one has to start asking the question, "Is something different going on here?" We talk a lot about what's "normal" or "natural." Those are dangerous words in analysis because they can be a substitute for analysis—just to say, "Well, we know where the end point is. It's where we were before." Sometimes, as a matter of everyday life, that's probably the best way to proceed. But when you come to consequential decisions after a period in which some very unusual things have happened, it's probably a good idea to ask yourself whether yesterday's normal or yesterday's natural is still normal or natural today.

Quite apart from economics, I believe we can all think of things that, 30 years ago, were regarded as normal and natural, but that we today regard as aberrant. Since coming here, because I wasn't schooled in this stuff formally, I've tried to read a lot of monetary policy history. I'm struck by the fact that, over time—and I'm not just talking about the Federal Reserve—central banks generally have made many mistakes, both to a hawkish and a dovish outcome, because of the fact that they didn't appreciate that the external conditions in economic and financial markets had changed.

Now, you can't do that every meeting, and you shouldn't do it every meeting. But we've been through this period when the economy has defied our predictions both with respect to unemployment and with respect to inflation, and it's done so consistently. Under those circumstances, I think you at least have to start asking yourself that question.

I surely don't have some substitute paradigm for thinking about inflation and monetary policy today, but it's that perspective that has led me to what I characterized yesterday as my show-me attitude—not that inflation has to be at 2 percent, for heaven's sake. That's a caricature. That's not it. It's looking for some evidence that we are actually moving in that direction.

As I said yesterday, it can happen. If I were sitting on the U.K. MPC right now, I would feel quite differently—with above-trend growth; inflation having moved up to, I believe, 1.6 percent and people seeming to expect it to inch up a couple of tenths more; and a nice 2.9 percent wage gain. Frankly, a year ago, I thought we'd be around there right now and I really would feel quite differently. But we're not there, and there are risks to moving when I'm not seeing enough momentum to give us some assurance that we've got a bit of a buffer.

It's not a matter of, "Oh, there's so much uncertainty." Of course, there's always uncertainty. And it's not a matter of saying, "We've got to get to 2." For me, it wouldn't even necessarily have to be headline or core inflation or wages—it's got to be something, though, and that's what I'm not seeing right now and haven't for a while.

I want to say that I looked through the 2011 spike in commodity prices, so I know that people look through things. But what I worry about is, we continue to tell ourselves we're going to look through everything, and we continue to keep looking through things, even though it's different things year after year. So that's really the perspective.

I'll offer a couple of concluding comments. First, I fully understand what the Chair and others have said about why it's not just liftoff, but the path of interest rates and all of that—the

Chair and Governor Fischer both said it in the go-round today. But liftoff does matter. If David just puts 25 basis points into the models, it doesn't seem to matter that much. But I think it does matter because it's going to communicate to the world how we are thinking about inflation and our willingness to do things when inflation is where it is. I don't think we can get around the fact that the first move will be heavily scrutinized and interpreted.

Second, let's not fool ourselves, either. We can talk until we're blue in the face about how, "Oh, we want a shallow path. We're going to do one move, and we're going to sit back." Speculation will immediately turn to, "When are they going to move next? And how frequently are they going to do it? Do they have a timetable? Every other meeting? Every meeting? Every third meeting? Every fourth and a half meeting? What is their presumption here?" So I don't think we're going to escape those issues.

Finally, on language, I agree with President Lockhart's top-level point but disagree with the second point. The top-level point is, it would be good if, even internally, we could get some more agreement and then possibly communicate it externally. Where I differ, for the reason I said a minute ago, is in the articulation that we're reasonably confident that inflation is there. The improvement in the labor market is a more or less objective thing. You can argue whether there is enough progress here or there. But either there is or there isn't. I think that, to many people, the reasonable confidence about inflation has come down to, "Look, we just think we're close enough to eliminating slack that it's going to start happening." That may not be irrational, but it's still highly subjective, and it's hard as a basis for coming together on something that we can agree on, even internally, as a trigger. But I definitely think it would be worth the effort.

Regarding President George's comments, I couldn't agree more. With respect to the data point issue, we do not want the world thinking, "Their decision turns on whether the next employment report is 210,000 jobs or 140,000 jobs." That's just not where we want to be. As President George said, getting the discussion to be more about the outlook will be much more productive, even if we have different outlooks individually. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I will support alternative B today as written. For me, this has been a close call, and I do think you can make the case in a pretty strong form on either side of this decision for today. In fact, that's exactly what the Chair did in her opening remarks.

The Committee has guided markets to expect liftoff by the end of this year, subject to incoming data. Those data have been, on balance, perhaps a little better than expected. But we have additional disinflationary forces arriving, albeit ones we view as transitory, and a higher risk of a global slowdown. In addition, U.S. financial conditions have tightened since the July meeting by well more than 25 basis points, according to well-publicized external estimates. So there's no sense of the Committee getting behind the curve. To me, it makes sense to defer liftoff for this meeting to let both the inflation picture and the global situation settle down.

I do not view the situation as it exists today as justifying a lengthy delay before liftoff. I don't see a need to see the rates of inflation or nominal wage growth rising prior to our liftoff. I would be satisfied with at least some reasonable stability in the dollar, so that we could be sure that the recurring temporary factors holding down inflation are finally abating. I would, of course, also need to see continuing growth to support ongoing tightening in the economy. Frankly, if real GDP growth is strong enough, then I might be persuaded to lift off even in the absence of other factors.

Turning briefly to the Committee's two-part test for liftoff: I view the first part of the test—some further improvement in the labor market—as met for this meeting. There's been substantial improvement in the labor market. And, while there's no doubt additional slack, unemployment is now at or near most estimates of the natural rate. Even if the natural rate—either the short-term rate or the longer-term rate—is significantly lower than current estimates, which is a distinct possibility, we're already on a path, it seems to me, to unemployment in the mid-to-low 4s by the end of 2016. So, from this perspective solely, I think it's getting to be about time to start raising interest rates.But the inflation test is more complicated. In the Tealbook baseline, inflation returns to 1.9 percent in 2018, which, one might argue, is itself a decent argument that the test is met. After all, the test is appropriately about the medium term. But today inflation is not just well below the 2 percent objective. It's also very likely to decline in the coming months, albeit due to factors we view as transitory. So declaring the inflation test to be met would require the Committee to look through a substantial transition period and place a great deal of weight on the Phillips curve.

To put it simply, intermeeting developments have not increased my confidence of inflation moving toward 2 percent in the medium term. I see this as a problem, and I see a risk of sending a signal to markets that the Committee is not serious about the 2 percent objective. For me, delaying liftoff for a meeting or two may provide some evidence that we're serious about reaching the 2 percent objective and allow time to understand the evolution of global developments.

There's been some discussion of a so-called dovish raise, whereby the Committee would raise interest rates at this meeting or a subsequent meeting, but then wait for some time to let the effects settle in. The sense of this is that the Committee's communications have been confusing to the markets—you hear this from market participants quite a bit—and that we're, in effect, getting in the way of the economy now, as the Chair referenced in her remarks, and causing trouble in the markets. That will become increasingly the case if uncertainty increases, and we ought to just lift off get it over with. Now, I don't support that approach at this meeting, but I do think that if either the October meeting or the December meeting provides a reasonable opportunity to go ahead and lift off, I would be inclined to look very carefully at that and take it, if possible.

We had a chart today that Thomas presented that showed the distribution of expected timing of liftoff by FOMC meeting. I'd really like to see the likelihood of liftoff be way north of 50 percent by the time we lift off. In fact, in my perfect world, it would be 100 percent. But I realize that's not likely in a world in which the Committee is of different views and in which we're being very data driven. I'd still like to see that be much higher than 50 percent, and I think it would be very unwise to lift off at a time when the market is not expecting it. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. Well, I appreciate the opportunity to hear from all but one member of the Committee, and many of the considerations that have been, I think, very eloquently put on the table on both sides of this debate also affect my own judgment about the appropriate policy rate path.

As many of you have stated, in recent months, domestic real activity has expanded at a resilient pace. We've seen improvement in consumption, growth, housing, and the labor market. The U-3 measure of unemployment has declined further, suggesting a reduction in labor market slack, although the absence of any firming in any wage or compensation measures suggests that some slack remains on other margins, such as participation and involuntary part-time employment.

By contrast, headline inflation has moved further away from our target during the intermeeting period. Market-based measures of inflation expectations have again drifted down, and the 12-month change in core PCE inflation appears stubbornly mired at around 1¼ percent, where it has been for some years now.

These developments lead me to conclude we are likely still in the quadrant of inflation–resource utilization space in which both our full employment and inflation objectives are consistent with accommodation. I sense some concern that, by continuing accommodation at current levels, the economy could soon breach resource constraints. But there is a risk associated with that approach, in light of the fact that monetary policy acts with a lag, and that it may lead to a buildup of inflationary pressures, a rise in inflation expectations, and, consequently, persistent inflation materially in excess of our 2 percent target. However, the persistent and sizable deflationary forces from the international environment, the estimated small effect of resource utilization on inflation, the persistence of core inflation materially below our 2 percent target, and the important gravitational force of inflation expectations suggest that this risk is likely still to be relatively modest.

Financial markets appear to agree with that judgment. Perhaps most important, we have substantial policy space for addressing this risk. Thus, while it is important to remain vigilant with regard to the possibility of an unexpected emergence of inflationary pressures, I believe that, at present, we should place considerably more weight on a different risk—that the underlying momentum in the domestic economy is not strong enough to withstand the considerable deflationary pull of the international environment. In these circumstances, by tightening prematurely, we risk falling short of both our inflation and full employment targets over the medium term.

Indeed, for those who believe that a hike of 25 basis points might be warranted in September, macro models at the Board and elsewhere suggest that intermeeting international developments alone have produced a notable tightening in U.S. financial conditions roughly equivalent to an increase of 50 basis points in the federal funds rate. And it's important to underscore that most of that—indeed, almost all of it—comes from exchange rate movements and not from movements in equity markets or domestic financial markets that may prove temporary.

Moreover, as I discussed yesterday, the risks to the U.S. outlook from additional international headwinds are weighted to the downside. China appears to be only partway through a complicated adjustment of its exchange rate regime and broader financial market reforms, and it faces considerable challenges regarding the clarity of communications as well as piercing the fog surrounding its macroeconomic data. In these circumstances, any further policy moves could prompt a broader reassessment of underlying fundamentals that could, in turn, be amplified by real or perceived linkages to the exchange rates of other important economies in their neighborhood as well as to important commodity producers. In that regard, as has been noted, two of our closest trade partners, Canada and Mexico, have already seen sizable currency depreciations. I view these effects on the U.S. economy as likely to be relatively persistent. Indeed, over the past year, we've seen a strong feedback loop between expectations of policy divergence between the U.S. and our major trade partners, and financial tightening that takes place through exchange rate and financial market channels, which front-runs our policy process.

In addition, my reading of the risks is informed by the large majority of episodes in recent years in which policy tightening in other advanced economies, prompted by improving domestic activity, was soon followed by a reversal of policy and, in several important cases, subsequent migration to the effective lower bound and beyond. Those episodes have all proved costly. I think we could find only one exception, Iceland, which has several very special features as a result of their financial crisis. Moreover, from the perspective of risk management, we have considerably greater latitude to adjust the path of policy in response to higher-than-expected inflation than we have to provide additional accommodation in response to additional financial tightening.

In light of that—both the substantial financial tightening that has taken place and its likely effect on the outlook, the additional downside risks that could materialize from global developments, and the asymmetry of risk-management considerations—the risks of moving prematurely seem to me to outweigh the risks of waiting.

Alternative B provides a nice summary of the Committee's outlook and how that is likely to condition the policy rate path for the period ahead. Paragraph 1 provides a good description of recent developments, contrasting the reassuring growth in the many domestic components of aggregate demand and progress on employment with considerable softness in net exports and the additional restraint on headline inflation and market-based measures of inflation expectations. I would note that the one important piece of information missing from this paragraph that certainly informs my thinking is the soft indicators that have come in across the board on compensation.

I strongly support the sentence in paragraph 2 that describes the implications of developments abroad for risk considerations. I think it's important to acknowledge that foreign developments are a key risk to the achievement of our objectives. Inclusion of this language enhances the clarity of our communications by informing observers that we are paying attention to these developments because of their potential effect, through many channels, on the U.S. outlook. My own judgment is that recent global developments and possible future developments pose downside risks to the outlook, but I can support the more neutral language and alternative B more generally. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I support alternative B as written. I was hoping that I could support lifting off at this meeting for two reasons. First, it would have meant that we had satisfied our criteria of labor market improvement and confidence that inflation will return to our 2 percent objective over the medium term. Second, as I said at earlier meetings, September is a better month to begin normalization than December, economic conditions and outlook being equal.

Unfortunately, the global economy has not cooperated. I think there are significant risks to the growth outlook that make it uncertain whether we will see further improvement in the labor market and whether we will see inflation returning to our 2 percent objective over the medium term. In terms of what happens from here, I hope the international outlook improves and financial conditions stabilize. If this happens and U.S. growth stays on track, then I could support lifting off relatively soon, certainly later this year. I've argued that December is not ideal in terms of market functioning considerations. I don't think that should be sufficient by itself to deter us if everything else lines up in support of moving.

With respect to moving in October, I don't believe we should rule that out as an option. But if we did move in October, that might demonstrate an urgency that would be difficult to reconcile with the fact that we have relatively sluggish growth and still-too-low inflation. People might be confused. What's the rush of moving in October?

I see the bar for moving at a meeting without a press conference as somewhat higher than that for moving at a press conference meeting. I just think that's the reality. So I'd be surprised if, in six weeks' time, we got data that push us over the bar.

I am very supportive of Governor Powell's comments. It would be good for the market to have a very high probability when we actually move. If things cooperate and everything moves in a nice way, what I would prefer, rather than moving in October, would be to have a very "hawky" statement in October that pointed very strongly to December, so that you could get all of that probability mass on December, and then just go in December. I think that would be a better way to go. Now, whether the world is going to cooperate like that, we'll have to see.

Finally, I had a couple of comments on the so-called Yellen put. We really have to disabuse people of this notion. We care about the economic outlook. Financial conditions matter in terms of affecting the outlook when they change, and if those changes in financial conditions are sustained, then we need to take them into consideration. We need to explain that to people over and over again.

I'm sympathetic with Jim in the sense that this is a risk that people will take this reaction as a response to financial markets, but I don't think it is. My views of why we should wait at this meeting have nothing to do with the fact that the stock market is a little weaker than it was before. It has to do with the fact that there are actually some real things going on that are affecting financial conditions, and those changes have a risk for the outlook. I think we need to explain that over and over again. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. I heard one suggestion in the go-round for a language change in alternative B, but I think most of you who support alternative B indicated your preference to go ahead with it as written. So unless I hear a groundswell of support for some change, I'd like to propose that we vote on alternative B as written. Matt?

MR. LUECKE. This vote will cover alternative B on pages 6 and 7 of Thomas's handout and the directive on page 11 of that handout.

Chair Yellen	Yes
Vice Chairman Dudley	Yes
Governor Brainard	Yes
President Evans	Yes
Governor Fischer	Yes
President Lacker	No
President Lockhart	Yes
Governor Powell	Yes
Governor Tarullo	Yes
President Williams	Yes

CHAIR YELLEN. I recognize that, around the table, there is considerable support for moving—if not today, then in the near future—and I promise that in my press conference, I will do everything I can to emphasize that. President Lockhart.

MR. LOCKHART. My staff argued me out of raising a bunch of questions around December, and Vice Chairman Dudley just addressed this. Could I ask Simon and Lorie to comment? Sitting far from it, should I be concerned about what we've heard before regarding the thinness of the market? Should I also have some concern about whether you have any staffing issues or whether you're just going to declare that everyone will need to cancel all of their plans and be there for that period? In addition, I'd like to know whether there are other execution considerations in December that, as we get conceivably closer to it, could cause us to get more nervous that it's too tricky. Could you address that?

MR. POTTER. I’ve got no concerns. If you want to lift off in three days’ time, we can do it. So I don’t think you should take that into account. I believe Vice Chairman Dudley’s viewpoint is, markets tend to be a little bit thinner in December, and some of the impact on financial conditions could be harder to control. If it’s the case that, leading into that date, markets are pretty sure liftoff is going to happen in December, then desks will be staffed for some of the things that you’re interested in. People staff their desks to get cash invested at year-end, because a lot of cash arrives at year-end. We have complete capacity to do that at any time. There are no staffing issues. Most of my staff wouldn’t know what decision the Committee has made until the statement is released.

VICE CHAIRMAN DUDLEY. Another point is, if we do get to a situation in which the expected probability of a December liftoff are quite high, people are going to staff their desks appropriately. So getting that probability up actually could have a benefit of minimizing some of those risks.

CHAIR YELLEN. With respect to October, if I’m asked if it’s a possibility, I’m not announcing now that I will have a press conference. But I will give the response that I’ve given in the past—which is that we have the capacity to hold a press briefing if we decide to move. Then, since every meeting is a “live” possibility, if we decided to move in October, that is what we would do.

MR. LOCKHART. Would you have to, in your thinking, announce an October press conference some days ahead of the meeting? Or would you just do it at the meeting?

CHAIR YELLEN. No, we would do it in the meeting. In point of fact, the reporters—starting with today’s meeting, I guess—will now receive the statement and be writing their stories to go out when the statement comes out at 2:00. Michelle, please correct me if I say anything wrong here. They will be in the lockup room that is directly next door to the room over on K Street where today, for the first time, I'll be holding the press conference. In October, if we wanted to move and they're there and have the statement, we could actually have a live press conference. We would just move them next door and do that, or there could be a press briefing. But there really wouldn't be any technical problems in doing that.

I could announce now that I would hold a press conference in October, but I think that would be locking me permanently into press conferences after every meeting. For reasons we've previously discussed, I'd really prefer not to do that. But there are no technical obstacles at all to doing that.

I will do my best at the press conference to leave later this year a very live option. If the data come in consistent with a move, as many of you have said, we will, even if we don't move in October, have the opportunity to change the statement in a way that raises expectations of a move. I believe I have an economic outlook speech scheduled for early December and probably further testimony, and there would be an opportunity, if we think we're going to do that, to prepare the markets to expect that that's going to occur.

If you are staying around and care to watch the press conference, I believe there's a TV in the Special Library. Our next meeting will be on Tuesday and Wednesday, October 27 and 28.

END OF MEETING