

**Meeting of the Federal Open Market Committee on  
January 28–29, 2014**

A meeting of the Federal Open Market Committee was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, January 28, 2014, at 2:00 p.m. and continued on Wednesday, January 29, 2014, at 9:00 a.m. Those present were the following:

Ben Bernanke, Chairman  
William C. Dudley, Vice Chairman  
Richard W. Fisher  
Narayana Kocherlakota  
Sandra Pianalto  
Charles I. Plosser  
Jerome H. Powell  
Jeremy C. Stein  
Daniel K. Tarullo  
Janet L. Yellen

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

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

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

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

Simon Potter, Manager, System Open Market Account

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

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

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

Jon W. Faust, Special Adviser to the Board, Office of Board Members, Board of Governors

Linda Robertson and David W. Skidmore, Assistants to the Board, Office of Board Members, Board of Governors

Trevor A. Reeve, Senior Associate Director, Division of International Finance, Board of Governors

Joyce K. Zickler, Senior Adviser, Division of Monetary Affairs, Board of Governors

Daniel M. Covitz and Michael T. Kiley, Associate Directors, Division of Research and Statistics, Board of Governors

Jane E. Ihrig, Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Edward Nelson, Assistant Director, Division of Monetary Affairs, Board of Governors;  
John J. Stevens, Assistant Director, Division of Research and Statistics, Board of Governors

Jeremy B. Rudd, Adviser, Division of Research and Statistics, Board of Governors

Dana L. Burnett, Section Chief, Division of Monetary Affairs, Board of Governors

Burcu Duygan-Bump, Senior Project Manager, Division of Monetary Affairs, Board of Governors

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

Andrew Figura, Group Manager, Division of Research and Statistics, Board of Governors

Michele Cavallo, Senior Economist, Division of International Finance, Board of Governors

Yuriy Kitsul, Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams, Records Project Manager, Division of Monetary Affairs, Board of Governors

Kenneth C. Montgomery, First Vice President, Federal Reserve Bank of Boston

David Altig, Glenn D. Rudebusch, and Daniel G. Sullivan, Executive Vice Presidents, Federal Reserve Banks of Atlanta, San Francisco, and Chicago, respectively

Troy Davig, Geoffrey Tootell, and Christopher J. Waller, Senior Vice Presidents, Federal Reserve Banks of Kansas City, Boston, and St. Louis, respectively

Robert L. Hetzel, Senior Economist, Federal Reserve Bank of Richmond

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**January 28 Session**

[Sustained applause]

VICE CHAIRMAN DUDLEY. We thought we'd just do this for a couple of hours.

[Laughter]

CHAIRMAN BERNANKE. Thank you for that. Thank you very much.

Good afternoon. Welcome to our annual organizational meeting. First, let me welcome Presidents Pianalto, Plosser, Fisher, and Kocherlakota to the Committee. Item 1 is the election of Committee officers. Following precedent, I'm going to turn the floor over to a senior Board member, who will handle the nominations and elections of the Chairman and Vice Chairman. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. Because of the impending change in leadership and the position of Chair of the Board of Governors of the Federal Reserve, I'll be calling for three sets of nominations and votes this afternoon rather than the usual two. First, I'd like to ask for a nomination for FOMC Chairman to serve through January 31, 2014—which is to say, Friday—which happens to be Chairman Bernanke's last day in office. Any nominations?

MR. STEIN. I would like to nominate Ben Bernanke.

MR. TARULLO. Is there a second?

MR. POWELL. I second that.

MR. TARULLO. Any other nominations or discussion? [No response] Without objection. Thank you. Now I'd like to ask for a nomination for the position of FOMC Chairman for the period beginning February 1, 2014, through the remainder of this cycle. Any nominations?

MR. STEIN. I would like to nominate Janet Yellen.

MR. TARULLO. Is there a second?

MR. POWELL. I second that nomination.

MR. TARULLO. Any other nominations or discussion? [No response] Without objection. Thank you. And, finally, I'd like to ask for a nomination for the position of FOMC Vice Chairman.

MR. STEIN. I would like to nominate Bill Dudley.

MR. TARULLO. A second?

MR. POWELL. I second that nomination.

MR. TARULLO. Any other nominations or discussion? [No response] Without objection. This is actually quite easy, Mr. Chairman. [Laughter]

CHAIRMAN BERNANKE. Well, so far so good.

MR. LACKER. You have to write a statement about it, though.

CHAIRMAN BERNANKE. Thank you, Governor Tarullo. We also have the election of staff officers. Matt, could you read the list?

MR. LUECKE. Yes. Secretary and Economist, William B. English; Deputy Secretary, Matthew M. Luecke; Assistant Secretary, Michelle A. Smith; General Counsel, Scott G. Alvarez; Deputy General Counsel, Thomas C. Baxter; Assistant General Counsel, Richard M. Ashton; Economist, Steven B. Kamin; Economist, David W. Wilcox; Associate Economists from the Board, Thomas A. Connors, James A. Clouse, Thomas Laubach, Michael P. Leahy, and William Wascher; Associate Economists from the Banks, Paolo Pesenti, Loretta Mester, Mark E. Schweitzer, Evan F. Koenig, and Samuel Schulhofer-Wohl.

CHAIRMAN BERNANKE. Are there any comments? Any objection to electing this slate? [No response] Hearing none, thank you.

Item 2, “Selection of a Federal Reserve Bank to Execute Transactions for the System Open Market Account.” New York is again willing to serve. Any objections? [No response]

I can take items 3 and 4 together. Item 3 is “Proposed Revisions to the Authorization for Domestic Open Market Operations.” You received a memo on this. Item 4 is “Proposed Revisions to the Authorization for Foreign Currency Operations, the Foreign Currency Directive, and the Procedural Instructions with Respect to Foreign Currency Operations.” I think there were only technical amendments here, but let me ask Simon if he has anything to say about these two.

MR. POTTER. Thank you, Mr. Chairman. I have a prepared text. I’ll try to get through it pretty quickly.

CHAIRMAN BERNANKE. Okay.

MR. POTTER. At its first meeting each year, the Committee reviews the authorizations you just spoke about. And, with regard to the domestic open market operations, I recommend that the Committee approve the authorization with one small wording change that would make the structure of paragraph 1A similar to the structure of paragraph 1B.

In addition to this change, I’d like to update the Committee on two items related to the domestic authorization. First, as you know, the System Open Market Account (SOMA) contains a significant amount of agency debt and agency MBS, and it is conducting transactions in MBS. As such, I recommend a continued suspension of the Guidelines for the Conduct of System Open Market Operations in Federal-Agency Issues. Second, the current authorization codifies the Open Market Trading Desk’s ability to transact in agency MBS for the SOMA through agents such as asset managers. This year, we plan to remove this service from our agreements with the asset managers, which would allow for the removal of paragraph 3 from the domestic authorization next January. No Committee vote is needed related to these two items.

Turning to foreign currency operations: The Desk conducts such operations under the terms of the Authorization for Foreign Currency Operations, the Foreign Currency Directive, and the Procedural Instructions with Respect to Foreign Currency Operations. I recommend that the Committee approve these documents with three

sets of amendments. Please note that the vote to reaffirm these documents will include approval of the System's warehousing agreement with the Treasury. The first amendment is to remove paragraph 8 in the foreign authorization, which discusses the transmission of pertinent information on System foreign currency operations to appropriate officials of the Treasury Department. I propose that this type of communication instead be governed by the Program for Security of FOMC Information, which currently governs the transmission of similar information. The memo circulated ahead of the meeting titled "Proposed Amendments to FOMC Organizational Documents" detailed how the staff recommends that this be addressed in the Program for Security of FOMC Information.

The second set of proposed amendments pertains to the central bank swap arrangements. At the October 2013 meeting, the Committee approved standing facilities with the Bank of Canada, the Bank of England (BOE), the Bank of Japan, the ECB, and the Swiss National Bank. As a result, new language in the three documents is intended to incorporate these liquidity swaps and, where appropriate, align the treatment of the liquidity swaps and that of the reciprocal swaps that were put in place with the central banks of Mexico and Canada as part of the North American Framework Agreement (NAFA). There are five specific changes I'd like to highlight related to the swap arrangements. First, I propose aligning the review and approval process for any changes in the terms of existing NAFA swap arrangements with those for the liquidity swap arrangements. Under this proposal, changes in the terms of existing swaps would be referred for review and approval to the Chairman instead of the Committee. The Chairman would keep the Committee informed of any changes in the terms, and the terms shall be consistent with the principles discussed with, and guidance provided by, the Committee. To enact this change, I propose moving the language in paragraph 2 of the Foreign Authorization on "changes in the terms of existing swap arrangements" to the Procedural Instructions with the addition of paragraph 1D. I also propose replacing the reference to "the proposed terms of any new arrangements" in paragraph 2 of the Foreign Authorization with broader language that states, "Any new swap arrangements shall be referred for review and approval to the Committee."

Second, I propose eliminating references to the maximum term of any drawing under the NAFA swaps in the Foreign Authorization in light of the previous proposal to have the procedural instructions govern the terms of all swap drawings. The swaps will remain "subject to annual review and approval by the Committee." This affects paragraphs 1C and 2A of the foreign authorization.

Third, I would like to align the annual review process of the liquidity swaps with that of the NAFA swaps by subjecting the liquidity swaps to "annual review and approval" instead of just "annual review." This also affects paragraph 2 of the Foreign Authorization. While small, this change will require an annual vote on the liquidity swaps. I plan to ask for this vote at the third or fourth FOMC meeting of the year along with the vote on the NAFA swaps. This is consistent with the approach Steve Kamin and I proposed in the October 21, 2013, memo on this topic.

Fourth, I would like to expand the current arrangement for consulting with the Committee prior to initial liquidity swap drawings. Specifically, I propose that the Chairman or the Foreign Currency Subcommittee will consult with the Committee when possible. The resolution states that just the Foreign Currency Subcommittee will consult with the Committee when possible. I address this change with the proposed addition of paragraph 2A in the Procedural Instructions.

Lastly, I would like to clarify that *any* changes in the terms of existing liquidity swap arrangements shall be referred for review and approval to the Chairman, consistent with my earlier proposal for handling changes in the terms of the NAFA swaps. The resolution approved by the Committee in October specified the approval process for changes to the rates and fees only. I address this change with the proposed addition of paragraph 2B in the procedural instructions.

The third set of proposed amendments clarifies the link between the Procedural Instructions and the Foreign Authorization through additions to the wording in the new paragraph 3A.iii and paragraph 4 in the Procedural Instructions.

I would also like to update the Committee on one item related to the foreign portfolio. Paragraph 6 of the Foreign Authorization requires that all foreign operations “be reported promptly to the Foreign Currency Subcommittee and the Committee.” The Desk performs a wide variety of tasks within its mandate to manage the foreign portfolio, and the reporting time varies by each specific operation, depending on the nature of each activity. The memo we circulated ahead of the meeting titled “Request for Votes on Authorization for Desk Operations” included an appendix that clarifies the New York Fed’s Markets Group staff’s reporting practices related to operations conducted under the foreign authorization. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. In designating these changes as technical, I certainly didn’t mean to preclude any questions or discussion. Are there any questions for Simon? Any comments? [No response] I have no objections, then? [No response] All right. We will take those as approved.

Item 5 is “Proposed Revisions to the Statement on Longer-Run Goals and Monetary Policy Strategy.” What we have before us was circulated before the meeting. It is the statement that we have approved in the two prior years, with only two, nonsubstantive changes—changing “judges” to “reaffirms its judgment” and updating the central tendency for longer-run unemployment where that number comes up. So this is essentially identical to the statement of



policy that we have approved the last two years. Because this is our third time through, I've conferred with Governor Yellen, and I think we agree that this year would be a good time to review this statement and to see if we're satisfied with it, if it is saying what we want it to say, and if it's consistent with our policy approach. Governor Yellen tells me that she intends to ask a new subcommittee on communications, which—I assume, because Stan Fischer's not here—will be headed by Stan if he is confirmed and willing, to look at this statement and consult with the Committee and see if there are any more substantive changes or questions that should be raised. Is that correct?

MS. YELLEN. That is, indeed.

CHAIRMAN BERNANKE. Today we have before us the statement as amended. Does anyone want to comment on the statement? President Plosser.

MR. PLOSSER. Yes, Mr. Chairman. Thank you very much. I don't have any objections to the first change, in terms of "reaffirms its judgment" versus "judges." I'm not sure the nuances there will be picked up by the marketplace, but, nonetheless, I'm fine with that. Regarding the second change, though, there remains considerable uncertainty both in the marketplace and around this table about what we mean by true maximum employment and what it actually is. And I think we struggle with understanding what it means and how it varies over time. I'm concerned that, unfortunately, over time, the markets and the public have come to think of what we report in the SEP as somehow our target as opposed to some information about our assessment, despite what we've said. We had a discussion about this when we first launched this statement—and maybe this is a topic for the Committee coming up—but I'd be inclined to try to drop the last two sentences of that paragraph altogether so that we don't find ourselves having to change the unemployment numbers every time the SEP changes. We ought to think

about doing that—at least dropping the last sentence even if we don't drop the second-to-last sentence. So I'd like to put that on the table as something for discussion and for consideration by this Committee. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. I think it's something that the subcommittee would have to look at. It's certainly a very substantive change. We do say, in the course of the statement, that this is our assessment of the long-run normal unemployment rate and that it can change. This, of course, illustrates that it, in fact, can change. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. As I indicated last year—and I won't go through my thinking again—I found the statement—and, in particular, the fifth paragraph—very useful in guiding my own thinking about policy. But I'm very glad to hear that a subcommittee will be formed to evaluate the statement in its third year of use. In particular, I think that—and I mentioned this last time at our meeting—as time evolves and we get closer to maximum employment and inflation gets closer to target, financial-stability concerns are likely to play more of a role in our deliberations. And financial stability is mentioned explicitly in the second paragraph as being a factor that we take into account when we think about policy. But it is not linked back to our description of the monetary policy strategy in the fifth paragraph. So I think that is a potential opportunity for improvement that the subcommittee could take into account; that was the only comment I had.

CHAIRMAN BERNANKE. Thank you. Other comments? President Rosengren.

MR. ROSENGREN. I'd like to follow up on that comment. Thinking about financial stability in the fifth paragraph is something that is worth considering. Also, maybe taking a fresh look at the inflation paragraph would be worth doing in two respects: first, maybe clarifying a little bit more the difference between a target and a ceiling and how the Committee feels about

that; and, second, thinking about deviations below as well as deviations above and how we think about that. So when it's time for this Committee to rethink this whole strategy, in addition to the two other suggestions, those would be things to consider as well.

CHAIRMAN BERNANKE. We will put all of these suggestions before the new subcommittee when that deliberation begins. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I will again abstain from the vote on the adoption of this statement. On the one hand, I continue to believe that it doesn't actually reflect a strong enough consensus among Committee members to permit a more effective communication of our policies to the public. On the other hand, I don't think it's done any particular harm, and, particularly as interpreted and explained by the current Chairman—and, I'm quite confident, the future Chair—I'm very comfortable with those explanations.

I do welcome the prospect of further discussion of the entire statement. Some of you may recall that my original concerns a couple of years ago were focused on the absence of what I thought to be an explicit enough statement of our having a symmetrical loss function with respect to the two policy aims of the dual mandate set forth in the Federal Reserve Act, which is, after all, the source of this Committee's powers. I continue to have those concerns, although, more recently, I join Eric in having some concerns about the way in which the inflation number is actually understood—whether it is understood as a target, properly stated, or as more of a ceiling. I dare say that some members of the Committee would be distressed with a forecast that inflation would be 2.6 percent, 2.4 percent, and 2.3 percent, respectively, over the next several years. But, as we sit here today, we have a forecast of inflation at 1.4 percent, 1.6 percent, and 1.7 percent, respectively, over the next three years—that is to say, deviating on the downside by exactly the amounts hypothesized as upside deviations a moment ago.

I want to be clear: I pose this hypothetical not to argue for a specific policy response, but just to draw attention to what I think is at least a latent issue with respect to the stated goal of 2 percent inflation in the current statement. So when it comes time for Committee deliberation on this, I would be very interested in hearing an elaboration of not only the points that have already been made by some of our colleagues but also, I hope, the points that will be made by others of you. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Anyone else? Governor Tarullo has noted his abstention if we take a vote now. Is there anyone else who would like to abstain or vote no? [No response] Seeing none, may I take it, then, that we approve the statement? [No response] Thank you.

Item 6, “Proposed Revisions to the Rules of Procedure, and the Program for Security of FOMC Information.” Again, without prejudice, I would say that both changes were mostly technical; a memo was circulated. I think the most substantive item here is to create a deputy manager for the SOMA. Did you have anything to say on this, Simon?

MR. POTTER. No, I think the memo discussed the role of the deputy manager.

CHAIRMAN BERNANKE. Okay. The memo was circulated. Are there any questions or concerns? [No response] If not, may I take this as approved? [No response] Okay. Thank you.

Item 7, following on item 6, would be the selection of the manager and the deputy manager. Simon Potter is again willing to serve as manager. Given that the new deputy manager position has been approved, Lorie Logan is willing to serve in that role. Let’s have some discussion. I’ll give the floor to Vice Chairman Dudley.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. Lorie is a fine choice. She played a very important role in the Markets Group when I was head of the Markets Group back in the darkest days of 2007 and 2008. She was Brian Sack's chief of staff when Brian was the head of the Markets Group, and today she's essentially Simon's direct deputy on the SOMA and the Treasury operations in the Markets Group. So she's extraordinarily well qualified to be the deputy manager.

CHAIRMAN BERNANKE. Thank you. Any other questions or comments? [No response] Without objection. Thank you.

All right. We're going to get into the substance of our policy discussion. Item 8, "Financial Developments and Open Market Operations." Let me turn to Simon Potter.

MR. POTTER.<sup>1</sup> Thank you, Mr. Chairman. Markets responded positively to the Committee's decision at the December meeting to reduce the pace of asset purchases, with a rise in equity prices and stable longer-term interest rates. Shorter-term interest rates rose the day after the meeting, however, as some investors reportedly viewed the Committee's qualitative modification to its forward rate guidance as less forceful than other options it was thought to be considering. Since then, markets have fluctuated in response to economic data and, most recently, an increase in concerns regarding financial and economic stability in some emerging market economies. These concerns pushed U.S. equity prices and interest rates significantly lower last week.

As shown in the first column of the top-left panel of your initial exhibit, using a slightly longer event window than usual to compensate for the extended horizon over which market participants reportedly digested the information provided by the Committee, short-dated rates increased and risk assets rallied following the December meeting. As shown in the second column, on net over the intermeeting period, the implied rate on the December 2016 Eurodollar futures contract increased, while the 10-year nominal Treasury yield and 30-year primary mortgage rate declined. Option-adjusted spreads on high-yield corporate credit narrowed, and the S&P 500 and DXY dollar indexes were little changed.

As shown in the top-right panel, shorter-term U.S. interest rates and domestic equity prices fluctuated around the levels reached after the digestion of the FOMC decision, until conflicting labor market data introduced turbulence into short rates. Toward the end of last week, increased concerns about growth and financial stability

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<sup>1</sup> The materials used by Mr. Potter are appended to this transcript (appendixes 1 and 2).

in China and other emerging market economies pushed U.S. interest rates and risk asset prices significantly lower.

Market participants have highlighted several factors in explaining this pattern of movements in short-dated rates and equity prices. First, the FOMC's modification to its forward rate guidance at the December meeting was perceived as less forceful than other options that the Committee was thought to be considering alongside a reduction in asset purchases, prompting a rise in short-dated rates the day after the meeting. Second, fixed-income markets were relatively stable in the immediate wake of the announcement of the reduction in the pace of asset purchases; the passage of this risk event without the initial adverse market impact that some had expected supported risk asset prices. Third, investors' confidence in the economic outlook improved over the early part of the period, in part because of the Committee's policy action and communications at the December meeting, as well as some better-than-expected economic data.

The dark-blue bars in the middle-left panel show the net changes in nominal one-year forward Treasury rates over the intermeeting period. One-year rates two to three years forward increased, while one-year rates six to nine years forward declined notably. In addition to reflecting a small upward shift in the expected target rate path, the rise in short-dated forwards likely reflects some increase in uncertainty regarding the target rate path, especially as the unemployment rate approaches the 6½ percent threshold. Indeed, matching the moves in short-dated forward rates, three-month implied volatility on shorter-dated tenors increased over the period, as shown by the light-blue bars.

The decline in longer-dated forward rates and implied volatility at those long horizons may reflect some reduction in term premiums due to the less-adverse-than-expected impact of the "taper" announcement, as well as some reduction in uncertainty about the future path of the Federal Reserve's asset purchases. Demand for Treasury securities driven by developments in emerging markets last week also appears to have contributed to the fall in longer-dated forward rates.

As shown to the middle right, the market-implied target rate path now lies very close to the path implied by the median of year-end projections from the December SEP. This stands in contrast to mid-November, when the market-implied path had fallen notably below the path implied by SEP projections.

Results from the Desk's latest Survey of Primary Dealers indicate a modest shift up in the expected target rate path since the survey conducted ahead of the December meeting, and dealers lowered their point estimates of the unemployment rate at the time of liftoff. This shift likely reflects the large decline in the unemployment rate relative to the disappointing improvement in other labor market indicators in the December employment report as well as the enhancement to forward guidance in the December FOMC statement.

As noted previously, some market participants expected a more explicit strengthening of forward guidance with the decision to reduce the pace of purchases. While short-dated rates decreased rather than increased following the unexpected fall in the unemployment rate to within 20 basis points of the threshold, market participants are increasingly turning their attention to how forward guidance will evolve after the threshold is reached. Many appear to be relying on their expectation for a steady reduction in purchase pace of \$10 billion at each meeting—in conjunction with the Committee’s view that a highly accommodative stance of monetary policy will remain appropriate for a considerable time after the asset purchase program ends—as a form of near-term rate guidance. Bill English will discuss some of the changes in forward guidance that dealers think are likely.

One measure of the dispersion of market views on the relationship between the unemployment rate and liftoff is given in the bottom-left panel. Dealers’ current probability assessments for the unemployment rate at liftoff are shown in blue, alongside results from the Desk’s first pilot survey of buy-side market participants, shown in red. The pilot survey aims to understand the expectations of active investment decisionmakers. While the average of beliefs is remarkably similar across the two sets of respondents, both sets of respondents show considerable dispersion of beliefs, with some buy-side respondents putting high odds on liftoff at unemployment rates close to the current level. More generally, the dealers and buy-side market participants have broadly similar expectations for asset purchases, SOMA holdings, the path of the target rate, and changes to the forward rate guidance. We will continue to analyze the surveys over time to understand how the expectations of the dealer economists and investment managers compare.

As shown in the bottom-right panel, the five-year TIPS-based measure of inflation compensation increased 10 basis points over the period, while the five-year measure five years forward declined 10 basis points. Both measures remained within the relatively tight range that prevailed over recent months and seemed little affected by monetary policy developments. Many market participants anticipate that an “attack on the forward guidance” is most likely to occur if measures of inflation expectations start to move up out of recent ranges.

As indicated in your next exhibit, the policy outlook in the United Kingdom and the euro area was also in focus over the intermeeting period. In the United Kingdom, the unemployment rate has approached the Bank of England’s 7 percent threshold faster than many had expected, pressuring short-term rates higher. This has increased uncertainty regarding how the BOE will adjust its forward guidance after the threshold is reached and regarding the pace of policy normalization thereafter. This uncertainty is reflected in higher levels of short-dated interest rates and swaption-implied volatility, the latter of which is shown for the United Kingdom and the United States in the top-left panel. Despite their recent rise, both remain below the levels reached during mid-2013.

By contrast, short-dated euro-area swaption-implied volatility and EURIBOR rates were little changed to modestly lower over the intermeeting period. This

relative stability reflects continued expectations that inflation will run at below-target levels in the euro area for some time, as well as the ECB's reiteration of its forward rate guidance.

The ECB's current policy stance, along with the backstop provided by the OMT, has been an important factor contributing to the continued narrowing in euro-area peripheral sovereign debt spreads. As shown in the top-right panel, these spreads are now at their tightest levels since at least August 2011. Another factor contributing to the narrowing over recent months is greater confidence in the region's growth outlook. Amid ongoing risks in emerging markets, some foreign investors are shifting capital from emerging markets to the periphery. Spread tightening since the start of 2014 also appears related to the passage of the reference date for the ECB's asset quality review, as some peripheral banks reportedly repurchased domestic sovereign debt that they had previously shed for window-dressing purposes. Together, these factors have improved access to capital markets for peripheral sovereign issuers, evidenced by strong demand and lower rates at recent auctions and syndications.

The improvement in the periphery has also extended to euro-area risk assets, as shown in the middle-left panel. Euro-area equities have increased about 3 percent over the intermeeting period. Some of the sharpest increases have been in bank shares, with the Euro STOXX bank index up almost 10 percent.

Your middle-right panel shows that emerging market currencies depreciated and local bond yields increased following the December FOMC decision. Initially, these moves were relatively modest and orderly in most countries. Since the beginning of the year, however, emerging market currencies and local bond prices have resumed their earlier fast declines. Sentiment toward emerging market assets continues to be clouded by a number of interrelated concerns, including structural headwinds to emerging market growth; ongoing risks related to the cost and availability of external financing as market participants focus on the prospects for normalization of U.S. monetary policy; questions about how China will navigate growth and financial-stability risks; and the potential for political and social unrest, underscored by recent developments in Turkey and Thailand. These concerns intensified last week, following a weaker-than-expected Chinese PMI reading, a selloff of the Turkish lira, and Argentina's devaluation. Steve will discuss the implications of these developments further in his briefing.

Market participants' views on China are highly dispersed, and most admit to having a limited understanding of Chinese economic and financial developments. For example, there are differing interpretations of spikes in Chinese interbank funding rates, the most recent of which occurred in December and mid-January, as shown in the bottom-left panel. Some have suggested that these spikes are due to the inability of Chinese authorities to effectively manage interbank funding markets. Indeed, the PBOC recently expanded its short-term liquidity facility to smaller banks that typically demand interbank liquidity at penalty rates; this may better allow for management of episodic strains. However, others suspect that liquidity strains are



intended as a signal for smaller banks to rein in rapid off-balance-sheet credit expansion. Although Chinese aggregate credit growth—or total financing—has decelerated since the summer, its expansion has remained robust and may be higher than the authorities’ presumed comfort level.

The opaqueness of China, particularly with respect to its evolving financial structure, has caused some global investors to become concerned with financial-stability risks that could be posed by developments on the mainland. Many have pointed to the recent growth of Chinese “shadow banking” and the lack of a uniform strategy among financial regulators to stem its expansion as one such risk. For example, market participants were recently focused on how Chinese financial regulators might treat future defaults on wealth-management or trust products and the implications of that for the Chinese banking sector. Although there are limited windows to understanding Chinese risk appetite and financial stresses, some have pointed to the Shanghai Composite Index, an admittedly flawed indicator shown in the bottom-right panel, as the best metric for gaining some insight. This index declined significantly over the intermeeting period.

Turning to recent Desk operations, Treasury and agency MBS purchases since the December meeting have proceeded smoothly, with no issues arising from reduced market liquidity over year-end. Further, we are not seeing signs of any notable impact directly related to the reduction in the pace of purchases. Spreads on agency MBS narrowed a bit during the intermeeting period despite the shift lower in the expected total stock of asset purchases.

According to the Survey of Primary Dealers, expectations for the overall amount of Federal Reserve asset purchases have declined about \$90 billion since December, driven largely by the Committee’s decision to reduce the pace of purchases and the Chairman’s comments at the postmeeting press conference. As shown in the solid line in the top panel of your third exhibit, the pace of purchases is expected to gradually decline over coming months. The median expectation is that the Committee will reduce the pace of purchases in \$10 billion increments at each meeting—split equally between Treasuries and MBS—until ending the program following the October meeting. Thereafter, the portfolio is projected to remain steady for some time before beginning to shrink through MBS paydowns starting in mid-2015, ahead of the expected timing of liftoff. Treasury holdings are not expected to decline meaningfully until 2016.

The Treasury will auction its first floating-rate note tomorrow; the Desk’s work to build operational capacity in these securities is ongoing. Separately, we have recently completed the initial testing of small-value MBS operations on our FedTrade platform, including the first outright sale, and intend to gradually incorporate FedTrade into our ongoing MBS operations in the coming months.

A final note related to purchases: If the Committee were to decide to reduce the pace of purchases at this meeting, the Desk would release a statement at the same time as the FOMC statement indicating that the new pace for Treasury securities and

MBS will take effect at the start of February, similar to the statement that was released after the December meeting.

I will now turn to recent developments in money markets and the daily overnight RRP operations and discuss the staff's recommendation for continuing the exercise.

As shown in the middle-left panel, the number of participants and total allotment in the overnight RRP operations increased in late December. Usage was particularly heavy on year-end, when take-up totaled \$198 billion across 102 counterparties. Since then, take-up has averaged around \$66 billion, considerably above levels that prevailed prior to the December meeting.

The increase in usage is due in large part to continued low overnight secured rates relative to the fixed rate offered in the operations. The middle-right panel shows that usage in the exercise remains quite sensitive to the spread between the rate offered on overnight RRP and market rates for Treasury GC repo. It also has some sensitivity to nonprice factors, driven in particular by shifts in balance sheet management behavior around financial statement dates.

The higher usage is also attributable to the increase in the per-counterparty bid limit from \$1 billion to \$3 billion that was implemented on December 23. This has obviously allowed for increased take-up in operations. As shown in the bottom-left panel, on December 31, 35 counterparties took advantage of the larger cap by submitting maximum bids—representing 53 percent of the total amount awarded—and 47 other counterparties submitted bids for \$1 billion or more. Outside of year-end, the number of counterparties bidding for the maximum amount is typically relatively small, though many counterparties are taking up more than the prior cap of \$1 billion.

The increase in usage since the December meeting has been principally driven by government-only and prime money market mutual funds, which are shown in the dark-blue and light-blue bars in the bottom-right panel. On year-end, the GSEs and primary dealers also increased their participation, with primary dealer usage remaining surprisingly high in January.

As I mentioned earlier, usage in the operations is sensitive to the spread between the rate offered on overnight RRP and comparable overnight secured rates. The path of these rates is shown in the top-left panel of your final exhibit; it can be seen here that the tightening in this spread was driven partly by a drop in market rates, with some of this drop occurring when the rate on the facility was lowered to 3 basis points. The decline in rates around year-end was attributed in part to decreased primary dealer repo activity, which has been typical over recent year-ends, as well as lower borrowing in dollar funding markets by foreign banks.

Another important factor contributing to lower overnight secured rates over recent weeks has been declines in bill supply, shown in the upper-right panel. Declines in bill supply are largely due to seasonal factors and the Treasury managing down its

cash position in advance of the statutory debt limit, which will become binding on February 7. After this date, the Treasury is expected to utilize extraordinary measures to fund the government. Secretary Lew publicly estimated that these measures will be exhausted in late February, though others estimate that this will occur in mid-March. Correspondingly, there is a slight kink in the Treasury bill curve around these dates, reflecting some investor reluctance to hold securities with potentially delayed payments; the effects of this kink can be seen in the one-month Treasury bill rate shown in light blue in the top-left panel.

Market participants have reported that money market rates would have been much lower and likely negative around year-end if not for our operations. They continue to note their expectations that overnight RRP operations could provide a firm floor for money market rates if implemented in full scale. However, several features of the current exercise may limit the extent to which we see this in practice: the short time frame over which the exercise is authorized, which reportedly creates hesitancy on the part of some of our counterparties to move away from their existing relationships; limited bargaining power on the part of those with access to the facility; and some operational frictions, including around the timing of the operations. Finally, many market participants also note that it remains unclear whether the current number and mix of counterparties are sufficient.

As described in a memo circulated to the Committee in advance of the meeting, the staff's assessment is that there would be benefits to extending the exercise beyond the end of January, with enhancements to the terms that may help mitigate some of the issues I just noted. This would give us further insight into how operations might influence money market rates and may give the Committee greater confidence in the use of overnight RRPs in normalizing policy. In particular, as outlined in the middle-left panel, the staff seeks to better understand the extent to which overnight RRPs are able to establish a floor on money market rates, to evaluate the impact of adding counterparties on effectiveness, and to assess the feasibility and impact of operating later in the day or possibly twice in one day. Learning more soon about the potential effectiveness of a facility allows time for further development of or adjustments to the operations and associated testing, as well as for enhancements of other tools, if needed.

To this end, as shown in the middle-right panel, the staff recommends extending the overnight RRP exercise for one year; raising the allotment cap in a series of steps; and, assuming no adverse developments, moving gradually to full allotment over the coming months. The staff also recommends continuing to operate the overnight RRP tests within a band of 0 to 5 basis points. If the Committee agrees with these recommendations, the staff would release a Desk statement at the same time as the FOMC statement tomorrow afternoon, as described in appendix 2 of the memo that we sent to you. Any changes in terms would require approval of the Chair, and, as noted in the memo, the Committee would be consulted before approval of a recommendation to go to full allotment.

Thank you, Mr. Chairman. That completes my prepared remarks.

CHAIRMAN BERNANKE. Thank you. I propose that we take up this resolution on the overnight RRP facility first. After we finish with that, we can come back and ask questions about the financial markets. Just to clarify, the proposal is as follows: First, extend this exercise for one year in order to allow more continuity with counterparties so that they can count on having a relationship that extends more than meeting to meeting. Second, raise the allotment cap in steps. The recommendation is to approve full allotment, but increases in the allotment would require the Chairman's approval, and the staff has said that it will come back to the Committee to get further input before going to full allotment. Finally, continue to manage the rate within 0 to 5 basis points to minimize interference with the federal funds markets and other money markets.

Let me say that, in parallel to that—and again, I have conferred with Governor Yellen—staff work is under way that will look at the intermediate operating procedures that we might consider, the long-run operating procedures that we might consider, the effects of these types of facilities on the funds rate and the federal funds market, and the possibility of switching to a different interest rate indicator for our monetary policy communication. All of this work is under way, and, on the current schedule, the Committee would discuss these matters at the April FOMC meeting. So that's the proposal. Let me open the floor for comments and discussion. President Fisher.

MR. FISHER. Mr. Chairman, when you talk about perhaps seeking or finding another market rate that we might use as our reference point, I presume that, again, despite the recommendation that was made, it would still be a decision of the Committee. Is that correct?

CHAIRMAN BERNANKE. Yes.

MR. FISHER. Thank you very much.

CHAIRMAN BERNANKE. Others? President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Simon, the higher allotment, which, if it were to persist, sort of amounts to temporary reserve drains—do you perceive that there's any need to educate the market that this isn't a small form of tightening in some way?

MR. POTTER. We've been remarkably lucky in that sense—people seem to view this as an exercise. It's rearranging the liabilities on the balance sheet of the Fed. No one has associated this with tightening yet. That's one of the concerns we had back in September, but so far, there's been no notice of that. I think the range of 0 to 5 basis points is really important, because that means that you're not really affecting financial conditions in a broad sense. What we are seeing is some effect in overnight markets, where we've seen low rates recently over year-end and where the usage goes up, but that's really affecting functioning within those money markets and not affecting broader financial conditions.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. I had a question. If you raise the bid limit, presumably the actual take-up would probably be pretty modest, as the chart that shows that most people aren't even close to their limit today. Is that correct? Is that a reasonable inference?

MR. POTTER. I looked back at the transcript of the last meeting, and I said \$30 billion to \$40 billion. And we're averaging \$66 billion—we did \$94 billion today. So I'm a little bit wary of what that would actually look like, depending on where market rates are. What we've seen is a lot of people bidding between \$1 billion and \$3 billion. We've seen more people bidding above \$1 billion than you would have predicted from who was capped out. That could just be due to the Treasury bill supply issue and year-end. The highest usage we've had is \$198 billion, and it would surprise me if we went above something like that. And then you have to

think about how that feels relative to the \$2.5 trillion of reserves out there. But so far, no one has viewed this as a draining operation.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. I'm concerned that we're moving too quickly on this, maybe putting the cart before the horse in the process. I actually can support continuation of the exercise and believe there's more work that could be done. My recommendation would be to scale back the time from a year to, say, six months—until July or something of that nature. But I also would prefer that we still maintain a cap on the size of the allotment at this point. I see no reason to sort of precommit at this point that we're on a path toward full allotment, as I don't think this Committee has reached that decision yet. And I see nothing that says we shouldn't, perhaps, raise the cap. I'm not objecting to that, either. But I prefer to leave the cap in there until such time as this Committee has done the work that we're talking about doing in April and agreed on what its consequences may be and which direction we want to head. And I don't think there's any particular reason why we have to jump the gun at this point and be predisposed to or prejudge the outcome of that discussion.

There are lots of open questions. The federal funds market has clearly shrunk because the system is awash in reserves. This overnight repo facility could cause the funds market to shrink even further and perhaps even die away. At such a point in time, it may be difficult for us to revive that market if we choose to revive the fed funds target. It may be difficult, once we go to full allotment or get very large allotments, to pull back on this scheme at all. I think we need to make a very deliberate decision as to what path we're going to be on going forward and keep that constrained in a way and in tandem with where the Committee stands on this. We've discussed the possibility of that regarding our exit strategy principles, and those principles still

state that the funds rate is going to be our instrument. Obviously, we'd have to review that as well.

How feasible is this system altogether? What policy rate are we going to target? Perhaps we choose a GC Treasury repo rate. Is that a good choice? Are there other choices? Do we have a sense of how difficult that's going to be to execute? How much collateral would we have to maintain on our balance sheet to be successful at this and to hit any kind of target? Which counterparties are going to be more important? In some of the experimentation, I think you'll discover something about that and, as I said, what the volume of transactions would need to be. Should we worry about the scale of interventions that would be required to execute this policy? What about the fees? What about the costs of executing this policy? The repo market is very much larger than the funds market. It extends well beyond banks. Perhaps that's really an important benefit to targeting a rate that goes beyond just the banking system. I'm open to that suggestion. But there are costs as well, and what are those costs? Are we further blurring the lines between monetary and fiscal policy in a way in which we're standing up and guaranteeing that we will supply Treasury collateral to all takers at any particular price? I think the main reason in the near term for supporting the RRP, as Simon said, is to shore up the leaky IOER, in some sense, relative to the funds rate. Might an alternative be just not to worry about that? Maybe we set a target range for the funds rate and let it fluctuate within that range as we try to raise rates. What's the difference between following that strategy and going with this other strategy?

I don't know the answers to all of these questions. Perhaps they're easy and can be answered. But I think these are questions that the Committee needs to grapple with. We need to understand where we're going before we go too far and find ourselves in a place where, perhaps,

we'd rather not be. As most of you know, I am uncomfortable with a monetary policy operating framework that decouples the size of our balance sheet from our policy decisions. I don't think that's a good place to be. And so I would not want to make a decision today that would lead to this de facto choice of such a framework going forward without the Committee making some deliberate decisions about that. As has been mentioned, the staff is doing a lot of work to prepare this. But I think we need to be patient, get that work done, and have this discussion. Then perhaps we can make another decision that raises the cap and raises the scale of this operation more gradually, once this Committee has a better sense of what all of the ramifications of this strategy might be. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. I support further exercises. As Governor Stein and I have been predicting for a few meetings, short of full implementation, we're always going to be left wanting to know some more about the effects of this. I have some serious concerns about how we're going about this, though. I think we're putting the cart before the horse to expand the time frame and to authorize full allotments at this time, even with the check-in that they talk about, before having the benefits of the staff's analytical work, which I support and strongly encourage. We should have the benefit of that work. If we'd commissioned that in September, as I'd suggested, I think we'd be in a good position now, and I'd feel comfortable authorizing the steps the way they're laid out in this resolution. But I'm not, given the open questions we have. President Plosser outlined a lot of them. One thing I'd add is that the staff seems to view increasing the bargaining power of some financial market participants as an important benefit of that. I find that really puzzling because it implies a diminution of someone



else's bargaining power, and you don't usually think of monetary policy operations as targeting the allocation of bargaining power.

There are two elements of irreversibility to the path we're on that give me pause. One was mentioned by the manager, and it's that some market participants have been reluctant to join the program, not knowing how long we're going to be committed to this. That's one of the reasons he advocates a one-year extension. I think that, in some of the documentary material, he refers to that reluctance as due to switching costs—costs of severing counterparty relations. Well, by the same token, should that switching occur, we'll be in a situation in which backing away from the program would impose switching costs again, and that would raise a hurdle and would impede us from changing course if we weren't ready to go full steam ahead in this direction. I think it's too soon to go raising barriers to our changing course. It's too soon to commit on that basis.

The other thing is the fed funds market. Yes, 5 basis points is below generally where we've seen things, but this is a collateralized transaction, and you'd expect that to trade a little bit below an uncollateralized transaction like federal funds. The risk here is that we suck all of the large dollar transactions out of the market—the Federal Home Loan Banks and the GSEs—and what we're left with is the odd-lot stuff. Now, on a day-to-day basis, federal funds trades range up to 30 or 35 basis points. So there are a bunch of trades up there in the 20s and low 30s, and they could dominate the effective rate. The effective rate could conceivably go from low, from about the middle single digits, up to more than 20. I don't know—the Desk obviously has the data on it, and I don't think we need to get into that. But the principle here is that if we expand too rapidly, we could trigger the shift out of the federal funds market that the staff is, I think, rightly concerned about and that we need some analysis of. We've got legal contracts,

OIS and the like, that are pegged to and that write in, as with LIBOR, this effective rate, and here we're risking changing drastically the meaning of that rate. We ought to be really cautious as we tiptoe up to that.

So I'd prefer that we shorten the time frame to a horizon just after a meeting at which we're confident staff analysis can come back to us, and that we not authorize full allotment at this time and we just authorize \$5 billion. I think that would be enough for another round of operations. Clearly, we learned a lot at year-end, but, since year-end, there's been a step-up in usage that we're learning from, in terms of the effect of this program on the structure of money markets. So that would be my suggestion for this resolution.

MR. POTTER. Mr. Chairman, could I respond?

CHAIRMAN BERNANKE. Yes.

MR. POTTER. I think it's true that interest on excess reserves can achieve the goals that you want. It will be somewhat messy, I believe, in the current structure. There's no doubt that we could raise rates. The urgency here is, we'd like to learn how to raise rates in the smoothest possible way. And if you are raising rates at the start of next year—a possible time frame under some measures—we don't have that much time to learn about how to do that in the smoothest way, which is why we'd like the exercise to be extended in a way that we think we can learn the most. I think this is the discussion we had last time, President Lacker, on this issue. When we were thinking about it, we thought this was the best setup in which to learn the most in the next few months, particularly if there are operational changes that we need to make to make this more effective. And the big change we're not making is changing the rate structure; that's 0 to 5 basis points for the moment.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. May I ask a question, Simon? Is it critical that we go to full allotment in order to achieve what you just described?

MR. POTTER. It is not critical. If you think of taking \$10 billion or \$20 billion as the cap and multiplying by 120 counterparties, that's a lot of money.

MR. FISHER. Right.

MR. POTTER. I think one of the tensions here is between how much we want to be intrusive in the counterparty relationships that are there right now and how much we want to be intrusive at a later date if this is something that we use at a later date. What we're doing means if market rates go up a lot and they're well above 5 basis points, you shouldn't see that much take-up of the facility that we have, and it should be the case that you do get market rates moving up a little bit if the bargaining power does go up. So that's the bargaining power that people get. Some people have less bargaining power, and that means that we're not transmitting the rate structure fully through the way that we'd like to.

MR. FISHER. Well, as you know—and I've expressed it in the media—I have enormous confidence in the way you—and your deputy, by the way—operate. But I do think President Plosser and President Lacker have some good points, and I am a little uncomfortable going to full allotment. I would like to have this Committee fully briefed; a lot of this is quite esoteric for all of us. Again, this isn't questioning our confidence or my confidence or any participant's or member's confidence in you, because we have enormous confidence in you. But I do think, Mr. Chairman, that President Plosser and President Lacker raise a very good question. I'm uncomfortable with full allotment for the same reasons that they expressed. Again, I want to underscore—and Simon knows this, and you know this because you've seen it in the *New York Times*—that I have tremendous faith in you. But I think we need to be educated in the process

along the way, and if it's not critical that we go to full allotment in order to achieve a better understanding of this exercise, then, unless you were to say it is critical, I would argue the same as President Plosser and President Lacker. I'd feel uncomfortable.

MR. POTTER. We cannot say that it's critical right now. We can still learn more by increasing the cap.

MR. FISHER. And we want you to learn more. That's a key thing.

MR. POTTER. I'd say that I would find it harder to learn in a way that's neutral if we didn't have a long horizon over which to do that. Setting up these speed bumps is a worrying thing to do, particularly if the speed bump is sometime in the summer and you see markets getting worried about the forward guidance. They will be hypersensitive to some of the things we try to learn about at that time. That's why probably the 12-month extension is a bigger deal than going to full allotment right now. I do think that something like \$10 billion to \$15 billion, looking at the chart I have here, allows us to learn more than \$5 billion would, and that's very close to full allotment. It doesn't have what people have expressed—this feeling that we have to be going down this road. I would say, personally, that the chance that you will choose this as one of the main tools that you use to control interest rates is close to 100 percent once all of the memos come back, but you might want to wait and find out. That's fine, because it's your choice.

MR. FISHER. Mr. Chairman, I would like to recommend that we not go to full allotment—again, just in terms of being fully comfortable with this exercise—although I do agree with Simon that this is going to be a critical tool for us to use. Personally, I actually see it replacing the federal funds rate. But I think we should be cautious, if only in order that we have

a full understanding and because it is not critical that we go to full allotment to achieve a better operating understanding. So that would be my recommendation—say, do the \$10 billion.

CHAIRMAN BERNANKE. Would you be comfortable with \$10 billion?

MR. FISHER. Yes, sir, I would.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. I agree with Simon that the time period is more important than \$10 billion versus full allotment, but I also think that this suggestion that we shouldn't learn more prior to April doesn't make a lot of sense to me, because that's actually going to inform the discussion in April. Learning as much as we can by April is actually going to lead to a better discussion in April. I also do have the same concerns as Simon that the more we can do now to put this in place reduces the risk of doing something later whereby this is seen as part of the exit strategy. So I can live with the \$10 billion cap, but I feel very strongly that having a 12-month time horizon is much better than a 6-month time horizon.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I, too, would prefer to have the \$10 billion cap at this time. I appreciate the remarks that the Vice Chairman just made. On the other hand, I think we have to balance that against some of the costs that President Plosser pointed to—that going down the path of experimentation creates potential costs for us in terms of irreversibilities that might lead us to be more reluctant about certain choices regarding long-run operating frameworks. So there's an interaction between our experimentation now and our choices later that we should be taking into account as well. On balance, for me, the way to compromise between these tensions is a cap at \$10 billion but an extension for a full year.

CHAIRMAN BERNANKE. All right. The proposal—\$10 billion cap and one year—is on the table. Is that acceptable? President Lacker.

MR. LACKER. The concern about the time horizon that I hadn't heard before has to do with the possibility that an announcement we'd make at the end of that period about extending the exercise further could become confused with a signal about the exit strategy. Two things. First, I think we can communicate the separation. We've done that with all of our experimental stuff so far—successfully, I believe. I don't think the Desk has reported problems in conveying the separation of these experimental things from policy signals.

MR. POTTER. Probably because we've been careful to try to do that.

MR. LACKER. Right, and I trust that we'd be careful again.

MR. POTTER. Yes.

MR. LACKER. But, second, it strikes me that there's no less risk of confusion a year from now than there is six months from now at announcing something that might be confused with a signal about exit. So I just don't see the argument on that ground.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. Well, the second reason to have a longer time horizon is, of course, that people will take this as something that is going to be more long lasting. So they're actually going to adjust their counterparty relationships in a way that makes the test more realistic.

MR. POTTER. Which is the controversial part.

VICE CHAIRMAN DUDLEY. That is the controversial part, but you want something that's actually going to behave in testing how it's actually going to behave in substance if you

move to substance subsequently. So I think the 12-month time horizon is also appropriate because it's going to make the value of the information we get better.

MR. POTTER. We can also use rates if we want to ease the switchback. We can operate at zero rates. You could decide to offer negative rates only. There are lots of things you could do if you wanted to use prices to smooth people back out of it. There's maybe a six-month horizon on the typical relationship. So going a bit past six months is helpful for people.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Can I ask when the staff work is expected to be ready for us?

CHAIRMAN BERNANKE. The April meeting.

MR. POTTER. We had a test of the federal funds market over year-end in which there was a reduction in the FHLBs' supplying fed funds. You saw a very small decline in the federal funds rate. One story we've heard is that the overnight RRP actually helped with that because it was propping up rates. So market participants definitely believe that it is providing a somewhat firm floor at the moment—just at this level.

MR. LACKER. That's great, but we're talking about the advantage of a long period being building up momentum in participation, and that's exactly what makes it a little bit irreversible. It strikes me that April is less likely, if anything, to be confused on the exit ground. So the 12-month period from this April to next April seems more attractive than the coming 12 months.

CHAIRMAN BERNANKE. Well, if you want to do this in a parliamentary way, you could make an alternative amendment. We could compare your amendment with the \$10 billion amendment and then vote that against the original proposition. Does that seem fair?

MR. LACKER. Sure.

CHAIRMAN BERNANKE. What's your alternative?

MR. LACKER. April, \$5 billion.

MR. POTTER. Through April 30?

MR. LACKER. At the April meeting.

MR. POTTER. And when's the FOMC?

CHAIRMAN BERNANKE. Well, it's April 30. Can we make it the end of the month?

Is that what you want?

MR. LACKER. Sure.

CHAIRMAN BERNANKE. All right. So we have the proposal of \$5 billion through April 30, and we have the \$10 billion. I'm going to ask for a show of hands from all participants.

MR. PLOSSER. That's \$10 billion with a January date?

CHAIRMAN BERNANKE. I meant \$10 billion with a one-year extension.

MR. PLOSSER. Yes. Okay.

CHAIRMAN BERNANKE. We'll take the winner of that and then ask whether we want to amend the original proposal. All right? So there are now two potential amendments on the floor. Who's in favor of \$5 billion and April? [Show of hands] That's 1, 2, 3, 4. Who's in favor of \$10 billion and one year? [Show of hands] I count 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11. Okay. So the proposed amendment is \$10 billion and one year. We are now asking who is in favor of making that amendment as opposed to the original proposal. Those in favor of making that amendment—that is, to change the original proposal to put on a \$10 billion cap—please raise your hand. Those in favor? [Show of hands] So, 1, 2, 3, 4, 5, 6. Those in favor of the original



proposal, which was no cap? I see 1, 2, 3, 4, 5, 6, 7, 8, 9. Okay. So the amendments are rejected. Barney Frank would be proud of me. [Laughter]

MR. TARULLO. You need a few more jokes.

CHAIRMAN BERNANKE. Yes, I need a few more jokes. Finally, we're going to take a vote on the proposal versus negating the proposal. All right. All in favor of the proposal, raise your hand. [Show of hands] Okay, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. Those against the proposal? So, 1, 2.

MS. YELLEN. Is this just voters?

CHAIRMAN BERNANKE. Participants. Should we do it again?

MS. YELLEN. Yes, I think we should.

CHAIRMAN BERNANKE. Let's go again. It should be just voters. All right. For the record, let's have voters on approving this original proposal. Voters in favor of the original proposal? [Show of hands] I count 1, 2, 3, 4, 5, 6, 7. Those voters against the proposal? Okay, 1, 2. Thank you.

MR. FISHER. The usual suspects, Mr. Chairman.

CHAIRMAN BERNANKE. All right. Fine. Well, nevertheless, I think the Desk heard some of the concerns. We will go slowly. We will come back to the Committee.

MR. POTTER. At the start of the morning tomorrow, I would like to go through the Desk statement that we would release because the discussion suggested we might want to make some changes in that.

CHAIRMAN BERNANKE. Right. And we'll be very careful not to disturb existing markets unduly.

MR. POTTER. Yes.

CHAIRMAN BERNANKE. Thank you for that. Now let's go back. Are there any questions for Simon on financial market issues? President Fisher.

MR. FISHER. Simon, I want to come back to the very beginning of your presentation. You mentioned, within the first three exhibits, that the decision we took at the last meeting was very undimensional and had little or no impact on Desk operations. You also mentioned, and we have the table in front of us, that the 10-year yield has actually come down. The last time I looked, it was 2.77 percent, but the point is, it's come down to close to the 3 percent area. But you did mention, and we saw, a significant—I think that was the word you used—recent selloff in risk assets. I think that we have to keep this in perspective because we had about a 30 percent rise last year. The S&P is now two and a half times its March 9, 2009 low, and we see that, since the previous FOMC meeting, the S&P index is up 0.5 percent, even though it was up a little bit higher. You can see that in the right-hand chart.

I drill on this only because I think we have to be mindful of the fact that we've had an enormously robust, bullish market. There are going to be corrections, and they might be much more severe than what we had. Of greatest interest to me is that the 10-year Treasury bond yield has really not moved that much. In fact, it's come off a little bit. But I'm personally more interested in what happens in the bond markets. And you would expect a reaction, of course, in the equity markets. I would just like the Committee to be aware of the fact that it would not be at all surprising to see a not insignificant correction in equities—on the order of 10-plus percent—just because of the single direction it's been going in for an awfully long time. And I wouldn't want that to condition policymaking, unless we see something very odd in the fixed-income markets. I mention that, Mr. Chairman, because I think it's an important point. And if we were

to take chart 2 and stretch it out to March 2009, we would see a different picture entirely. I think it's an important thing for us to bear in mind. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Other questions for Simon? [No response] I need a motion to approve the domestic open market operations since December.

MS. YELLEN. So moved.

CHAIRMAN BERNANKE. Okay. Thank you. Without objection.

Let's turn now to item 9, "Economic Situation," and I'll call on David Wilcox for the presentation.

MR. WILCOX.<sup>2</sup> Thank you, Mr. Chairman. I'll be referring to the single exhibit titled "Material for Forecast Summary." For the most part, the economic recovery appears now to be on firmer ground than it did at the time of the December meeting. To be sure, even Garrison Keillor would concede that not *all* of the news that we received over the intermeeting period was above average, but much of it was.

As you can see from the top-left panel of the "Forecast Summary" exhibit, the incoming spending data caused us to mark up our estimate of second-half real GDP growth by a little more than 1 percentage point, with consumption, business investment, and foreign trade all contributing. The upward revision to consumer spending was particularly encouraging and brings that category of spending into closer alignment with the predictions of some of the models that we follow. We still have the growth of real PCE stepping down in the current quarter relative to the torrid fourth-quarter pace, partly because we continue to assume that the Congress will not reverse the expiration of the Emergency Unemployment Compensation program that took place at the turn of the year. As in the previous Tealbook, we expect the expiration of this program to subtract about ½ percentage point from real consumption growth in the current quarter.

Today's advance durables report was one of the flies in Garrison Keillor's ointment, but, even folding in this news, we still have the level of equipment spending a little higher in the current quarter than we did six weeks ago.

Another fly in the ointment came from residential investment. While December's single-family starts figure retraced only some of November's jump, single-family permits—which we generally look to as providing a better gauge of activity in the sector—surprised us to the downside in December. So where do we stand in the broader recovery of housing activity? First, we think the most intense phase of

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<sup>2</sup> The materials used by Mr. Wilcox are appended to this transcript (appendix 3).

adjustment to last year's upward movement in mortgage interest rates is likely behind us. We take some encouragement in this regard from the flattening out of existing home sales and the brighter tone of recent readings on builder, Realtor, and homebuyer sentiment. Second, while future increases in rates will exert further restraint, we continue to think that, in the medium term, the basic arithmetic of the situation is that activity *has* to move up from its current level, because otherwise we will be running an ongoing deficit relative to demographically driven demands. But the latest data raise important questions about how quickly homebuilding will resume that more normal pace, and those are the questions we'll be focusing on quite intently in future rounds.

In previous Tealbooks, we raised the possibility that the then-available estimates of real GDP were misleadingly weak, and that the faster growth of real GDI and the ongoing declines in the unemployment rate might have been providing the truer signals about the strength of the recovery. At the risk of tempting fate, it's hard not to regard the brighter tone of the incoming data over the intermeeting period as giving that hypothesis greater credence.

Our projection for real GDP growth over the next few years is, nonetheless, at this point, little revised from December, as two opposing forces fought each other roughly to a draw: On the one hand, aggregate demand seems to have a little greater momentum than before. On the other hand, some of the other factors that we condition our forecast on have become a little less supportive of growth. Chief among these is the trajectory for the foreign exchange value of the dollar, which we've adjusted upward relative to our assumption in the December Tealbook.

In addition, as we described in the Tealbook, we have the funds rate coming up a little more quickly than we did in December, and the steeper increase in the funds rate drives a slightly faster rise in longer-term rates.

Turning to the labor market, the December employment report was a mixed bag. On the establishment side, total nonfarm payroll employment rose only 74,000 in December. Even accounting for the likely effect of last month's bad weather—which we estimate to be on the order of about 20,000 jobs—December's gain was well below our forecast. For the most part, we looked through the disappointment in payroll employment, as you can see in the top-right panel, and left our jobs forecast over the medium term essentially unrevised relative to December.

On the household side, the puzzles were, if anything, even bigger. The unemployment rate—shown in the middle-left panel—declined 0.3 percentage point last month, to 6.7 percent, whereas we had been projecting no change. At the same time, the labor force participation rate—not shown—declined 0.2 percentage point; again, we had been expecting no change.

As you know, and as Charles Fleischman reiterated in his briefing yesterday, we've been too pessimistic about the unemployment rate for a couple of years now, despite a pretty good track record with respect to the growth of real GDP. To make a

very, very, very long story considerably shorter, we trimmed our assumption for the growth of potential GDP, both during the past few years and, to a lesser extent, going forward. Mechanically, this adjustment allows us to better explain the decline in the unemployment rate during the past couple of years, particularly given that we wanted to scale back the role of the panic-and-normalization story that had, until now, featured more prominently in our narrative.

As a result of the changes we made to the supply side—and the surprises to actual output and the unemployment rate that we've seen since the December Tealbook—we now have an output gap at the end of last year that's  $\frac{1}{2}$  percentage point narrower than in our previous projection and an unemployment gap that is  $\frac{1}{4}$  percentage point narrower. Moreover, we project that the unemployment rate will cross your  $6\frac{1}{2}$  percent threshold around the middle of this year and will lie just below our assumed  $5\frac{1}{4}$  percent natural rate at the end of 2016.

We also took another look during the intermeeting period at the behavior of the labor force participation rate in recent years. In a memo that you received last week, Tomaz Cajner and Bruce Fallick conclude that about half of the reduction in the participation rate since 2007 is due to demographic factors—specifically, the aging of the population. As the middle-right panel shows, participation rates for men and women drop off sharply around age 65; hence, the increasing share of those aged 65 or above in the overall population has yielded a secular decline in the aggregate participation rate. This trend has been exacerbated by changes in group-specific participation rates—such as reductions in participation among younger and prime-age individuals—an important share of which also appears to be structural rather than cyclical in nature.

The fact that the decline in aggregate participation late last year coincided with a surprising decline in the unemployment rate certainly raises the question as to whether the two developments might be causally linked. Until now, we've been skeptical of such a linkage, based on previous historical experience. But in light of the magnitude of the surprises in the two variables, this round our baseline projection incorporates the possibility that unusual weakness in participation might help explain the surprising decline in the unemployment rate. This is a linkage that we'll obviously be scrutinizing going forward.

Finally, with respect to inflation: The recent data have come in about as we expected; as you can see from the bottom-left panel, we've edged up our core inflation forecast over the medium term to reflect the slightly narrower margin of slack in this projection. The panel on the bottom right decomposes the contour of our core PCE projection in terms of its fundamental determinants. A similar exercise was undertaken for the December Tealbook forecast in the recent memo on the staff inflation outlook by Alan Detmeister, Jean-Philippe Laforte, and Jeremy Rudd. We expect core inflation to step up this year, reflecting an acceleration in import prices and a reduced influence of some other factors that kept core inflation low in 2013 but that we think will prove largely transitory. Thereafter, core inflation edges up gradually as inflation expectations remain anchored near the Committee's target, and

the amount of economic slack diminishes. The projected contour of headline PCE inflation—not shown—is broadly similar, though projected declines in consumer energy prices leave headline inflation running just below core. Steve Kamin will now continue our remarks.

MR. KAMIN.<sup>3</sup> I'll be referring to the handout titled "Material for the Foreign Economic Outlook." As indicated in panel 1, in the top-left corner, after several years of weak and choppy performance, the economies of our trading partners appear set for solid, sustained economic growth. The global financial turbulence that erupted after we put the Tealbook to bed last week could, in principle, snowball and derail this recovery, but we don't consider that to be the most likely outcome. But before discussing this risk, I'll briefly review our forecast.

Starting with the advanced foreign economies, the solid black line in panel 1, their rebound actually started early last year as the euro-area recession ended, the U.K. economy emerged from its doldrums, and Japanese growth surged on the back of Abenomics-inspired fiscal and monetary expansion. We estimate that average growth in the AFEs remained solid last quarter and should edge up a little more over the next several years as the euro-area recovery picks up speed, more than offsetting a moderation in Japan's growth to more sustainable rates.

The emerging market economies (EMEs), the red line, have also rebounded from their earlier weakness, and we estimate that GDP growth notched up further in the fourth quarter. China's growth slowed a touch, but to a still quite solid 8 percent, while activity in the other Asian EMEs appears to have accelerated as exports strengthened. For Latin America, we estimate that the Mexican economy grew at a 3½ percent pace for the second quarter in a row, while Brazilian GDP picked up after contracting in the third quarter. We are looking for just a bit higher growth for the EMEs in the remainder of the forecast period, driven importantly by stronger demand from the advanced economies, including the United States.

With economic data from abroad generally coming in as we'd expected, our forecast is essentially the same as the one we wrote down in December, as you can almost see by looking at the dotted lines in panel 1. In the Tealbook, we identified two reasons why, despite the fact that we did not alter our projection, our confidence in the global recovery had strengthened. First, we noted that, in peripheral Europe, financial stresses had continued to ease and output is bottoming out, further reducing the likelihood of a resurgence of the euro-area crisis. We stand by that call.

Second, we noted that your decision to taper asset purchases at the December meeting had been largely taken in stride by emerging financial markets, and this boded well for future stability in the region. Here, the turbulence in global markets that erupted late last week has given us pause. As Simon noted, market commentary attributed the global selloff in risky assets late last week to a number of disparate

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<sup>3</sup> The materials used by Mr. Kamin are appended to this transcript (appendix 4).

events—a low PMI reading for China, the selloff of the Turkish lira, and Argentina’s devaluation—that may signal a sharp decline in emerging market economic growth. We are skeptical that these developments support such a sharp downgrade in either the emerging market or the global outlook. In particular, the decline in the flash PMI for Chinese manufacturing in January to 49.6, which was cited in many media reports, does not signal outright contraction in output. Rather, it is entirely consistent with our forecast of only a gradual moderation of Chinese growth in the current and next few quarters. All of that said, however, even if this bout of financial turbulence is due more to an upswing in risk aversion than to fundamental factors, were it to persist and intensify, it could still damp the global economic recovery and thus bears watching closely.

Beyond the risks of financial flare-ups in emerging markets, we have also been focused on the possibility of deflation in the advanced foreign economies. Panel 2 shows that inflation rates in some of the major AFEs have moved down along with U.S. rates in the past couple of years. To shed more light on this development, panel 3 reproduces from a box in the Tealbook a decomposition of movements in the average inflation rate of the advanced foreign economies excluding Japan. The decomposition is based on Phillips curve regressions that link quarterly headline inflation rates (the solid line) to survey measures of inflation expectations, the output gap, supply factors such as oil and import prices, and consumption taxes. Focusing on inflation between 2011 and 2013, much of the decline can be attributed to a widening output gap (the red bars) and, more important, the waning of earlier upward pressures from supply factors (the green bars) and tax hikes (the pink bars). Going forward, declining oil prices and moderate currency appreciation should exert only modest further downward pressures. As the recovery in these economies progresses, reductions in resource slack should push inflation back up toward target levels, as shown in panel 2. However, this outlook depends critically on inflation expectations continuing to remain well anchored. An alternative simulation in the Tealbook shows that if, instead, inflation expectations start to drift down, real interest rates will rise, AFE economic activity will weaken, and thus U.S. growth will be dragged down as well.

Foreign central banks are clearly focused on these risks. In November, the ECB cut rates when 12-month inflation unexpectedly fell to 0.7 percent, and, more recently, Bank of Canada Governor Stephen Poloz noted that downside risks to inflation were a central concern, suggesting that the Bank of Canada might keep interest rates low for longer than previously anticipated. Conversely, in the United Kingdom, where inflation has fallen close to the 2 percent target, the Bank of England faces a different problem, and one closely related to our own policy challenge. In August of last year, as marked by the vertical line in panel 4, the Bank’s Monetary Policy Committee announced it would not tighten policy at least until unemployment fell below 7 percent, a threshold it anticipated reaching in 2016. In the event, as indicated by the red line, the U.K. unemployment rate plummeted, and the threshold may already have been crossed.

Thus, the Bank of England is confronting the questions of whether falling unemployment rates reflect an actual narrowing in resource slack and how it should adjust its forward guidance in response. Unlike in the United States, the decline in the U.K. unemployment rate has not been accompanied by falling labor force participation. As shown in panel 5, labor force participation has, in fact, risen slightly in recent years. Instead, turning to panel 6, over the past couple of quarters, unexpectedly rapid employment growth, which has been associated with surprisingly weak productivity, has been the main driver of falling unemployment in the United Kingdom.

Although rapidly rising employment suggests narrowing output gaps, Bank of England staff members point to a number of reasons why they believe that sufficient slack remains to obviate the need to raise interest rates in the near future: Inflation has been declining and wage growth has been weak; the unemployment rate remains above their estimates of the natural rate; average weekly hours remain depressed; and they continue to hope that, just as earlier declines in GDP were associated with falls in productivity, resurgent output growth will lead to a recovery of productivity. They plan to elaborate on these issues in their February *Inflation Report*. We do not know how the Bank of England's policymakers will adjust their forward guidance, but our sense is that they are less likely to lower their unemployment rate threshold than to emphasize, as we have done, that they will look at a range of indicators and likely hold the policy rate low until well after the threshold is crossed.

This concludes my prepared remarks. David and I will be happy to answer your questions.

CHAIRMAN BERNANKE. Thank you very much. Are there questions for David or Steve? President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. First of all, I want to compliment David on the inclusion of the alternative view in the box in the Tealbook A. I thought that was a very positive step forward. It's very important for the Committee to be kept abreast of the debates that are being held within the Board staff, and so I found that very helpful.

I follow with a question. Over the last six months or so, there's been, I think, a relatively large gap developing between what we see in the establishment survey and what we see in the household survey with respect to employment. I was wondering what the staff's thoughts about that gap are.



MR. WASCHER. You're right, and I think the answer is, we don't really understand why there's such a difference. Because they're different surveys, there could just be measurement differences in the two surveys. The BLS tries to adjust the household survey to the payroll concept. But in this particular case, that doesn't really help very much. I think the other possibility is that there tend to be cyclical patterns in the difference between household and payroll employment. When the economy is very weak, household employment tends to fall less than payroll employment, and the reverse occurs in recoveries. One possible explanation for that is, in a weak economy, you may have a lot of people working off the books for a few hours a week. They report themselves as employed in the household survey, but they're not really on anybody's payroll in a technical sense. So they're not picked up by the payroll survey. It's possible that what's going on over the past year or so is that, as the economy continues to improve, you're getting more people who are moving back into payroll jobs even though they were already in jobs in the "informal" sector, if you will.

MR. KOCHERLAKOTA. To maybe sharpen my question, your sense is that what's going on in the establishment survey is more a sign of the evolution of labor market health than what's going on in the household survey?

MR. WASCHER. Right. Over periods like that, six months or so, we tend to pay a lot more attention to the trends in the payroll survey than to those in the household survey.

MR. KOCHERLAKOTA. Thank you.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. I had a really—almost silly—technical question. David, the question is about the 1.9 percent assumption on expected inflation in the last chart, in the bottom right of your handout—and it was discussed in one of the memos. Because the

methodology changed, and therefore it lowered the longer-run average by one-tenth of 1 percent, you lowered expected inflation to 1.9 percent. I think that's a weird way of doing it. Given that consumers think our target is 2 percent, wouldn't you think they would still think our target was 2 percent? I didn't understand the logic of that.

MR. WILCOX. It's an annoying situation.

VICE CHAIRMAN DUDLEY. I just didn't understand it. I wouldn't have done it that way, I guess.

MR. WILCOX. Yes, I'm sympathetic to that.

VICE CHAIRMAN DUDLEY. Okay. I wasn't missing something, then.

MR. WILCOX. No. But here's the conundrum. We thought we had a thermometer outside that said it was 32 degrees. We took a survey of people, and we asked them, "How cold does it feel?" They said, "Well, it feels about 32 degrees outside." We changed the thermometer. Now the thermometer reads 31. The survey expectations still were unchanged, as before. How do we handle that situation? That's a crude analogy.

VICE CHAIRMAN DUDLEY. But we're telling them, on the new thermometer, that we're going to still be at 32, not 31, right?

MR. TARULLO. No matter what it feels like, it's 32.

MR. WILCOX. I think that's right, but I don't want to debate it excessively because what we're talking about is 10 basis points on the inflation rate. Perhaps with this discussion we could feel that we've done our job of alerting—and you've helped to alert—the Committee to the issue. To the extent of 10 basis points on the inflation rate, we think that, at the margin, you'll need to run that much of a more expansionary monetary policy in order to get inflation, as

actually measured, up to your 2 percent objective. And that's the reason why we felt duty bound, constrained by intellectual integrity, to reduce expectations to 1.9 percent.

VICE CHAIRMAN DUDLEY. I guess what I'm concerned about is, I would be hesitant in future meetings to have the chart continue to show 1.9 percent inflation expectations in perpetuity when we're targeting 2 percent. It just seems inconsistent.

I'm going to drop that. I have a question for Steve that's more substantive.

MR. KAMIN. I hope so.

VICE CHAIRMAN DUDLEY. Well, this is clearly relevant, though, to what you show going forward. EMEs—you've seen the turbulence recently. We have a forecast of acceleration in economic growth. How nervous are you about that forecast, given that we've seen some very sharp market moves in recent days? Not knowing what's going to happen, do you put much weight on what's been happening over the last week in terms of a risk to the forecast, or do you put very little weight on it? I just want to get your sense.

MR. KAMIN. I would say that we put more than very little weight on it. The way I would put it is, as we moved into the second half of the year, when emerging markets were obviously in a more turbulent situation, responding to expectations of tightening in the United States and other advanced economies, we perceived the volatility and we assumed it would last for quite some time, moving into the coming year. What's been happening recently is a little bit outsized in comparison with our expectations, because we wouldn't have expected so much volatility both to erupt so quickly and to have such a marked impact on advanced-economy equity markets and bond markets. In that sense, it's been a little faster and more marked than we would have expected. But these things happen. And, that said, the upswing in volatility is more or less consistent with our sense that there were going to be these bumps in the road, and that this

is one of them. In that sense, if we had to redo our Tealbook forecast right now, we might shave it down just a touch to acknowledge this, but we probably wouldn't move it very much. So that's the baseline. All of that said, we know from experience that seemingly trivial events, like a Thai devaluation in 1997, can unexpectedly lead, through contagion in investor perceptions, to much more egregious events. So there's no way we're going to claim right now that, no, that cannot happen.

VICE CHAIRMAN DUDLEY. Right. Fair enough. Thank you.

CHAIRMAN BERNANKE. Governor Tarullo.

MR. TARULLO. Mr. Chairman, can I just piggyback on Bill's question? Steve, have you incorporated in your baseline economic growth forecast any sense of the reaction that emerging market countries may have in order to stave off more financial problems? That is, if they follow normal prescriptions, they're going to do some tightening of monetary policy and maybe implement some austerity measures, which will presumably bring growth down. And although that may have the salutary effect of holding off a set of currency problems, it would presumably be reducing economic growth.

MR. KAMIN. Both in the December Tealbook and in previous Tealbooks dating back to the middle of last year, we had already built into our emerging market growth forecast the expectations that there would be some volatility and financial stresses, which would directly restrain economic growth, and, on top of that, prospective increases in interest rates, particularly in countries such as Brazil, India, and Indonesia, which would have to raise their rates in order to rein in inflation and to respond to the financial volatility. So we had built in all of that. The effect on EME growth is relatively small. It's on the order of  $\frac{1}{4}$  percentage point. And so far, we have not felt the need to, in some sense, increase the amount of drag we put into our forecast

in response to these developments. Assuming that, in fact, markets calm down over the next week or two, we'd still be good with the adjustment we've put in. If markets go a different way, then we'll have to respond.

MR. TARULLO. Thank you.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. On Steve's side, on the real economy side, one thing you might want to look at is what's happening to the lease rates for Capesize and bulk shippers. They've come up significantly. China drives that market, as you know, and the build market. They've replaced the Koreans to a significant extent, and the Japanese are now building for their own consumption. So there's a capacity expansion, and yet lease rates are coming up. Purchase prices are coming up. From what I understand from talking to shippers, a lot of this, of course, is driven by—even though it's slower—a still-significant pace of import demand for iron ore, pulp, and whatnot by the Chinese. As Simon pointed out in his excellent briefing, the Shanghai composite is not a very useful indicator. And a lot of changes are taking place with respect to the shadow banking system and so on, as was pointed out. So I think we have to be careful, but, as you say, we should be watchful.

The point I wanted to make, though, is that, first, I want to agree with President Kocherlakota. I think Mr. Wilcox has done some great work. I like the devil's advocate box, being a devil's advocate; I also want to congratulate staff members on their very honest and straightforward paper on price inflation. I have just one question that I didn't see answered in that paper—and we can talk about it offline—but my question is, when we talk about measures of slack either in the EDO model or the FRB/US model, are you all focused on changes in slack or just the level of slack? It's not clear to me what we focus on or what we input.

MR. WILCOX. For the most part—and I'll look to Jeremy Rudd, who was one of the authors—it's the level of slack, but we do have some specifications that have a speed effect. We inspect those specifications from time to time. Jeremy, do you want to add anything?

MR. RUDD. I'd say that our main focus is going to be on the level of slack. As David said, we do look at specifications that have a speed effect. We find that particular speed effects are present for some of the less-finished goods prices—commodity prices and that sort of thing. But we find, in general, that our main emphasis is on the level of the gap, which is the level of the unemployment rate relative to a natural rate construct.

MR. FISHER. Thank you. We've done some work on it—Evan Koenig, sitting behind me, has done some work on that difference—and maybe we could be of some help there.

Finally, on housing, you mentioned single-family permits and starts. Because the fly is in Garrison Keillor's ointment, am I correct that, in terms of the four census areas, the West actually had pretty good numbers in December compared with the three frozen areas, as it were? So could you deduce that this might have been weather-related?

MR. WILCOX. It could be. Normally, the permits numbers are much less affected, and so when we're looking to explain an anomaly for starts, we often take refuge in referring to permits. Generally speaking, the anecdotes from builders and others are that they can get down to city hall and file a permit application pretty much regardless of what the weather conditions are. So when it comes to looking at the permits numbers, those, historically, have been less affected by weather anomalies than the starts numbers.

MR. FISHER. I agree with that, but I just did note it. There was a differential, particularly in the starts. And then you mentioned examining the pace of future homebuilding. You have some questions about that. For what it's worth, again, I take a deep dive with the

homebuilders in my go-round before this meeting. What I found interesting is that, first, their biggest concern is labor supply, which has a direct correlation to immigration policy and, second, their expectation, of course, is that the spring season started early. But where they're really finding cost pressures or frictions is in the ability to retain labor. As you know, most homes are built by Mexicans—I've talked about how there's a little Costa Rican contingent—whether it's in Maine, Seattle, or Dallas, it doesn't matter. But I'm hearing this across the board, for what it's worth. And it also has a price impact. So that's one thing you might want to examine. It's outside the realm of monetary policy, but, according to the builders themselves, it's not insignificant. That's just a point I wanted to put on the table.

MR. WILCOX. Yes, we've been a little surprised. To put exactly the same idea, I think, in slightly different vocabulary, we've been a little surprised about how steep the short-run supply curve is, and that it looks as though the industry may be undergoing some greater adjustment costs in getting back up to the kind of capacity that we saw before the recession. Our guess is that those short-run supply restrictions will ease over time, and that we'll get back to a situation in which builder capacity is much greater than it seems to be today.

MR. FISHER. Thank you, and again, thank you for this good work.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I have two questions. Let me ask one and get an answer and then try the second one, if I may. I'm interested in the alternative simulation in the Tealbook related to low inflation, and I guess I'm maybe worried that our analysis doesn't assign a very high cost to low inflation relative to our target. So let me try to get that out. In the simulation, the inflation rate is knocked down, and it stays there. So the real rate would be high, and that would be bad for economic growth. But because the funds rate was going to start

moving up, it has the ability not to move up quite so much, and it can basically offset that increase in the real rate because the zero lower bound is not really binding anymore. That is, if you compare the real outcomes in this simulation with the baseline outcomes, they're spot on. There's no loss of economic growth; there's no additional unemployment; there's really no real cost. So I guess I'm wondering whether there is a significant cost in these analyses to having a low inflation rate if the zero lower bound isn't binding. Just so that people aren't concerned that this is only a low-inflation question, I think it's symmetric. If we had a higher inflation rate and we could offset that higher run of inflation with a different funds rate, we might also have the same type of outcome. I'd be interested in your reaction to that and what its implications might be for how we specify our loss function with regard to missing our inflation target.

MR. WILCOX. I would agree with you. This is one version of a low-inflation scenario, and I think it would be possible to create versions that would be more pernicious in terms of their implications for economic activity. We thought this one was among the range of possibilities, of which this is only one. We thought this was one that was worth looking at. The Japanese experience, for example, did feature a fairly lengthy period of very low inflation but not a cumulating downward spiral, and that's what we had in mind here. You're right that, through the period in which the zero lower bound becomes less of a constraint, monetary policy is able to counteract much of the implication for real activity, but I entirely agree that, with other mechanisms, it's possible to have a much more serious consequence for real activity.

MR. EVANS. Yes, I kicked this around with my staff a little bit, and so I understand the rules of the scenario, and it does seem reasonable. You're trying to have a run of low inflation. I guess I was wondering the following: If you told me that inflation in 2015 was going to be 0.8 percent after it had already been like that, would I then expect GDP growth in 2015 to be



3.4 percent? I don't think I'd have that high a probability on that, and it is probably because I'd have a different scenario in mind—more like something that knocks down aggregate demand and does something. But that's a different scenario. So I take your point of what you're trying to get across here.

MR. WILCOX. I think a critical issue would be, what's the precipitating shock that gives rise to the persistent low inflation, and is it conceivable to imagine a shock directly to inflation expectations, and hence to inflation, that doesn't operate predominantly through weaker activity? But there are other precipitating shocks that could do that.

MR. EVANS. All right. Let me move on to the second question, and thanks to the staff for the inflation memo. It was impressive analysis, as almost always—given the way that I refer to my own “somewhat expert” staff, I mean, how could you expect me to say something different [laughter]? Sorry. All right. Anyway, I'm going to tackle a bunch of tough issues, and I think that the inflation specification in your equation 1 makes a lot of sense for how you're going about doing it.

Okay. But now, having said all of that, let me ask the unfair questions. It's also the case that global inflation is low, as Steve just mentioned. And I guess there are at least two ways to think about that. One hypothesis is what you lay out here. There are a bunch of special factors—energy prices and things like that that show up as your colored boxes. You've got anchored long-term inflation expectations, and it's these anchored long-term inflation expectations that I really want to get your reaction to, because they're playing an awfully large role in this. That's the first hypothesis. It's a bunch of special factors. They're largely transitory—that's why they're special. They're going to work their way off, and it's inevitable that we're going to have inflation move up unless something else happens.

The second hypothesis would be to back off the emphasis on the long-term inflation expectations. And I appreciate how important they are for fitting the specification, but if you couldn't have that, then the hypothesis might be that each country has a monetary policy that somehow just isn't accommodative enough in order to get inflation up, because inflation ought to be monetary, and so everybody somehow is doing something similar. It's global low inflation. So something that's affecting inflation is happening in each and every country. You think it ought to be a common explanation. Those are two types of common explanations. So we're just not fighting hard enough in order to get inflation back up to its target.

Now, after thinking that through, reading the memo, and looking at equation 1, I'm struck wondering what monetary policy does to keep inflation close to its long-run target. We've got anchored long-term inflation expectations, and we've got a relatively flat Phillips curve. So we can debate the size of the resource slack for quite a long time, but it's not going to contribute a ton right off the bat for quite some time. And that's exactly where you can see a role for monetary policy, on a meeting-to-meeting basis, to have some effect, but, instead, we've got long-term inflation expectations anchoring everything. So that matters a lot, given the modeling choice. The 1.9 percent question that Vice Chairman Dudley was asking about is another little annoyance in all of this once you link yourself to that anchored inflationary expectation. I guess, when I think more deeply about it, the question is, what's the role for monetary policy in this specification?

MR. WILCOX. We think that monetary policy, as we said in the memo, plays a crucial role in supporting inflation expectations. Predominantly, my overwhelming reaction to your remarks is, boy, that makes me feel really good, because it sounds as though the message of the memo came through very clearly. We're pinning a lot on this role of inflation expectations, and

it's an arguable proposition. I think it's fair to say that it survives only because, at this point, it beats any alternative that we've been able to come up with. We've got a fundamental problem as social scientists here. If we were attempting to build a model of inflation expectations, what would we normally do? We'd put the variable we want to explain on the left-hand side of an econometric equation. We'd start out by probably putting a constant term on the right-hand side of that econometric equation. And then we'd start looking for other explanatory variables. Well, we'd quickly arrive at the conclusion that—oh, wait a minute—that constant term does a pretty good job of explaining the left-hand side variable. You all, by running really good monetary policy over the past 15 or 20 years, have created a significant problem for us, from an econometric perspective. We don't have any variation to explain in the left-hand side variable. Among other things, that immediately creates the difficulty that it's very hard to posit a causal explanation for the role of monetary policy in influencing inflation expectations. So I'm not going to offer any pushback, because, indeed, I think a main message of the memo was precisely that. I believe I heard Governor Tarullo use the word “magic.” Another possibility would be to say that it is, to a degree, unfortunately, an article of faith. I wish I could represent it to you otherwise, but I think it's important to acknowledge that.

With regard to the global phenomenon of a downward drift in inflation, it certainly is very eye catching that, at the very same time that inflation drifted a little bit downward here in the United States, it was doing similarly in the euro area and in some other locations. There I think Jeremy, again, and the others impressed on me the important point that our inflation errors over the past few years have, in fact, been two-sided. Now, it is the case that, most recently, inflation has come in a little lower than our prediction. In 2011 and 2012, the opposite was true. It made me feel no more comfortable back then to come to the Committee and say, “Well, we've

had a run of errors to the upside on actual inflation.” We put forward for the Committee an analysis that I think ultimately proved to be correct. Past performance is no guarantee of future accuracy here, but our narrative now, for better or for worse, is very much the same as it was back then.

MR. EVANS. Thank you so much. The memo and your response were extraordinarily useful.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Let me follow up on President Evans’s comment here a little bit. I did like this chart in the “Forecast Summary” exhibit that shows the 1.9 percent inflation, although I do think it should be 2.0.

MR. WILCOX. I think I know an adjustment we’re going to be making [laughter] for the March Tealbook.

MR. BULLARD. Yes. But I love your point, which is one I’ve tried to emphasize in the past—that a great inflation-targeting bank will keep inflation right at target all of the time, and then you won’t have anything to study other than the fact that inflation is at target all of the time.

But maybe a way to put President Evans’s point is that if you look at a chart like this and you say that inflation expectations are anchored, then you get the impression that a situation like the one in Japan couldn’t develop in the United States because, well, inflation expectations are anchored, so it can’t happen. But, as policymakers, I think what we want is some sense of, under what circumstances would we get stuck in a zero-nominal-interest-rate, low-inflation environment? And I think we’ve struggled to be able to say something coherent about that and to be able to put a probability on that. So I don’t want to put words in your mouth, President Evans, but I guess, in my interpretation of what he said, that what would be useful to

policymakers is some kind of statement about how likely that outcome is, what types of things might lead to that outcome in the United States, and, maybe beyond that, what could we do to avoid that? For that, you would need a model of why longer-term inflation expectations might drift, and we don't really have that model.

MR. WILCOX. It's precisely with the Japanese example in mind that Jeremy and his coauthors put the figure on page 11, which demonstrates that, in the Japanese case, inflation expectations remained really quite stable, and, for a time, actual inflation, on a long moving-average, tracked those expectations quite well. But then what's worrisome and is intended precisely to put a pit in your collective stomachs is that actual inflation began to track lower and became detached from inflation expectations. And so it's with that in mind that we wanted to make sure to communicate the real doubt that we have about whether this will necessarily work out in the way that we've outlined in the baseline.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. Moving to a less existential level here on inflation, I have two sorts of questions. First, I'd like to follow up on the comments of President Kocherlakota and others who have expressed appreciation for the alternative that was put forward in the Tealbook. I think that's a great contribution. I look forward to other alternatives being laid out and discussed in a similar manner. But I had one question about that, and this may be asking too much. It would be interesting over time, as these scenarios are more fully described, for the staff to offer some guidance or thoughts about the broad probabilities they place on some of these scenarios. Are they highly likely or very unlikely? Clearly, they are not the modal forecast. We understand that. But the staff's view of how the probabilities associated with these various scenarios may be shifting over time might be a very valuable source of

discussion and insight as we move forward. So I just put that out there. I know it wouldn't necessarily be trivial.

The second question I had follows up on President Kocherlakota's question about the household survey and the establishment survey. One of the things we do know about the two is, a lot more revision goes on in the establishment survey, for all sorts of different reasons. Have you given any thought to the pattern of revised data that has occurred over, let's say, the recovery? My sense is that, on average, we've seen a lot more upward revisions from the first print as we go through. Is there evidence of any systematic patterns that arise in the revision process in the establishment data, particularly vis-à-vis the household survey? In other words, do they tend to move back, do they tend to move together, or how should I think about that?

MR. WASCHER. The household survey isn't revised, so it's whatever it is. It is the case, as I mentioned in response to President Kocherlakota's question, that there do seem to be cyclical patterns in the difference between the two, and the household survey falls less than the payroll survey during weak periods and then increases less during recoveries. So there are typical patterns. They tend to move around and then move back toward each other over time.

In terms of revisions, the big revisions are obviously the benchmark revisions. We're going to get the 2013 revision next month—we already know that it's a downward revision if you adjust for some classification changes. But the revisions in both 2011 and 2012 went the other way; the payroll survey was revised up. And I think the general pattern is that, early in recoveries, you tend to see some upward revisions. That's probably due to increases in new business formation that aren't picked up initially in the payroll survey. Beyond that, there tend to be downward revisions during recessions and weak periods. So, from 2007 to 2010, there

were downward revisions, and then in 2011 and 2012, there were upward revisions to the level of employment.

MR. PLOSSER. I have one other observation. I don't want to make too big a deal of this, because I'll get in over my head very quickly, but, in terms of the inflation issue, one of the things that many of the DSGE models have—and I think the New York model has this in it in some detail—is that the inflation process in those models depends a lot on the nature of the shocks. In the financial sectors that they have, you can have these shocks to the return on capital or the marginal efficiency of capital. And those things can actually work through the system in ways that can lead, at least in those models, to lower inflation than you might otherwise have anticipated. It's the nature of the financial sector and the restrictions in the financial sector that have given rise to some of that. So I was wondering whether or not more work has been done in thinking about those types of models—as opposed to the classic, more traditional models that you report to us on—in terms of the effects that different types of shocks have on generating the lower inflation that we've seen.

MR. WILCOX. I don't know—is Egon Zakrajšek here? If he's not, then I'll attempt to characterize some recent research that he's done.

MR. PLOSSER. You'll probably do better at characterizing that than I did in attempting to characterize my position here in the first place.

MR. WILCOX. I don't know—Jeremy or Michael Kiley, are you familiar with this, before I launch into an attempt here? Broadly speaking, what Egon and his coauthors are trying to explain is, why didn't we have more disinflation? It's a fascinating paper. They are working with microeconomic data. They split firms into two buckets: One contains firms whose balance sheets were very adversely affected through the financial crisis, and the other bucket, the

complement. What they find, I believe, is that the firms whose balance sheets were severely adversely affected through the financial crisis are much more resistant to allowing price reductions, whereas firms whose balance sheets were not particularly affected by the financial crisis behave in a more historically normal manner. And it's that mechanism that provides an alternative explanation, by the way, to the anchored inflation expectations that they put forward as a possibility.

MR. PLOSSER. That's not exactly what I was asking. But we can do this offline. My question is whether some of these models with financial frictions of various kinds get movements in inflation rates that are not as closely tied to monetary policy as we normally think. That was the gist of what I think some of these models are trying to tell us, but we can talk about this later.

MR. WILCOX. Michael, do you want to offer any comments about that?

MR. KILEY. It's certainly the case that the staff did a lot of work on a variety of DSGE models with different types of financial frictions and shocks and on how the different shocks are transmitted through those mechanisms. You're definitely right that those mechanisms and shocks can have effects on activity and inflation that differ from those of other demand shocks. So it's the case that financial frictions can alter the way in which shocks are transmitted both to the real economy and to inflation. But I think it's fair to say that there's no common result across those models, because there are lots of financial frictions now. And so I don't think it would be fair to say that it's a general feature that shocks, other than monetary shocks, become much more important in explaining inflation in some different way. It's a much more open area.

MR. PLOSSER. Very model dependent.

MR. KILEY. Yes.



MR. PLOSSER. Thank you.

CHAIRMAN BERNANKE. Okay. Why don't we take a quick coffee break and come back at 4:20 and start our go-round?

[Coffee break]

CHAIRMAN BERNANKE. Okay. Let's recommence, please. We're ready for the economic go-round, and our first contributor is President Evans.

MR. EVANS. Thank you, Mr. Chairman. This being your last meeting, let me just mention that it has been an honor and privilege to work with you during this difficult period.

Since our December meeting the incoming data have been quite good, with the exception of the December payroll employment number. I'm pleasantly surprised that the second half of 2013 came in at nearly a 4 percent rate. This is more than 1 percentage point stronger than what we thought in December, and, importantly, it's reflecting very good fourth-quarter numbers for consumption and fixed investment and not just an outsized inventory build. Our business contacts have similarly become more optimistic. As one of my banking directors put it, some of his clients are now describing the business climate as "tentatively bullish." Most commentary was more reserved. Contacts indicated that activity was picking up, and that demand was good but not exceptionally strong. Put all of this together, and I am more comfortable assuming that the real economy is broadly firming along the lines of the Tealbook projections.

I had preferred delaying our December taper to gather more information, but this all seems to be working out reasonably well at the moment. Nevertheless, I remain concerned over the very low inflation outlook. There hasn't been any real change in the numbers since our last meeting, but that is not surprising. Not much time has passed. As the Tealbook projections indicate, there is a good chance that transitory factors have driven these low inflation readings

and that these factors will recede before much longer. This may work out just fine within six months' time, but our understanding of these factors and the inflation equation itself is tenuous at best, and the risk of prolonged low inflation cannot be ruled out. My business contacts contribute to my worries over this dilemma when they tell me that they have little pricing power and that cost pressures are low. A key reason why cost pressures are low is that wage growth has been modest to meager.

We haven't spent much time discussing wages. That's probably because, in recent decades, wages have not been a reliable leading indicator for inflation pressures. Instead, wages have tended to lag inflation. In any event, the low wage levels and wage growth we see today are, at a minimum, confirming evidence of the lack of inflationary pressures existing in the current economic environment. These wage data suggest possibly more persistent influences on low inflation. In order to get an outbreak of stronger and persistently higher inflation, we almost surely would have to have sympathetic increases in wages. If such an outbreak were in the works, we'd expect to see workers demanding, and firms granting, notably higher wage increases, and this should be occurring broadly across occupational and industrial sectors. Of course, none of this has taken place at the moment, and none of my business contacts think it is at all likely to happen for the foreseeable future. Indeed, as the Board's inflation forecasting memo discussed—and I should note, too, research by President Williams's staff—because of downward nominal rigidity, it's possible that wages have not yet fully adjusted to earlier weakness in labor markets. That might mean we could see residual resistance to wage increases for some time, even as other labor market conditions further improve. In sum, the wage-cost side of the ledger seems to suggest that inflation could remain low for some time. This poses a substantial risk to achieving our inflation objective of 2 percent within a reasonable time frame.

At the moment, the primary reason for rising inflation in our projections is that we expect anchored long-term inflation expectations to exert an upward pull on actual inflation. The inflation-forecasting models discussed in the Board memo place substantial emphasis on these long-term expectations, and much of my own staff's analysis has a similar flavor. I am not aware of a better inflation specification in spite of the commentary that I made earlier in asking questions. Nevertheless, this is unsatisfying. Most theoretically grounded specifications place a greater weight on short-term inflation expectations. Of course, short-term expectations bounce around a lot more and pose difficult challenges for successful empirical implementation. Most of the time, anchored long-term expectations work better empirically, and the discrepancy is smaller and more transitory than what we've had.

The Board's modeling choice is completely understandable, but it feels unsatisfying and less structural than desired, and that's especially the case now. I can't help wondering if this modeling compromise will continue to work well under today's unusual circumstances. Cost pressures are low and may remain that way for some time, especially from labor. How is inflation going to pick up? New firms are pursuing aggressive pricing, and actual inflation has been stuck near 1 percent for some time. There just seem to be many factors on the ground today fighting against whatever the upward pull might be from expectations for inflation 5 or 10 years out in the future.

The Japanese inflation experience is worrisome. After all, inflation and long-term inflation expectations there have lost their close relationship as our discussion of that chart in the Board memo indicated. Until we actually see inflation move up smartly toward our 2 percent target, I think we are running a risk of misjudging the persistence of our low-inflation environment and relying too heavily on long-term expectations to save the day. In any event,

maintaining our current accommodative monetary policy seems important to counteract the low-inflation-risk scenario. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. The memos have done a very nice job of clarifying staff members' positions on the important but difficult issue of which labor market and price anomalies reflect transitory movements and which reflect trends. The very low payroll number last month is assumed to be an anomaly, suggesting that much stronger payroll employment growth is imminent. Similarly, part of the very low inflation numbers is an anomaly, suggesting that we will soon see PCE inflation moving toward our 2 percent target. In contrast, the large declines in labor force participation are assumed to be permanent, reflecting primarily demographic and cohort trends. While the parsing of these data patterns into transitory or trend categories seems reasonable, I would note with the benefit of hindsight that we have not always been able to distinguish well between what is transitory and what is a trend. A simple example is the assumption that Internet investments during the dot-com phase reflected a change in trend productivity growth that could justify high stock prices rather than a transitory fluctuation, only to be revised down once the dot-com bubble burst.

Thus, while assessments made by the staff are reasonable, our actions should reflect the inherent uncertainty around such judgments. The payroll employment number was a surprise. The 10-year Treasury rate moved down substantially after the announcement and has only fallen further with growing concerns around emerging markets. Financial markets seem to have taken to heart at least some of the surprise information, at least for now. The Tealbook makes clear that it is assumed that the low payroll employment is transitory, because it is incongruent with both the other labor market indicators and the stronger GDP growth we have seen recently.

However, the highly correlated movement of global stock prices surrounding emerging market concerns and the decline in the 10-year Treasury rate since our last meeting, despite strong GDP numbers and our strong GDP forecast, give me some pause about the forecast.

The recent serially correlated misses on many of our PCE inflation forecasts are also assumed to be transitory. However, the longer we miss significantly on our forecast, the less confidence we should have that inflation will be inexorably drawn higher by the gravitational force of our 2 percent target. The staff highlights that in Japan the long-term expectations for inflation moved little despite inflation being below zero for over a decade. The observation is very consistent with work my staff has done. They show empirically that Japanese inflation data may have been more responsive to short-run inflation expectations than long-run expectations. Similarly, the model that relies on well-anchored expectations fits the past 20 years of data reasonably well but is sensitive to the time period over which it is estimated. If it turns out that, in very low inflation environments, short-run inflation expectations are more important than long-run expectations in describing the inflation process, we should be much less certain how quickly we will return to our 2 percent inflation target.

The staff paper on labor force participation is good. The paper provides a nice statistical summary of both demographic and within-cohort trends. While I agree with the demographic exposition, the within-cohort trends seem tenuous. While there were sound economic reasons for the rise in labor force participation by women in the 1970s and 1980s, the economic rationale for a trend reduction in participation by prime-age male cohorts is less clear, and, thus, questions remain as to whether their lower participation rates will be reversed by a stronger labor market.

In summary, we should be cautious about our inferences regarding which data reflect transitory influences and which reflect trends. The implications of this uncertainty for policy,

which I will discuss tomorrow, suggest that a patient approach to removing accommodation is warranted. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I will spend most of my time today discussing my assessment of the long-run unemployment rate that is consistent with the dual mandate. I will make two points. First, any assessment of this kind relies on gauging the inflationary pressures associated with any given unemployment rate. Second, over the past year or two I have lowered my assessment of the inflationary pressures associated with any given unemployment rate. As a result, my assessment of the long-run unemployment rate consistent with maximum employment has fallen 1 full percentage point, down to the 5¼ percent rate in Tealbook A.

Let me start with the relationship between inflationary pressures and unemployment. We have agreed, and we just reaffirmed again today, that appropriate monetary policy should give rise to an inflation rate that averages 2 percent over the longer run with inflation expectations well anchored around that same rate. Of course, the mandate-consistent unemployment rate has to also be consistent with that kind of monetary policy. It follows that, over the longer run, the mandate-consistent unemployment rate is the unemployment rate that is consistent with 2 percent inflation with well-anchored inflation expectations.

This observation has implications for how we go about measuring the long-run mandate-consistent unemployment rate. Now, there's a lot of work being done in the System and elsewhere that attempts to do so by filtering out short-run fluctuations and various aspects of employment and unemployment data. From a statistical point of view, this is hard work, and President Rosengren alluded to this in his remarks. Trend-cycle decompositions are challenging,

and they're especially challenging at the end of a sample. But the economic challenge is actually a deeper one. Conceptually, the mandate-consistent unemployment rate, as I just mentioned, is the unemployment rate that is consistent with 2 percent inflation and well-anchored inflation expectations. Estimating this unemployment rate necessarily requires information beyond quantity data alone. It requires information about the compensation pressures associated with any given unemployment rate. It is those compensation pressures that eventually translate into inflation in the prices of goods and services.

Let me then move to my second point. Over the past year or two, I've lowered my assessment of the pressures on compensation associated with any given unemployment rate. Why have I done that? There are three main reasons. First, a falling unemployment rate over the past four years has been associated with little increase in wage and compensation pressures. Indeed, in the first three quarters of 2013, average hourly compensation in the nonfarm business sector was essentially flat.

Second, for any given long-run unemployment rate, I've lowered my estimate of the fraction of prime-age people, those between the ages of 25 and 54, who will have jobs. I've done so because, conditional on the falling unemployment rate, the employment-to-population ratio for 25- to 54-year-olds has risen surprisingly little. Now, marginally, I see a prime-age person without a job as putting more downward pressure on wages than a similar person with a job. It's definitely hard to pin down magnitudes here, but the effect on the margin is to lower the inflationary impact of any given long-term unemployment rate because there are more prime-age people without jobs.

Third, for any given unemployment rate, I've raised my estimate of those working part-time who would like to be able to work more hours. So I'm tracking this through the difference

between two broader measures of labor force underutilization, the ones labeled U-6 and U-5. The difference between U-6 and U-5 rose dramatically in the recession. Relative to the sharp decline in the unemployment rate, U-3, this difference has fallen little since late 2009. This large number of people who are looking for extra hours are also likely to put more downward pressure on wages for any given measure of the unemployment rate. At the national level, then, we've seen little in the way of wage pressures, we have a larger fraction of prime-age people who do not have jobs, and the difference between U-6 and U-5 has remained persistently high.

Now, we go to the local conditions in the Ninth District. We have also heard suggestive evidence along the same lines. In Minnesota, the current unemployment rate is 4.6 percent, but our business contacts consistently report little wage pressure. Similarly, our labor union contacts generally see themselves as having little bargaining power in the coming year or two. Why are wage pressures so muted in Minnesota given that the unemployment rate is so low? We certainly don't have a definitive answer to this question, but it is important to note that, relative to the improvement of the unemployment rate in Minnesota, there has been less improvement in the Minnesota employment-to-population ratio for prime-age people. Also, just as it's true nationally, the difference between U-6 and U-5 in Minnesota has come down little since its 2009 peak.

When I put all of this information together, I've been led to lower my assessment of the wage pressures associated with any unemployment rate. There are huge uncertainties, of course, associated with these exercises, but I have lowered my estimate of the long-run mandate-consistent unemployment rate 1 full percentage point over the past year, and, as I said at the beginning of my remarks, at this point I'm basically down to the 5¼ percent that's in Tealbook A.



Mr. Chairman, I want to close by saying that it has been a huge honor and privilege to serve under your leadership on this Committee. You were especially inspiring in the way that you never shied away from using historically unprecedented tools to deal with a historically unprecedented challenge. I want to thank you for your leadership.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. I'll start with some commentary reflecting input from our business contacts and directors over the intermeeting period. Business sentiment improved, on balance, for the second consecutive intermeeting cycle. Most of our directors expect economic growth will either be sustained at the current pace or accelerate over the next three to six months. They are even more optimistic about the medium-term outlook. The overwhelming majority of our 44 directors believe that the pace of growth will be higher in the next two to three years.

Many think the downside risks to growth have diminished and uncertainty has dissipated. This view and the associated optimism are pretty broad based. We hear more reports of businesses becoming less risk averse, with greater willingness to place bets on capital projects and expenditures. One small example is that companies that previously elected to rent heavy construction equipment are now beginning to buy the equipment instead. At the same time, we did not hear reports of a notable pickup in hiring. Hiring plans remained modest for the most part. Hiring activity in energy and construction appears to be stronger than in other industries. There continues to be a preference for overtime and automation before any consideration of hiring, and we continue to hear about difficulties finding certain types of skilled and experienced workers.

In regard to cost and price pressures, most contacts reported relatively stable input costs. We heard few reports of wage pressures. Contacts in the construction industry were an exception. In general, our business contacts report little or no pricing power. The inflation expectations of most contacts were unchanged. Overall, I'd say the opinions and anecdotal inputs of our contacts are reflective of the incoming data. That said, I'll note that public and business optimism has disappeared quickly before.

Now to my outlook. In the December SEP submission I had an economic growth forecast for 2014 and the remainder of the forecast horizon of around 3 percent. Even with the increasingly positive reports I'm hearing from region contacts and the recent data that seem to confirm an impressive second-half growth rate, I'm leaving my forecast unchanged. Basically I already had written in a shift to faster economic growth, and I think conditions remain ripe for stronger growth than we experienced, certainly, in the first four years of the recovery.

My outlook for inflation also remains one of gradual convergence with the Committee's target, although a little faster than in the Tealbook. Regarding employment, like the Tealbook, I updated my projections for the unemployment rate, taking on board the drop from 7 percent to 6.7 percent. I now have the unemployment rate reaching the Committee's stated full employment range of 5.2 to 5.8 percent in 2015, as does the Tealbook.

That said, I have to express concern that the unemployment rate is separating from broader indicators of labor market health and may be losing its utility as it goes lower. Influenced admittedly by anecdotal reports in the business community, I don't see the declining unemployment rate as the leading edge of a burst of hiring. When the unemployment rate was a lot higher, we could use it as a policy marker while ignoring the noise in the number. In my opinion, it may be losing value as a communications vehicle as it falls. I'm increasingly of the

opinion that greater attention to wage and price developments may be more serviceable in the Committee's communications. The outlook I'm presenting is optimistic, but I think we need to see it soon in prices, wages, and income growth. So far there has been no turn in the inflation numbers and little wage and income growth.

I want to add my voice to those who thanked David Wilcox and his staff for the innovation of including an alternative view in the Tealbook A, write-up. I found it quite useful because it brings into sharper relief the plausibility of different narratives with some support in the data. In that vein, I worry about what the wage and price data may be suggesting about the actual strength of the economy and the sustainability of the recent improvement. I'm concerned about an unemployment statistic that doesn't match up with the broader employment picture—that is, participation, marginally attached workers, and underemployment. So I'll let that serve, Mr. Chairman, as my commentary on the balance of risks.

Like others, I want to thank you for your superb leadership over these years, and it has been a privilege serving with you. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you.

MR. WILCOX. Mr. Chairman, may I just acknowledge that Andrew Figura is the author of the box, and he is here. He'll be in the autograph booth at the conclusion of the meeting and will be pleased to sign your copy of the Tealbook. [Laughter]

CHAIRMAN BERNANKE. Noted. President Fisher.

MR. FISHER. Thank you, Mr. Chairman. I'm going to make a brief comment about my District and then summarize the anecdotal input. I'm not going to comment on any changes in my forecast, because my views haven't changed that much from my last statement on that front.

Our District, particularly the state of Texas, continues to move forward. We have been growing employment last year at a 2.3 percent rate, and all indicators, of course, whether it's housing or our export activity, have continued to rise to levels that, frankly, we just haven't seen before. It does raise some questions about difference in frictions, because it seems to me, from the standpoint of our monetary policy affecting economic activity, certainly we have had a very robust response in Texas. The most startling figure for me was looking at the manufacturing employment numbers for December—they are up 7.95 percent, so 8 percent year over year. That does not include oil and gas extraction or any support services that go around oil and gas. So we are seeing it across the board.

Our surveys indicate a growing number of businesses reporting—and this is what our research staff summarizes as—severe labor shortages. We are seeing it for skilled workers, engineers to auditors, interestingly enough, and especially for construction workers, as noted by President Lockhart. We are also seeing it in unskilled areas. You literally have to give, in certain parts of our state, in my District, scholarships to kids—college scholarships—if you want them to work at McDonald's, because you cannot find people to work at McDonald's in West Texas, for example, or with roughnecks.

For the first time, we are seeing in our surveys that there is some cost pressure. We are hearing about wage and input price pressures increasing and tentative signs—tentative, I emphasize that—of modest pass-through to final goods prices. If you look at the Texas manufacturing index and, more broadly, the services index, which includes retail, we are beginning to see a little bit of that, and I think it's just worth keeping an eye on. So perhaps we have less friction, whatever those frictions might be at the state level, or we may be at a different

stage in the business cycle. But at least we are beginning to see a little inkling of that, and we're going to watch it carefully.

As to the overall corporate context, just a couple of comments. The rails are back to 90 percent of their peak operating capacity, with one exception, Burlington Northern, which this year will surpass its 2006–07 peak operating capacity. It's pretty much across the board. There are certain sectors in their different business divisions that aren't quite doing as well as they did before—for example, coal is down, but oil shipments are up. If you look at them across the board—all of the rails—they are close to being back to peak operating levels. Regarding the express companies, one of the major ones in President Lockhart's District, despite the reports that were given of UPS's delivery problems—you can remember I mentioned at the last meeting they were budgeting an 8 percent December—delivered a 15 percent volume increase in December. I'll come back to that in just a second.

In terms of the airlines, their advanced bookings are significantly improved looking forward through April. In the words of the largest airline operator, "Sluggish growth is over. This is—and feels—much more stable. Of course, time will tell." I mentioned ships—Capesize, bulk shippers, the ones that move big products around the world. Again, the lease rates have come up despite the fact that there is an increase in supply, mainly fueled by the new Chinese building efforts. So when we look at how things are moving around the world, there is a slightly better tone—I was taken by President Evans's "tentatively bullish"—at least it's less pessimistic, and I'll come back to that in a second.

If you talk to the telecoms, one of the most encouraging things you will hear—in addition to what is obvious, which is their broadband hookups, because that is driven by housing—is that for seven straight months now, they are beginning to see what they call "downstream," which is

small business activity. The larger companies are principally driving productivity enhancement, but new engagements are being booked at a “surprisingly robust level,” to use the words of one of the top telecom operators, in the downstreaming of the small business market.

If you look at a not unimportant industry, which is overall tourism, leisure, theme parks—I’ll mention one particular name here: The CEO of Disney is rather shocked because advance bookings through May are up 15 percent year over year with no discounting. In fact, they have not only removed discounting, they have gone back to slightly more aggressive pricing.

The one area that seems to be weak is retail, and it depends on where you are in retail. A statistic that they claim is accurate—and I haven’t checked it and maybe our staff could—is that only 5 percent of retail sales are sold by these mall operators. In December, 9 percent of retail sales were received through the Internet. We do hear very difficult cases, in the case of Target for obvious reasons, Macy’s, J.C. Penney. That represents 5 percent of total retail sales. The world has shifted, and I think that’s important.

For the first time I heard reports of shortages. A significant food producer, in one of its divisions, could not meet demand. Apple actually had a product shortage in one of its divisions, one of the new products that has come forward. Then, also, in the case of one major semiconductor operator, and that’s what I just want to comment on here in conclusion.

I have been puzzled, as has President Lockhart and I guess President Evans and others, as to what has happened with the dynamic of employment. This is not econometric theory, but I go back to “Management 101” and then what I’m hearing from these CEOs who are hands-on managers. They’ve been having flat top-line growth or lack of growth, flat top-line revenue, for a very prolonged period. What you would refer to unscientifically as the growth muscle has

become quite flaccid. I'm hearing report after report after report from my contacts, for what they're worth—not just my board members, but around the country—that they are having to sort of retrain the mentality of their managers to think, to manage, and to budget to greater growth, even though it may not be as robust as we would like to see, but it is a growth mode. That requires a change in the mentality of whether you hire or not, whether you go from temporary to permanent, and, I believe, from what I hear, that this is occurring at the margin. So that would be my report, Mr. Chairman, coming from my overall contacts.

I just want to make a comment on inflation. I, too, like President Evans, have been wondering, what is the role of monetary policy? We have this massive buildup of reserves. We have enormous amounts of cash lying fallow on the sidelines. Obviously, we all know that what counts are spreads here, and we can move the cost of money, the short end of the yield curve. But one of the things that caught my eye in my particular District is if you look at Comerica, for example, the largest bank operating in my District—not big by New York standards but not insignificant where we're from—its loan growth for year over year was 1 percent. I'm talking about period loans. Their period loan demand deposits were up 10 percent. There is a discontinuity here. What do they do? They park it on our balance sheet. We have \$45 billion in total reserves on the Dallas Fed's balance sheet. Up until 2007, our average ran between \$900 million and \$600 million. There is a lot of liquidity in the system. What bankers care about—we just had a little tutorial here from Governor Powell, and he's correct—is, of course, the spread. How much can you make off of lending? That's what it all comes down to, but that's a function of demand. Even in a robust District, such as my own, where we've had rather astonishing economic growth numbers and employment numbers, and perhaps even at the margin some little cost and wage pressures—I don't want to overemphasize that—we are still

seeing an enormous buildup of reserves. So I, too, like President Evans, would begin to wonder, why isn't this working? Why isn't it working its way particularly into the price pressures?

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. Nearly all of the recent economic data have outperformed relative to our December expectations. Most encouraging is the sizable upward revision to real final sales growth in the second half of last year. This pickup in aggregate demand adds to my confidence in the continued improvement and the underlying momentum of the economy.

My business contacts also are more upbeat—not just the new billionaires from Twitter and those companies. Their growing optimism has translated into solid plans for hiring. Most of my contacts expect to increase their firms' employment levels this year, a sentiment expressed in broad national surveys of business executives as well. These hiring plans were especially encouraging because, among the recent data, the one discordant note was struck by last month's payroll employment release, as a number of people have mentioned. That one month was likely held down in part by severe weather. Still, over the past several years, lackluster gains in employment relative to population growth have been a concern.

Now, demographic changes are the chief cause for the low employment-to-population ratio, but cyclical factors also play an important role. One cyclical channel that has gathered some attention is how the drop in house prices and net wealth during the recession made it much more difficult for small entrepreneurs to finance new businesses. Specifically, during the recession and housing bust, employment at new small firms declined much more than at well-established firms. My staff has looked more closely at how startups have fared during the



recovery. They find that through the early part of the current recovery, startup businesses continued to underperform and show tepid employment growth. Because young, small firms usually account for a substantial share of total employment gains during recoveries, their restraining effect on overall job growth was likely significant. The good news here—the data we’re looking at have a lag, but this does echo some comments by President Fisher—is that with house prices and net wealth having risen so much, financial conditions for entrepreneurs are more favorable than they have been in years, and this should support business formation and, in this regard, provide a tailwind for growth going forward.

Turning to inflation, overall and core PCE price measures both increased about 1 percent last year, and inflation appears likely to remain below our target for some time. As described in the excellent memo by Board staff, the current low rate of inflation can be traced primarily to three factors. First of all, while the economy is improving, considerable slack remains. Second, import price inflation has been very low, putting downward pressure on domestic prices. And, third, medical care inflation has fallen, with the medical care CPI posting its smallest December-to-December increase since 1949.

These three factors holding down inflation should diminish over time. Therefore, with inflation expectations remaining well anchored, I expect inflation to start heading back toward our target starting this year. Of course, the Board staff memo also made the point that our understanding of inflation is not very precise. Over the past decade, the largest single contributor to deviations of core inflation from our target is not slack or energy or import price shocks, but the other component, the “kitchen sink” of residual elements. The relative importance of these idiosyncratic factors leads to significant uncertainty and wide confidence intervals around any inflation projection.

One of the key identifiable upside risks to the inflation forecast—that is, one of the known unknowns—centers on the measurement of slack in the economy. As I have noted before, I view the unemployment rate as a generally reliable measure of slack. It is consistent with a range of other labor market indicators. However, I am concerned about how to think about the extraordinary number of long-term unemployed today and their effect on wages and prices. We have not seen such a situation since the Great Depression, so it is hard to know how to incorporate this factor into our inflation projections. It may be that the long- and short-term unemployed can be treated as essentially the same for macroeconomic analysis—that is, for measuring slack and forecasting wages and prices. This is the baseline Tealbook view, and it's consistent with the U.S. evidence before the recession.

A different interpretation is given by the Tealbook's alternative view box, which is an innovation I, too, applaud, and I will have my Tealbook signed by Andrew. I have to say, this was incredibly well executed. It was very thoughtful. It was fantastic. And it led to a really good discussion at San Francisco, really kind of honing the arguments. I'm sure that discussion will continue. In the box, according to this alternative view, a long spell of unemployment sends an adverse signal to employers. The long-term jobless are largely segregated from wage and labor market dynamics. This has long been the case in Europe, where long-term unemployment has been more prevalent. The European evidence suggests that the long-term unemployed have relatively little influence on wage and price determination.

Recent research papers by Bob Gordon and Mark Watson find that the United States may, in fact, be more like Europe in terms of the effects of the long-term unemployed on wages and prices. Specifically, they find evidence that the NAIRU has risen to between 6 and 6½ percent in recent years when it includes all unemployed workers as a measure of slack. They

also find—these are two separate papers and different methodologies—that the NAIRU is relatively stable when one includes only the short-term unemployed, those out of work for less than 27 weeks. They find a NAIRU for short-term unemployed around 4 percent. Now, other research finds that, once you include data from the past decade in your sample, only short-term unemployment appears to influence inflation. The long-term unemployed have essentially no influence. If true, this suggests that U.S. labor markets may not be as immune to hysteresis as many had previously hoped. It also implies that there is very little slack, at least in terms of the implications for inflation, in the labor market today. The possible uptrend in unit labor costs noted in the alternative-view box is suggestive in this regard, but it is far from definitive. But assuming that short-term unemployment is the most relevant metric for slack, inflation will rise more quickly than projected. Indeed, in this case, inflation will likely overshoot our 2 percent target if overall unemployment comes down as anticipated.

I'm not arguing that this hypothesis is settled, but if this hypothesis turns out to be right, it has obvious implications for the appropriate setting of monetary policy. I'd just like to add to what President Kocherlakota said. We should be looking at these alternative measures, whether U-6 or other measures, but I think incorporating them into these kind of statistical models is a useful way to analyze them and maybe evaluate them.

On the other side of the ledger, a downside risk is that we may be underestimating the persistence in the factors that are holding inflation down. I continue to believe in magic in terms of well-anchored inflation expectations, but, potentially, there are risks that some factors that have held inflation down this year could continue. One example that I have talked about in the past is medical prices. They have continued to be soft for some time, as the effects of the Medicare cuts spill over to prices by private insurers. Overall, my outlook for the economy and

inflation is quite similar to the Tealbook, and I see balanced risks to these projections. Thank you.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. The comments from my business contacts since our last meeting were more upbeat than they have been in quite a while. Coupled with the better tone of the incoming data on the national economy, I am more confident that the economic recovery is on a self-sustaining trajectory. And, consistent with the Tealbook, I think the economy is in better shape today than it appeared to be in December. In addition, I have lowered my projected path of the unemployment rate, and I continue to expect that inflation will gradually approach our 2 percent objective.

With that preface, I will focus my comments on two elements of the outlook that I believe bear most directly on our policy decision at this meeting—the labor market and inflation. Starting with the labor market, my District contacts report a brighter picture for near-term hiring plans. Compared with a year ago, the number of contacts reporting that they expect to expand employment during the next 12 months increased substantially. While this information is anecdotal, it leads me to downplay the relatively tepid December employment report, and it increases my confidence that the unemployment rate should continue to fall going forward. Of course, the unemployment rate did decline further since our last meeting. I recognize that December's decline in the unemployment rate was associated with another dip in the labor force participation rate. But the analysis of the participation rates by the Board staff supports my view that most of the recent decline in the labor force participation rate has been driven by longer-term trends, not the business cycle. While some participants may have dropped out of the labor force in part because of the weak labor market, they also seem unlikely to quickly reenter the labor

market. If this is the case, a moderate pace of job growth will continue to put downward pressure on the unemployment rate.

Turning to inflation, over the course of the past year, inflation looks to have stabilized at a low level. Translating the December CPI readings to their PCE equivalents, my staff estimates that year-over-year PCE inflation at the end of 2013 was 1.1 percent, both for headline and core, about where they have been since early last summer. Meanwhile, the medium and trimmed mean CPI inflation rates have also stabilized, albeit at a higher level. Looking ahead, it is most likely that inflation will gradually rise, in time, back toward our 2 percent objective. But, as was discussed earlier, forecasting inflation is a challenging proposition, and the Board staff memo offers an interesting and helpful summary of the state of knowledge of inflation forecasting. As the memo highlights, and as David Wilcox emphasized earlier, one of the key drivers of the Tealbook's inflation outlook is long-run inflation expectations. Research done by my staff supports that long-run inflation expectations can be helpful for forecasting inflation, and the model underlying my inflation forecast includes long-run inflation expectation as well. Over time, inflation expectations anchored at 2 percent should help pull inflation up toward our long-run objective. Longer-run inflation expectations, as measured by surveys, have been relatively stable in spite of recent low inflation readings. Since last spring, inflation expectations from the Cleveland model have moved solidly into the 1½ to 2 percent range.

In summary, when I think broadly about the outlook, uncertainty seems to have diminished some. That is not to say that uncertainty is back to pre-recession levels. Rather, uncertainty seems to be normalizing from elevated levels. Nonetheless, I continue to judge the overall risks to economic growth, unemployment, and inflation as broadly balanced.

Mr. Chairman, I want to conclude my comments by also expressing my gratitude to you for the extraordinary leadership that you have provided this Committee and the Federal Reserve System. I am one of only four FOMC participants at this table who were here before you became Chairman. Before you took office, you invited each president and each Governor to meet with you to talk about improvements that could be made to the FOMC deliberations. At the meeting I had with you, you talked about making the meetings more interactive, you talked about improving transparency, and you said that you wanted to depersonalize the Fed. In other words, you wanted to avoid becoming a “rock star.” I want to compliment you on the many improvements that you have made to the policymaking process. Unfortunately, the financial crisis and your creative and courageous leadership didn’t allow you to escape becoming a rock star. In my view, you have handled your rock star status with great humility, and I have been very proud to have been a member of your band. Again, I thank you for your extraordinary leadership. It has been an enormous privilege to serve this great institution under your chairmanship. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you very much.

MR. FISHER. Mr. Chairman—

CHAIRMAN BERNANKE. Yes, sir.

MR. FISHER. May I note that President Pinalto is on the board of the Rock and Roll Hall of Fame? [Laughter] So that is quite a statement that she made.

CHAIRMAN BERNANKE. What do you think? Do you think there’s a chance for me?

MS. PIANALTO. We need to get you inducted in the Rock and Roll Hall of Fame, Mr. Chairman. [Laughter]

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. As you know, I have largely been a supporter of your policies during the past few years as the FOMC has attempted to navigate policy in the aftermath of the financial crisis. I will be sorry to see you depart, as I think you have provided outstanding leadership during this difficult era. You may have noticed, Mr. Chairman, that while I have generally been supportive, I have also at times, perhaps too numerous to go into here, offered suggestions for how policy might be improved, either through changes in the statement or through changes in the nature of our policy tools.

In that spirit, Mr. Chairman, I felt it would be appropriate to use a few minutes of my time to bestow upon you still more unsolicited advice—this time regarding the book you are rumored to be preparing to write. Startling reports of an alarming nature have reached me, suggesting that the working title of the book is, in fact, “An Inquiry into the Nature and Causes of the Decline of the Wealth of the Nation.” Mr. Chairman, while I am generally supportive of you writing a book, I believe this title is suboptimal. First, in the sweep of history, now may not be the most opportune moment to appeal to the genius of Adam Smith. Furthermore, the effectiveness of the book may be enhanced by taking a cue not from dead economists but, instead, from dead film directors. I have in mind, in particular, the altogether different genius of the late Stanley Kubrick. Drawing on Mr. Kubrick, my suggested title for your book is “How I Learned to Stop Worrying and Love Open-Ended Quantitative Easing.” [Laughter] I think this title might more appropriately capture the spirit of the times and, thus, allow your book to provide better communication to a mass audience. I hope you will consider this small change in emphasis as I wish you the best of luck regarding your future plans.

Let me now turn briefly to matters of a more factual nature. While some very recent data concerning the state of the U.S. economy have been less robust than expected, in general, I

remain optimistic concerning macroeconomic prospects in 2014. My confidence stems, in part, from a relatively successful forecasting year concerning the real economy in 2013.

The July 2012 St. Louis forecast for calendar year 2013 is turning out to be reasonably accurate on unemployment and real GDP growth. For unemployment, we took the view that labor force participation declines were mostly structural in nature and, therefore, less likely to reverse and inhibit the ongoing declines in unemployment. This viewpoint served us well, as it now appears that we were right concerning the fourth quarter 2013 average unemployment rate. Because this type of forecasting success is a rarity, I wanted to be sure to highlight it for you, so that all of you would not miss it. [Laughter]

Similarly, for real GDP growth, during the summer of 2012, the St. Louis forecast called for slightly higher than 3 percent growth in 2013. For much of last year, I labored under the illusion that we were missing badly with this forecast and that growth would come in once again much lower than anticipated. Imagine my relief, then, as data arriving late last year and during the intermeeting period pushed up growth estimates substantially for the second half of 2013. While it appears that we will still miss this on the high side, our miss is much smaller and perhaps within the realm of reason. Furthermore, the problem quarter for our 2013 forecast was 2013:Q1, which was quite weak according to current estimates. The general picture that the U.S. economy would improve during the course of 2013 appears to have been vindicated by recent events.

The GDP and labor market data, along with other indicators, are largely signaling a continued strengthening of macroeconomic prospects into 2014. While I note the very recent turmoil in global financial markets, associated mostly with events in emerging market



economies, I think this development bears watching but does not constitute a negative factor for the U.S. economy at the current juncture.

Furthermore, anecdotal reports from the Eighth District, especially in the transportation sector, seem to indicate an economy quite a bit livelier than we have observed in the past several years. A large logistics company, for instance, intended to hire 55,000 temporary workers for the holiday season but ended up hiring 85,000. In addition, they had to offer special incentives to get people to work despite unemployment rates that remained relatively high. A large transportation firm continues to invest heavily in capital equipment, including trucks, and that's new compared with the past five years, and it intends to hire as many as 1,500 workers this year. Anecdotal reports also suggest some congestion delay in railroad transportation, which is not the type of thing one hears about in a sluggish economy. Technology firms continue to report booming business and intense competition for skilled workers. Many contacts continue to complain about shortages of certain blue collar and semiskilled workers. The inability of prospective workers to pass a drug test remains a key barrier.

One area in which our forecasts were not successful during 2013 was in the inflation arena. While the summer 2012 St. Louis forecast called for inflation at target in 2013, actual inflation has continued to drift lower. This has been discussed extensively today. I appreciated the staff memo on this topic, which was excellent. I think inflation remains a wild card for the Committee during 2014. My current forecast continues to call for inflation to move back toward target, but I continue to await definitive signals from the data that this is actually occurring.

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. Economic activity in the Third District continued to improve during the intermeeting period, and the tone of our business contacts has turned decidedly more optimistic. It appears that the Third District's economy is growing pretty much at trend. My staff's state coincident indicators show moderate economic growth across the tri-state area, and leading indicators point to continued growth over the next six months.

Regional manufacturing activity also continues to expand. The Business Outlook Survey's general activity index posted its eighth consecutive monthly increase in January, rising to 9.4, which again is about at trend level. Six-month-ahead indicators in the survey are well into positive territory, near their trend. Manufacturers remain optimistic about future activity. Firms plan to increase capital expenditures over the next six months. One very large business in our District indicated that in 2013 it ended up expanding its capital expenditures well above what it budgeted originally, and going forward it is now forecasting even more capital expenditures for 2014. That business is much more optimistic in that regard. Another manufacturer who manufactures and sells products all over the world said that the end of 2013 was one of the strongest periods it had witnessed in the past 10 years, and what it calls its "book" is very large, forecasting—at least for the first eight or nine months of 2014—a very strong year.

The December employment report for New Jersey gained some headlines. There was a very sizable drop of 36,000 payroll jobs in New Jersey alone. This is a 0.9 percentage point drop on a monthly basis, not an annual basis, and the largest decline since September of 1945. Pennsylvania also saw a decline in employment in December, but a more modest 0.2 percent. Analysis by our staff suggests that a significant portion of this loss is very likely attributable to poor weather conditions in the Northeast, as losses were concentrated in construction and in leisure and hospitality, two sectors that have generally shown stable and growing employment in

the region. So I am inclined not to read too much into the December payroll numbers. If we average the monthly numbers and look at employment for the three months ending in December over the comparable year-earlier levels, we see growth of about 0.7 percent in both states, which is somewhat stronger actually than their longer-term trend. Another positive indicator is that the employment index in our manufacturing survey improved in January and is running above its trend rate. Taken altogether, my assessment is that labor market conditions in the District continued to improve in the intermeeting period, and that they are likely to continue to do so going forward into 2014.

Other activity in the District also firmed. Commercial real estate activity is picking up. There are three new major office projects breaking ground in center city Philadelphia, two 47-story mixed commercial and residential structures and one 59-story Comcast innovation center, which will house a Four Seasons hotel as well as Comcast. Net absorption of office space—the difference between new space leased and space added—has been strong enough to drive down vacancy rates over the past few quarters.

My read of conditions at the national level is pretty similar. I have made little change in my forecast. While recent volatility in financial markets—including the emerging market currency swings and equity price declines—could pose a risk if sustained, I have done little to adjust my forecast to reflect that. I think it is premature to do so, and I hope that we won't have to. I continue to forecast economic growth at about trend. My growth forecast for 2013, like that of the St. Louis bank, was close to 3 percent. It was a little high, but it turns out that the fourth-quarter burst is going to bring it closer to that, and I continue to believe it will be about 3 percent going forward in 2014. I haven't changed that forecast, either.

Inflation numbers have been low, but core inflation appears to be stabilizing. Expectations are well anchored. We can keep our fingers crossed. For all the reasons that other people have discussed, it is a bit of a wild card.

There seems to be accumulating evidence that the headwinds are not as strong as we might have thought earlier. The Tealbook has revised down its path for the unemployment rate and reduced its measure of output gaps and labor market slack. All but the nominal income targeting rule point to a positive federal funds rate in the second quarter. And note that this includes or recognizes the fact that inflation is below target. This suggests that we are likely going to have to start pulling back on our policy accommodation sooner than we might have once thought. If so, we need to start thinking about how to best convey that message. As we approach the 6½ percent threshold, and we continue to try to provide more accommodation through asset purchases, our communications will become more challenging, and we will have to work on that.

The alternative view in Tealbook A, which I applaud and I referenced earlier, makes a plausible case that the economy has nearly recovered from the adverse shock of the Great Recession and has returned to something that looks like steady-state growth. But even if this is not viewed as the modal forecast, I think it reconciles several conundrums in the data. For example, there have been several discussions around the table at recent meetings about the declines in the labor force participation rate and concerns that we will see a backup in unemployment once the participation rates return to trend. The analysis by Shigeru Fujita on our staff that I reported two meetings ago has largely been confirmed and reinforced by the Board staff memo that came out during the intermeeting period. That is to say that a large portion of the participation rate decline is not cyclical—not all of it, but much of it is noncyclical. This

means that the drop in the unemployment rate, which is much sharper than many anticipated a year ago, remains a pretty good indicator of labor market conditions. I think it would be prudent for us to think about the implications of the alternative view for our policy choices going forward—a topic that I will return to next go-around.

Before concluding, I'd like to say what an honor it has been, Mr. Chairman, to serve on the FOMC with you. Your leadership has been exemplary through some of the most troubling and challenging times in our nation's economic history. Of course, we will be making official tributes to you tonight at dinner, but I didn't want to let this opportunity go by without acknowledging my personal deep gratitude for your service and your leadership. Thank you.

CHAIRMAN BERNANKE. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The 10th District economy held steady overall since the last meeting, and bright spots in the region continue to be housing, construction, and energy. Colorado is doing particularly well, and our contacts there report a fair amount of enthusiasm on two fronts: brisk sales of a new legalized consumer product [laughter] and the upcoming appearance of the Mile High City's team in the Super Bowl. Aside from those transitory factors, consumer spending was mixed in late November and December, as automobile sales declined, while retail and restaurant sales slightly increased. Although most District contacts reported sales activity as lower than they had expected, retail sales actually increased compared with the prior month and were higher than at the same time last year. Consumers have continued to pay down revolving debt balances while modestly increasing auto debt.

The District's unemployment rate, at 5.7 percent, is fairly close to its longer-run average and significantly below that of the nation. Feedback from our business contacts shows net hiring plans moved upward for every industry for which data were collected, with the exception of

bankers and mortgage lenders, which is likely because of the slowdown of the refinancing business last year. When asked to identify the main reason for hiring more workers, respondents most often indicated that they expected more sales in the coming year. Finding qualified workers to fill job openings continues to be a common complaint.

My outlook for the national economy is unchanged from December. I continue to expect above-trend economic growth of about 2½ percent in the first half of this year and then rising to 3 percent for the rest of the forecast horizon. Certainly, a reduction in fiscal drag is playing an important role in my forecast for this year, as does, though, continued strength in consumer spending and expectations for business investment.

I expect that consumer spending will be supported by an ongoing pickup in nonfarm payrolls moving closer to a 200,000 per month rate this year and next, which is similar to the January Blue Chip consensus, after growing at an average monthly rate of 182,000 last year. Modest wage gains should also contribute to consumer spending. The January Blue Chip consensus expects the rise in average hourly earnings to increase from 1.8 percent last year to 2.3 percent this year. These forecasts are consistent with the December Thomson Reuters/University of Michigan Surveys of Consumers, which finds that consumer optimism about future income gains continues to rise.

I expect investment spending also should edge higher, as policy uncertainty fades and lending standards have eased. Forward-looking indicators are positive. For example, looking at Duke's Global Business Outlook Survey, CFOs expect capital spending to grow 7.3 percent over the next 12 months, the highest rate since the first quarter of 2012. Additionally, the fraction of small businesses planning on making capital expenditures in the next three to six months has picked up and is now at its highest level since June 2008.

On inflation: With measures of inflation expectations holding steady, the labor market continuing to gradually normalize, and import prices stabilizing, I expect inflation to firm next year and move higher over the next few years. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. The Fifth District economy has continued to show signs of improvement in recent weeks. Manufacturing continued to expand, according to our January survey released this morning, which showed a third straight month of solid positive readings. Our diffusion index for retail revenues swung from minus 15 in December to plus 18 in January. In addition to these survey data, news on the housing market in our District was positive; new home sales and construction prices moved higher. Furniture sales are showing some positive momentum again after sagging in December. Commercial real estate was more of a mixed bag, though, with improvement reported for warehouse, energy, and transportation projects, while retail and office construction remained fairly soft.

Many of our business contacts are sounding guardedly optimistic. Several bankers have said that credit metrics are improving and loan pipelines are growing. In their annual canvassing of their loan customers, more of their customers reported a desire to expand this year. One of our directors told us of a crane company that had its best year ever in 2013, and the largest builder in South Carolina is increasing its credit line. At the same time, firms have ample reason for caution. A large department store chain based in North Carolina had very strong sales in October and November but poor sales in December and is now planning for only 1 percent sales growth this year. Also, a large multilocation auto dealer said that 2013 was its best year ever, but that sales were down in December, especially the last week. On balance, then, there has been

a clear improvement in District economic activity, but we continue to hear notes of caution from our business contacts. What optimism they do express is, as I said, distinctly guarded.

In the national picture, the surge in economic growth in the second half of 2013 was striking. A key question is whether that surge will be persistent or whether it will subside this year. The recent data strengthen the case that the Tealbook has been making for some time now that GDP is going to be growing above 3 percent for several years, but I am still not completely convinced. One of the most encouraging recent developments was the upswing in real consumer spending at the beginning of the fourth quarter. We have seen similar swings before, though, and they turned out to be less persistent than we had hoped. I would like to see an improvement in income growth to support the pickup in spending growth, but we haven't seen that yet.

Another reason for caution is that so much of the surge in growth in the second half of last year was attributable to inventory accumulation. These additional inventories are only unwound over two years in the latest Tealbook. It wouldn't surprise me to see a much quicker reversal, particularly if consumer spending lost a bit of steam. So I'm hesitant to sign onto a forecast of persistently strong GDP growth, even though much of the latest data have been encouraging.

Turning to inflation, I'd like to also thank the staff for sharing the details of their framework for producing inflation forecasts, particularly their method for conveying the various components driving that forecast. What was striking to me was both the importance of inflation expectations to the process and the stability of expectations in recent years. Others have mentioned this as well. Certainly, that stability is a good thing and no doubt is a reflection on our credibility that we have worked hard to earn. The staff notes that it's essentially impossible to build an empirical model of expectations using data for the recent period in which they have



been virtually constant. I think it's worth noting that we saw significant swings in expectations in the more distant past. Extracting usable lessons from those data is obviously going to be difficult, but I think it's worth trying. The sense you get from the historical data, just looking at it roughly, is that dramatic and painful action would be required should expectations become dislodged.

Finally, Mr. Chairman, I share the sentiment expressed by others around the table that you deserve our enduring gratitude for your dedicated service as Chairman during what turned out to be exceptionally trying times. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. My views about the outlook for economic growth have not changed materially since the last meeting, although growth in the second half of the year has been stronger than expected. I'm pretty much where the Tealbook is; I haven't really upgraded my forecast for economic growth. I'm still optimistic that the economy will grow above trend in 2014. I think consumption will hold up relatively well, in part because net worth has risen so sharply. Given the level of net worth relative to disposable income, there does seem to be some scope for the household saving rate to decline in 2014. I also take some comfort from the recent news on equipment shipments and orders, today's report notwithstanding. For me, business fixed investment has been a puzzle up to now. It has been weaker than I would have expected given the high level of profits, the low level of interest rates, and the large amount of cash sitting on the business sector's balance sheet. The fact that it now seems to be on a stronger trend is noteworthy in my view.

Before getting too excited, though, we have to recognize that transitory factors are responsible for some of the strength in GDP growth we have seen over the past two quarters, as

President Lacker noted. I expect that the very sharp pickup in inventory accumulation in the third quarter and the very large contribution from trade in the fourth quarter will not be repeated. Moreover, fiscal drag is still pretty significant in 2014, even though it is less forceful than in 2013, and that still seems likely to blunt some of the economy's forward momentum. So economic growth slightly above trend, at an annual rate of around 3 percent, still seems like a reasonable forecast.

On the inflation side, the data seem generally supportive of the view that inflation will drift up gradually over the next few years toward our 2 percent objective. Core inflation seems to have stabilized, albeit at a level well below our objective. Inflation expectations remain well anchored, and the amount of excess slack in the economy is shrinking.

On the economic growth side, I expect that the incoming data will provide less of a signal than normal over the next month or two, and I would encourage the staff to do some work on population-weighted heating degree days and how that affects the various economic data. The winter has been unusually cold, and I really do think this is going to play havoc with the seasonal adjustment process, especially in the construction sector, of course, but I think it also could have meaningful effects elsewhere.

One issue that I had been thinking hard about is the degree of excess slack in the economy. It seems that the amount of slack in the economy is shrinking faster than we had anticipated given the rate of economic growth. We have seen the unemployment rate decline quite quickly over the past 18 months, even with a very moderate growth rate. I am not convinced that the relationship between economic growth and the unemployment rate will necessarily go the other way in 2014—that the unemployment rate will flatten out even as growth stays above trend. The fact is that we don't have a good read on three important factors:

what productivity growth will be in 2014, so we don't know how that growth will translate into labor demand; how participation rates will change if the labor market tightens, so we don't know how a given growth rate of payroll employment will translate to changes in the unemployment rate; and the level of the natural rate. I think the participation trend, in particular, is very difficult to evaluate. Most of the decline does appear to be tied to shifts in the composition of the different age cohorts and secular declines within some age cohorts. But parsing out what is temporary from what is permanent is difficult, and this creates considerable uncertainty about the outlook for the unemployment rate and the degree of slack in the labor market.

For me, my uncertainty about how the level of excess slack in the economy will evolve this year, combined with the uncertainty that I have about the growth pace of the economy, makes me pretty uncertain about the ultimate timing of liftoff for short-term rates. So I really want to put less emphasis on the modal forecast and talk about the degree of dispersion around that forecast. I can imagine we might want to lift off as soon as the first quarter of next year, or many, many quarters later. Given this, I would prefer to shift, although not at this meeting, our forward guidance more toward a formulation based on economic conditions rather than time. I just think there is too much uncertainty about the timing to continue to formulate it in those terms. I think we need to consider how we should adjust the monetary policy statement at the March meeting in light of these considerations. I'll talk more about that tomorrow.

Finally, two comments, one on financial market developments and another on emerging financial-stability risk. Although the selloff in some of the EMEs has been very sharp in recent days, I am, I think, pretty much where Steve is. I would be very hesitant to put too much weight on the importance of this past week's developments. First, the selloff has been the sharpest by far in those countries, such as Argentina, with the poorest fundamentals. Second, if you look at

our markets, the adjustments in our equity and bond markets have undoubtedly been exacerbated by market positioning. Going into this year, the consensus is very strong to be overweight in equities and underweight in Treasuries. Whenever the consensus view is well entrenched, there is scope for sharp reversals. Third, from a U.S. perspective, financial conditions really haven't changed much and still remain broadly supportive of economic activity. As President Fisher pointed out in his earlier remarks, the declines we are talking about are pretty trivial at this point.

On the financial-stability front, I just want to briefly flag the Puerto Rican situation. The likelihood of a downgrade by Moody's to junk status in the near future is quite high. Moreover, the commonwealth apparently has limited access to liquid resources to fund its ongoing operating deficit. This could come to a head as a full-blown crisis relatively quickly, and that could actually lead to contagion through a number of channels, including the monoline insurers that guarantee a significant portion of Puerto Rican sovereign debt and the broader municipal bond market. Now, my own view is that although such an outcome would be problematic, I think the Puerto Rican situation will be viewed as sufficiently idiosyncratic that the knock-on effects to broader financial stability will be modest rather than severe. But I do think it's worth flagging because this is something that could come up over the very near term. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I've read the limited news that's rolled in since the December meeting as positive, on net, but there have been some disquieting elements. Most importantly, economic activity appears to be gradually strengthening. That's consistent with my expectation in the December SEP and with our Committee's assessment when we decided to undertake our first measured reduction in the pace of asset purchases. We've not yet

seen clear signs that inflation is moving back gradually toward our 2 percent objective, but it would be unrealistic to expect such signs to emerge in just a month or so of data.

With respect to the labor market, there's no denying that the payroll side of the December employment report was disappointing. I've read a fair bit of discussion among the staff and outside analysts concerning the potential effects of bad weather, but I've not seen anyone make the case that this factor could explain the entire shortfall relative to expectations of more than 100,000. In spite of the weak December payroll report and thanks, in part, to upward revisions to November's gains, the three-month moving average stands around 170,000, a level that clearly is consistent with ongoing improvement in the labor market. For now, my hope is that the December jobs reading will prove to be a temporary aberration and that payrolls, on average, will post stronger gains going forward.

The household survey was more mixed, and I see the main question there as whether to interpret the large decline in the unemployment rate as signaling an equally large reduction in the degree of labor market slack. This assessment is made more difficult by the accompanying 0.2 percentage point decline in labor force participation. We've debated any number of times over the past year or so whether labor market slack is now becoming increasingly manifest in lower labor force participation rather than in measured unemployment, and there are arguments on both sides of this debate. It's important for us to refine our thinking on this matter because, after declining about 30 basis points per year, from 2010 through 2012, the labor force participation rate declined a whopping 84 basis points last year.

I found the staff memo on the behavior of the participation rate helpful in thinking through various potential explanations. Concerning the role of demographics, the memo rightly highlights the fact that the shift in cohort sizes toward older cohorts with lower participation

rates dominates the modest increase in participation rates of older workers. But we are confronting a difficult identification problem, because these demographic changes coincide with the aftermath of a particularly deep recession. It's conceivable that the demographic changes imply a steeper decline in the trend rate of labor force participation than the 0.3 percentage point per year assumed in the Tealbook baseline, but I remain reasonably optimistic that a substantial fraction of the decline in participation among younger cohorts would be reversed in a strong economy with a higher pressure job market. In particular, I'm not at all convinced that many among the younger and prime-age cohorts who currently state they do not want a job would give the same answer if the job market were notably stronger, if, for example, quits and the pace of hiring were closer to normal levels and wages were showing more substantial gains.

While I'm inclined to discount at least a portion of the large decline in the unemployment rate in December, it does seem fair to conclude that the drop signals at least some reduction in slack. This view seems consistent with job market perceptions in recent surveys and the news we received on growth. The level of real GDP in the fourth quarter is now projected to be 0.6 percent higher than we thought at the time of the December meeting. Some of this upward surprise is due to stronger net exports, which are unlikely to continue making large contributions to economic growth going forward, but private domestic final purchases accounted for about one-half of the upward revision to GDP. The strength we've seen in this component is certainly good news, and it suggests that the long-awaited acceleration in household and business spending may have finally arrived. Although the risks to this outlook now seem reasonably balanced, the recent volatility in financial conditions faced by emerging markets bears careful watching. But, to date, it appears unlikely to derail the generally more positive outlook for the global economy.

While I am hopeful that we're finally breaking out of the 2 percent growth pattern, I think we should be careful not to get carried away with our progress. Let's keep in mind that we've experienced quite a few false dawns over the past few years, and even if faster growth is now for real, the absolute level of slack in the economy is probably still quite large by historical standards. The unemployment rate provides an incomplete measure. In addition to the difficult-to-estimate cyclical shortfall in labor force participation, our assessment of slack needs to factor in the unusually large portion of the labor force that is underemployed. The fraction of the labor force working part time for economic reasons still stands at 5 percent, a level not far below its post-recession peak of 6 percent. Moreover, at 2½ percent, long-term unemployment still stands far above its pre-recession level of 1 percent.

Furthermore, inflation has been disconcertingly low over the past year, and, at this stage, reversion of inflation toward our 2 percent objective remains only a forecast. We noted in our statement that low inflation could pose risks to the economy. I think a persistent downside miss could also pose risks to our credibility. On balance, at this juncture, with the unemployment rate falling rapidly, I see our main challenge is finding ways to communicate that we intend to keep policy highly accommodative for quite some time and that we'll be patient in removing accommodation when the time comes to do so.

I, too, Mr. Chairman, want to express my gratitude for all of your contributions to the Federal Reserve and to the nation and say what an honor it has been to serve with you. And I want to mention that the thought of filling your large shoes is a daunting challenge.

CHAIRMAN BERNANKE. I am completely confident. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. When the go-round got to me at the December meeting, I characterized what I had heard to that point as, generally, people having not

changed their baseline or modal expectations very much, but having seen a reduction in downside risks. This time around, up until about the past 15 minutes, I would have characterized those who have gone before me as, again, not seeing much of a change in modal expectations but having had some increase or some sense of perhaps increased upside risks. Beginning with Jeff, though, I think there's been a little bit more of a line that captures some of what I'm feeling, which is at least a little bit more doubt around that. A lot of the good news to which people referred was backward looking. The upping of the second half of 2013's economic performance was sort of: It's good, we had it, but, particularly as Jeff said with things like inventory buildup, there's not actually a particular suggestion that that's going to carry through to more momentum. If anything, it might be slightly less. Taking note of the trio of less-than-uplifting pieces of data that people have mentioned that we've seen over the past couple of weeks—the jobs report, housing permits, and durable goods orders—two of those three are forward looking, and the fact that two of the three that are forward looking are not so great gives me at least a little bit of a pause. The subjective points for optimism, which are people and businesses reporting that they feel better about things, we should probably take note of, but, of course, those are susceptible to a turnaround as well when things in the world aren't going as positively as expected.

In that regard, I just want to mention a couple of things about external risk—which is to say, the possibility of financial turmoil in emerging markets. I say external, even though one factor is presumably the actual and anticipated rise in U.S. rates with the presumed effects of reversing some of the capital flows to emerging markets that resulted from the search for higher returns over the past several years. I don't know how great this effect is, but because emerging markets' financial problems over the past few decades do seem to be, at least generally, correlated with interest rate movements in larger, mature economies, I suspect there is some



causal relationship with our monetary policy, as well as with the pullback from some emerging markets by many European banks as they took risk off their balance sheets largely based on non-European asset sales. I'm inclined toward the view that Steve and others have already articulated, that the current stress in a number of emerging markets is not likely either to develop into a full-blown and widespread crisis or to have substantial direct effects on the U.S. economy.

Important background factors in many important emerging markets have changed for the better since the 1990s, including fewer hard pegs of exchange rates, considerably higher reserve levels, and a greater proportion of debt denominated in local currencies. But there is at least one other background change—namely, the exponential increase in capital flows to emerging markets over the past decade or so—that may make a crisis more likely because there's a lot more that could run. I'm a little less than totally reassured by some of the grounds given by a number of commentators for believing that the problems will remain muted. Foremost among these is the differentiation point—that is, the notion that Turkey, Argentina, and Ukraine, which are among the most affected economies, are very different and have significant and special issues that don't apply to the others.

As Steve has already mentioned, in the summer of 1997, Thailand looked a lot different from Indonesia, Korea, and other countries to many observers both within and without the U.S. government. What seemed in mid-1997 to be problems in these countries in need of attention, but manageable, suddenly became serious vulnerabilities. Eventually investors did draw distinctions among the affected countries, but in the presence of a lot of uncertainty and fear, they tended to run first in a quite undifferentiated fashion in response to developments that didn't seem logically sufficient to change people's perceptions of those economies that much. This is

the impact of something approaching a herd mentality or behavior in the absence of enough information.

I'll just quickly mention some other things that are a little bit worrisome about the current circumstances. Several of those countries—Turkey, Argentina, and Ukraine—are also good examples of countries that have really quite bad relationships with the IMF right now for different reasons. Argentina has a 14-year history now of bad relationships. Turkey had a lot of interaction with the IMF for quite a while, but in recent years that's become strained. And of course, Ukraine has just got substantial political problems that stop it from having very coherent policies more generally. That's important because obviously it makes it less likely that problems that develop in those economies can be reasonably contained with a Fund program if there's a bad basis on which to build the Fund program in the first place.

That leads me to another observation, which I suspect is related to the point about bad relations with the IMF. In conversations with officials, colleagues, counterparts from some of the emerging markets, I sense more worry in them than I might have anticipated based on the kind of analysis that we've been giving one another today and in the past few days. When you're on the firing line, of course, things always seem a little bit more dramatic, and so you tend to be a little bit more worried, but some of the countries that people would put in the middle category of vulnerability seem extremely focused on what can be done to move Argentina, Turkey, and some of the other countries in a more stabilizing direction.

A final point of difference is that the United States and other mature economies have way less room to provide some buffering or absorption capacity than we did in either 1994–95 or 1997–98. I mean, people will remember that a turning point of the 1997–98 emerging market crisis came, I think, when our predecessors here reduced the federal funds rate in non-regularly

scheduled meetings very significantly in the course of just a couple of weeks. We're obviously not in a position to do that. Now, I'm aware there are a lot of experts out there who have predicted eight out of the last two emerging market financial crises, and, as I said, my guess is that this episode will remain largely contained, but I think the downside risk is actually somewhat greater than has been generally recognized.

Then, briefly, switching gears for a second, I also wanted to say something about the labor markets. First, I wanted to make one point on the memo, which I agree was very good, although I cannot keep the five hypotheses straight in my mind. People have been noting that the memo attributes most of the change in labor force participation to structural factors. That's correct but a little bit misleading, given our policy decision, because, pre-crisis, the expectation of labor economists was for a declining labor force participation rate because of demographic reasons, the aging of the population. Really, from our point of view, the key should be explaining the delta between what that projection in, say, 2007 or 2008 would have been and what we're seeing today. And I think, when you look at it that way, you probably see a more balanced explanation between structural and cyclical factors.

After several years of very high unemployment and insufficient aggregate demand as well as, perhaps, an acceleration of some preexisting unfavorable secular tendencies, the case for structural effects on the labor market is unfortunately becoming stronger, and the absence of aggressive active labor market policies has almost certainly exacerbated whatever is, in fact, occurring. But as Charlie Evans and Narayana did, I think it's useful to focus a bit on what we have seen with respect to wages, because here I don't think that we're seeing a lot of evidence that whatever slack does exist is being reduced so rapidly that we're at the limits of what can be productively done.

Some research notes by outside organizations have suggested that wage pressures are building. These notes have emphasized the year-to-year percentage change in average hourly earnings for production and nonsupervisory workers. It's true that this measure of wages has accelerated over the past 18 months or so. Through December, the average hourly earnings series rose 2.1 percent from a year ago, which was a noticeable pickup from what was, after all, a historically low 1¼ percent pace in late 2012. But the average hourly earnings of production workers is pretty much the only wage series that shows evidence of marked acceleration. Rates of increase in average hourly earnings for all workers and in the employment cost index for private workers are basically unchanged since 2010, with not much evidence of recent acceleration. Compensation per hour for workers in the nonfarm business sector presents a fuzzier picture, but, from what I understand, that series is noisy enough that it's difficult to draw much inference from the recent movements that we've seen.

Anecdotal reports notwithstanding, it's hard to find much evidence of industry-specific wage pressures by looking at aggregate data. Wage gains have been pretty muted across a variety of industries, including those in the service sector. There are a couple of industries, several of you have already mentioned residential construction, in which there do seem to be more impressive wage gains, but there are nearly always some discrete sectors in which wages are rising well above the norm, and these are not at all necessarily harbingers of more generalized tendencies. If we're talking about construction workers, it's probably worth noting that for the construction sector as a whole—that is, not just residential but nonresidential construction—wages have continued, on net, to decelerate since the end of the recession.

So although I think the questions, as many of you have already noted, about what's going on in labor markets remain open and contestable and certainly very important for our purposes, I

don't think that, at this point, the case has yet been made for structural explanations dominating cyclical ones to such an extent that it should be affecting near- to medium-term monetary policies. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Stein.

MR. STEIN. Thank you, Mr. Chairman. Let me just first add to what others have said and express my gratitude and admiration for everything you've done over the past eight years. Personally, it has just been a great privilege to be your colleague and to have the opportunity to watch you work.

As others have noted, we've had some, I guess, modestly encouraging news since our last meeting, most notably the upgrading of second-half GDP growth, along with stronger consumer spending and business investment. Given the generally positive tenor of the data, I guess I was a little bit puzzled, I didn't quite know what to make of the payroll number. So, all else equal, I'm inclined to wait and see how the next one or two play out before putting too much inferential weight on it.

Now, I don't mean what follows from here on as in any way a forecast, but just in terms of identifying scenarios that are interesting and potentially challenging for us, the recent news did prompt me to wonder whether something along the lines of the Tealbook's more optimistic alternative scenario—I guess it was the "Consumer and Business Confidence" scenario—might just be worth spending some time thinking about. Concretely, suppose that the faster growth we've seen in the last half of 2013 sustains itself and in so doing actually creates a little bit of positive consumer sentiment or animal spirits and you start getting a little bit of a virtuous feedback. As a result, economic growth picks up, and, as we move, let's say, into the middle of this year, we see growth on the order of  $3\frac{1}{2}$ , 4 percent. And unemployment continues to come

down, but it's clear that now it's coming down not just because of weak labor force participation. It's coming down because the economy is strengthening. Obviously, this is good news. This is sort of in the category of high-class problems. But—Simon alluded to this—this is, I think, the scenario in which we might want to start wondering about—like the word you used—an “attack” on the forward guidance or a challenge to our forward guidance.

Let me see if I can try to be a little clearer on what I see as the nature of the challenge. First, there's sort of a hypothetical baseline. Imagine a situation in which we had idealized forward guidance—that is, we had caused the market to fully understand our reaction function. We had a mind meld with the market. In that case, good news would put upward pressure on market rates, but it would do it in a way that we're perfectly comfortable with because, in other words, it's just the expectations hypothesis combined with the contingent nature of the data. The expected path of the short-term rate is going up, and it's just as much as it should. It's really kind of the automatic-stabilizer thing. That's not the scenario to be worried about.

The harder and more realistic situation is one where the market doesn't really fully understand our reaction function or some people in the market don't fully understand, and, importantly, there's scope for divergence of opinion. Different people think about things differently. Note that once we get below an unemployment rate of 6.5 percent, we've said qualitative things, but they're qualitative, and because they're not completely unambiguous, there has been some mix of economic contingency and time dependence. We've said things like “well past 6.5 percent.” On top of that, I strongly suspect that whatever we say, there's at least a subset of people in markets who like to think of things in calendar terms. Whatever we've said, they've kind of heard third quarter of 2015, and that's what's driving the front end of the curve.

Just imagine what might happen if we sort of blow through 6.5 percent pretty soon and if we do so on the back of strong GDP growth. Now you're going to have an obvious tension between those who have heard kind of a calendar message of mid- to late-2015, and those who are thinking in terms of economic conditionality. Again, to be clear, those who have interpreted the message in terms of the calendar may not have been listening correctly, and they may well be in a minority, but they may be the guys who are actually buying bonds and buying bonds with leverage. So I think there's really a direct analogy to what we saw in markets with the so-called "taper tantrum" in June, which is that if you get some sort of a run of surprisingly strong news, it brings forward some notion of a day of reckoning. It sort of crushes the guys who have beliefs that are overly optimistic, however they came by it, and then you worry about there being some upward pressure on rates, upward pressure on term premiums.

I think that's not helpful to our policy objectives. That is to say, I think we're supposed to happily accept whatever increase in long rates comes from a good understanding of a reaction function combined with legitimate good economic news. I don't think if we get another 100 basis points on the term premium piled on top of that, that's something we should be happy to accept. And I think that's actually kind of a risk to incipient recovery. I don't think it's likely to happen, but I don't think it's entirely out of the realm of plausibility. We got 100 basis points or so on the term premium during the tapering episode, and we're still below a notion of the long-run average level. So it seems like we could have something.

I just put this on the table not because I have an answer to what we should do, but I think it's useful to think about how we might respond if we get this kind of an upward spike in term premiums. What would we do? Presumably, we would want to lean against it in some way as we effectively did after the tapering thing in the summer, and there was a big increase in term

premiums. We surprised the market in September by not tapering. That was arguably the right thing to do, given the change in financial conditions, and maybe we'd want to do something analogous, which in this case would be, all else equal, relative to your reaction function, you would think about delaying liftoff or moving more gradually post-liftoff.

That seems like the right, logical thing to do if you just think of it as an exogenous increase in term premiums much like an exogenous contraction in fiscal policy. All else equal, that kind of shifts your outlook back and makes you want to be more gradual. I think what makes it tricky is I don't think we've necessarily done a very good job of laying out the premise in this case. In other words, I think we've done a pretty good job of laying out the premise—and others have talked about this—if we blow through 6.5 percent because the unemployment rate is not a good measure of slack, because of weak labor force participation. There I think we've kind of laid the groundwork for going more gradually. Or, if inflation is very low, there I think we've laid the groundwork. I think we haven't really thought about laying the groundwork for how we respond to a spike in rates. Again, that's not a prediction; it's not close to a prediction. But, as we start moving toward augmenting the guidance, I think it might be worth thinking about that scenario. Thank you.

CHAIRMAN BERNANKE. Thank you. Governor Powell.

MR. POWELL. Thank you, Mr. Chairman. I will briefly talk about the near-term outlook and then offer some thoughts on the path forward.

I have no significant disagreements with the baseline forecast. The fact that the economic growth estimate for the second half of 2013 has been revised up from 2.6 to 3.75 percent is a remarkable markup and most welcome, although some of it does, particularly imports and inventories, feel a little bit one-timey to me. But, still, I would take it as very good



news. I think most business people that I've known in my life would not understand what this revision says about the difficulty of carrying out policy. It's as though at year-end, management gets a set of disappointing results. They've missed their sales budget yet again for the  $n$ th year in a row, and, as a result, they reorganize the sales force and maybe make some personnel reductions. Then they come back in early January to be told they've got a completely different set of numbers. It turns out we had a great year in the second half of the year. They're wondering, "Wait. We have to get those people back. Where did they go?"

I guess there's a cautionary tale in there somewhere, which is probably that when we know that initial reports of incoming data come wrapped in a label that says "Caution: Very high standard errors," it really does pay to let policy carry forward with some inertia. On that theory, I do think it's wise, for the time being, to look past the December employment report, the market turmoil, and other signs of weakness. Bill Dudley may have a point that the weather has been so awful that we could be looking at a few weeks of people not going to restaurants, not going to movies, certainly not looking at houses, and things like that.

Still, I'm left with the thought that the case for 3 percent or better economic growth in 2014 overall feels much more plausible now on the back of the strength that the economy has shown. It also seems wise and conservative to me to allow the medium-term forecast to remain not too much changed despite a  $3\frac{3}{4}$  percent second half of the year. David Wilcox and others have mentioned some of the factors—stronger dollar, higher rates, and others—that cause us to want to hold back and certainly not increase that. I think the wise thing is to wait and see.

With that, I want to briefly comment on rate policy going forward and, really, the issues that we face as a Committee. The Committee is going to be discussing enhancing forward guidance in March, it sounds like, because there's a good chance that we'll pass through the

unemployment threshold in the very near future. In thinking about what to tell the market in the near term, it seems to me that some more-fundamental questions arise. The continuing downward adjustments to aggregate supply and the alternative view box underscore that there is real uncertainty about how close the economy is to potential output. There are plenty of credible people out there who are discussing and arguing this. John Williams mentioned a couple. There was some work along the same lines done by members of the Council of Economic Advisers last summer that they shared with us.

One question that arises, and I think this comes through very well in the inflation memo, is, how would we know if we were closer to potential output than we think? Let's say that the economy performs about as expected, but the economy is significantly closer to potential than the baseline suggests. Will inflation start to send signals to us, or have disinflationary global forces or well-grounded expectations semipermanently muffled the inflation signal? The whole framework for analyzing wage and price increases seems to me to be in question, and so I wonder how confident one can be that inflation would actually respond as predicted if that were the case.

In a way it's a two-sided problem. We not only don't know exactly how close we are to potential. We also don't know whether inflation will react as predicted in the textbooks. At that point, would asset prices step in to send a signal? That may very well happen. I don't know that that signal would tell us anything particularly about potential output, although there's very interesting staff work on that question going on. But independent of the question of how close we are to potential, it is very possible that keeping rates low for another year can provide too much support for asset prices. We have, after all, been very happy to take credit for strong housing and equity prices, appropriately so, and I don't see any reason to be shy now about the

ability of highly accommodative monetary policy to drive prices much, much higher. I also don't see why highly accommodative monetary policy, particularly if we do have stronger economic growth, couldn't produce a damaging asset bubble well before the economy reaches full potential. Of course, I don't argue that we observe that. We clearly don't observe that on a broad basis, although it is an interesting fact that, as the Monday morning staff briefing showed, spreads for single-B and triple-C bonds have recently approached 15-year lows, which is to say extremely low, lower even than they were in the pre-financial-crisis bubble.

The question of how should the Committee react to a world of solid economic growth, low inflation, but high and rising asset prices, presents itself as a possibility—again, not a forecast. What should the Committee be saying in its public communications about these things beginning, perhaps, in March? To me, the danger of financial-stability risks comes now as the recovery strengthens, and I don't know that the current guidance adequately addresses that. Let me also freely admit that the fact that the inflation signal may be broken, it is also broken on the downside. What makes it so hard is that it may not be sending a signal we'd love for it to send about increasing slack or a higher level of slack. In any case, it's great to have the first, and perhaps the second, taper done. This next round of issues are going to be no less challenging, and I look forward to our discussions.

I want to close, Mr. Chairman, by thanking you for your extraordinary leadership of this institution and for the great honor of serving with you. Thank you.

CHAIRMAN BERNANKE. Thank you all. Thank you very much for an interesting discussion. I will spare you my summary, et cetera, until tomorrow morning. It's 6:05 p.m., so why don't we adjourn for today and go to the reception. We begin tomorrow at 9:00 a.m.

[Meeting recessed]

### January 29 Session

CHAIRMAN BERNANKE. Good morning, everybody. Thank you very much, again, for last night. Anna and I really appreciated the sendoff and warm wishes. Again, thank you all.

I thought I would start with a quick summary of yesterday's discussion and add a few comments, and then we can turn to the policy go-round. Incoming data have generally been positive, showing strong second-half economic growth. Many saw growth as likely to continue at or above trend. On the other hand, inventory investment and a surge in net exports accounted for some of the recent growth and may not persist, and we have seen false dawns before. Although considerable uncertainty remains, risks appear more balanced with respect to economic growth and employment.

In the household sector, consumption spending picked up in the latter part of 2013 and should be well supported going forward by growing employment, wages, and net worth. Housing activity continues to be solid in those Districts that reported, with prices moving higher. Commercial real estate is also picking up in some Districts.

The December payroll report was surprising and may have been an anomaly or the result of bad weather. Overall, employment conditions appear to be improving, with surveys more optimistic. Participants continued to debate the usefulness of the unemployment rate as a measure of labor market slack. On the one hand, declines in participation and increases in underemployment and long-term unemployment suggest that labor slack is greater than the unemployment rate indicates. Indeed, low rates of inflation in prices and wages are consistent with slack putting downward pressure on labor costs. On the other hand, it may be that many of the long-term unemployed and those who have left the labor force did not have the skills needed by employers and, thus, are effectively structurally unemployed. In this case, we may already be

near effective full employment. One factor slowing employment growth has been the absence of startups. This may be changing as increases in net worth facilitate entrepreneurship.

Some business contacts were tentatively bullish, seeing higher growth in the medium term. There were more reports of increased cap-ex and hiring or plans to hire. Declining policy uncertainty may also be helping. However, some contacts reported that hiring was constrained by the lack of workers with appropriate skills. Strong activity was reported in a number of industries, including railroads and shipping, airlines, tourism, and marijuana growing. Manufacturing indicators are positive. There were few references this time to fiscal conditions, although one participant noted that some fiscal drag remains.

Recent turmoil in emerging markets does not yet appear to be a threat to the U.S. economy, although it bears watching, as contagion can be hard to predict. Another concern is a potential downgrade for Puerto Rico.

In the banking sector, deposit growth is outstripping loan growth, with the difference being made up by reserves. Banks do generally see credit metrics improving, however, and more customers are interested in expansion.

Inflation remains below target, though relatively stable at that level. Firms don't have much pricing power, and cost pressures are low and expected to remain low, with a few exceptions, such as the construction industry. Some transitory factors, including low growth in import prices and low rates of health-care inflation, are playing some role in holding inflation down. Overall, most participants expect inflation to move gradually back to target because of the gravitational pull of well-anchored inflation expectations. However, the heavy reliance on the stability of inflation expectations is somewhat worrisome, in that we don't have a good understanding of how expectations themselves are determined.

On the policy front, upcoming possible challenges include managing the forward guidance as the economy strengthens and we pass through the 6.5 percent unemployment threshold, as well as dealing with possible increases in term premiums or bubbles in asset prices even as unemployment remains high and inflation low.

That's a quick summary. Any reactions or comments? [No response] Let me just make a few comments, which mostly play off things that I heard yesterday around the table.

Like everyone here, I am happy to see the stronger economic growth in the second half of last year. On the one hand, a number of people noted that there were some temporary components to that—inventories and the like. On the other hand, it should be pointed out that the shutdown and government spending reductions were a negative temporary component. If you look at private domestic final purchases, those grew at about a 3½ percent rate in real terms in the second half. That's an indicator, I think, that the level is sustainable, and it does suggest that there was some pickup in growth, pending measurement problems, of course. I am hopeful that we might see 3 percent growth in 2014. That would be based mostly on, first, the reduction in fiscal restraint, but primarily on household spending.

The Vice Chairman briefly mentioned the ratio of wealth to disposable income. That is currently about 6.2, which is higher than at any time during the 1990s and almost as high as it was prior to the crisis. With the saving rate high and interest rates low, that does suggest, on the one hand, that there is some potential for consumption to grow more quickly than income for a while, which would, obviously, be supportive of aggregate demand. On the other hand, one difference between now and the '90s and early 2000s is that consumers remain cautious. The most recent Conference Board report before yesterday showed that equal numbers of respondents thought that their nominal income would rise as thought that their nominal income would fall in

the next six months. The report yesterday was just a little more optimistic than that, but not markedly so. So we have a household sector that is in reasonably good shape financially but remains cautious. We will see how that plays out.

There wasn't much discussion yesterday of housing, and I would just like to say that I think there are some concerns there. It's a little surprising that it's been as choppy as it has been, given that mortgage rates do remain very low in absolute terms, affordability remains good, and the demographic need for housing, obviously, is strong. I think that bears watching. One possible concern is that investors played a big role in housing demand in 2013, and they are no longer as interested. So then it's possible that some of the constraints on borrowing may be beginning to bite more sharply. That's an area that I have some concerns about.

The labor market discussion was very interesting. Without going into all of the details, let me just draw a quantitative conclusion from the discussion in the box in Tealbook A, about the possibility that we are now already close to full employment. That perspective says, basically, that the long-term unemployed and those out of the labor force are no longer effectively putting any pressure on wages, for example. A consequence of that, just to put some numbers on it, is that if you add together the number of long-term unemployed with those who are not in the labor force but who say they want a job now—so we are excluding the retired, the disabled, and people currently in school—that comes to about 10 million people. Those same two categories added up to 6 million at the peak of the business cycle, so there are about 4 million additional people now who say they want to be working and, by this theory, are structurally unemployed. That's about 2.7 percent of the labor force of 150 million. In addition, the number of people who are working part time for economic reasons has risen from 4.6 million in 2007 to 7.8 million—that's another 3 million people. So, roughly speaking, an implication of

this Tealbook box story is that in the past seven years, somewhere between 2½ and 5 percent of the labor force has become structurally unemployed, which, if true, is a tragedy, of course, as we have lost a huge amount of labor resources.

Now, it seems implausible to me that that number of people would become structurally unemployed because of skills mismatch and changes in industrial composition, et cetera, in such a period of time. I don't think that that's what's happening. If there is a case for the Tealbook box, it is that the length of time out of work has led to atrophy of skills and lack of labor-force attachment, and that's what's causing the problem, in which case I think that from a policy point of view this cuts both ways. On the one hand, if these people really are irredeemable, then there's not much we can do about it, as sad as it may be. On the other hand, if the issue really is giving them a chance to get back into work and reacquire experience and skills, that would actually be an argument for more forceful policy. The main point I want to draw here is that this is a very important debate. It does have very important quantitative implications for the labor force and for the future of our economy.

I have just a couple more observations. There was some discussion of our forward guidance and modifications to it, which I'm sure will be a subject of much discussion around this table in coming meetings. I do think that, although our guidance is not the most beautiful thing in the world aesthetically, it is working pretty well. And the reason I think it is working is that it really has, at this point, three prongs. First, there is the "well past" the 6.5 percent unemployment rate, and the markets do seem to think of that "well past" as meaning two or three quarters, roughly. That takes you to somewhere in the middle of 2015. Second, there is the inflation criterion, especially if projected inflation remains below target. Given inflation's continual low level, that is another factor. And then, finally, there is the pattern we have begun,



though we may not continue it, of measured reductions in asset purchases. Given our statement that we will not raise rates until a considerable period after that program has ended, that is also creating an implication of somewhere in 2015. So we have a number of pillars in this guidance at this point, which I think is what's keeping it pretty well tied down. That being said, obviously, you will want to clean it up and provide additional explanation. But for the moment, I think it's working okay.

I do have a reaction to comments of Governor Stein and Governor Powell about some of the risks going forward, and particularly the risk of asset bubbles. I am hopeful that we will escape that risk. In fact, rates have already come up some, and on the current schedule—which, of course, is very tentative—it's only a year to 18 months before a rate-increase process begins. That being said, I think that one area to which the System ought to be giving more thought is the area of macroprudential tools. We have talked a lot about that as a potential first or second line of defense. Stan Fischer has used some of those tools in Israel. When he gets here, I am hopeful that that will be something the Committee will look at, because I agree with the premise of Governor Powell's statement that it would be a shame if financial considerations led us to tighten policy before we attained our macro objectives.

So those are just a few observations. If there are no reactions, let me then turn to the next item, which is the monetary policy discussion, and ask Bill English to introduce it.

MR. ENGLISH.<sup>4</sup> Thank you, Mr. Chairman. I will be referring to the exhibits titled "Material for Briefing on Monetary Policy Alternatives."

The top-left panel of page 1 shows the median dealer projection for the path of SOMA holdings from the most recent primary dealer survey (the black solid line) as well as the staff's projections under the three policy alternatives shown in the Tealbook. The median dealer forecast for total SOMA holdings is now essentially the same as the staff's projection under alternative B. As shown to the right, the median

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<sup>4</sup> The materials used by Mr. English are appended to this transcript (appendix 5).

dealer path for purchases shifted down some since the December meeting but also extends somewhat further into the fall than in December. Consistent with the “measured pace” language in the December statement, nearly all dealers expect the Committee to reduce purchases by \$10 billion (split evenly between Treasury and MBS) at every meeting through September, and a majority see a final reduction from \$15 billion to zero at the October meeting.

The middle-left panel shows that dealer expectations for the path of the funds rate have edged up a bit since December; however, the perceived probability that the unemployment rate will be less than 6 percent at liftoff, shown in the right panel, also increased, likely reflecting both the lower-than-expected December unemployment rate reading and the enhanced forward guidance in the previous statement. Indeed, with the unemployment rate now close to the Committee’s 6.5 percent threshold, the dealers see significant odds of further changes to the forward guidance. As shown in the lower left panel, dealers see as most likely additional guidance regarding the information the Committee considers relevant to determining the appropriate timing of the first rate hike once the unemployment threshold is crossed. Guidance indicating an increased focus on the importance of inflation in considering possible adjustments to the federal funds rate was a close second. Moving to the right, the dealers see the March meeting as the most likely time for a change in the forward guidance; they seem to think that a change would likely come at a meeting with a press conference, presumably on the view that the press conference could be used to provide additional information about the new guidance.

With regard to the alternatives for this meeting, alternative B, on page 6, announces another modest reduction in the pace of asset purchases, indicates that further measured reductions are likely, and repeats the forward guidance for the funds rate in the December statement. This combination may appeal to those of you who see the economy evolving largely as you had expected at the time of the December meeting, notwithstanding the recent disappointing reading on payroll employment.

The first paragraph of alternative B characterizes growth in economic activity as having “picked up in recent quarters,” while noting that labor market indicators were mixed. It also points to the acceleration in consumer and business spending and states more emphatically that fiscal restraint “is diminishing.” The second paragraph points to “moderate” economic growth going forward; that characterization suggests that you do not see economic growth picking up further from its pace in the second half of last year. The statement also indicates that risks to the outlook for the economy and the labor market are “nearly balanced,” while continuing to note the need to monitor inflation developments carefully. The third paragraph announces a \$5 billion reduction each in the monthly pace of Treasury security and MBS purchases beginning in February. The guidance on future policy decisions with respect to the balance sheet and the path of the funds rate in the fourth and fifth paragraphs is essentially unchanged.

Because market expectations appear to be well aligned with an outcome like alternative B, such an announcement seems likely to prompt little reaction in asset markets.

Alternative C, on page 8, may appeal to policymakers who judge that continuing asset purchases for as long as envisioned in alternative B would pose unacceptable risks to inflation or financial stability. Accordingly, they may prefer to announce a larger reduction in the pace of purchases at this meeting and to signal that further reductions are likely, while making no change to the forward guidance for the funds rate in the December statement.

The first paragraph of alternative C is somewhat more upbeat about the labor market, and it focuses more on unchanged inflation expectations relative to the recent behavior of actual inflation. Paragraph 2 also suggests somewhat less concern about low inflation readings by stating that the Committee “continues to anticipate that inflation will move back toward its objective over the medium term.” The third paragraph announces reductions of \$10 billion each in the monthly pace of Treasury security and MBS purchases beginning in February; the fourth paragraph removes the words “measured steps” from the forward guidance about asset purchases, suggesting that the larger reductions at this meeting could be the norm as you go forward. The forward guidance on the federal funds rate in paragraph 5 is unchanged.

Market participants firmly anticipate reductions of \$5 billion each in purchases of Treasuries and of MBS at this meeting, and so the adoption of alternative C would be a considerable surprise, particularly in light of the recent volatility in emerging markets. As a result, investors might come to expect a faster wind-down of the asset purchase program and, given the more upbeat tone of the first two paragraphs, could also pull in the anticipated timing of the first increase in the federal funds rate. Interest rates would likely rise, equity prices decline, and the dollar appreciate.

Finally, turning to alternative A, on page 4, some Committee participants may see the recent mixed labor market data and low inflation readings as indicating that it is too soon to conclude that progress toward the Committee’s goals will be sustained. They may also continue to see downside risks to the economic outlook, perhaps in part as a result of recent global financial developments. Thus, they may not only want to continue the current pace of asset purchases for now, in order to collect additional information on the economic and financial outlook, but also seek to strengthen the post-threshold forward guidance with the addition of a second set of quantitative thresholds.

The first paragraph of alternative A is similar to its counterpart in alternative B but expresses a little more concern about inflation. The second paragraph notes that risks to the outlook are “nearly balanced,” but it goes on to say that they are “still tilted slightly to the downside.” The third paragraph indicates that the recent information about labor market conditions and inflation led the Committee to judge that a further reduction in the pace of asset purchases was not warranted at this meeting. However, the fourth paragraph continues to suggest that if the economy

develops as the Committee anticipates, then the pace of purchases likely will be reduced in measured steps at future meetings, and again notes that purchases are not on a preset course. The fifth paragraph provides more-specific information on the labor market indicators the Committee will consider when judging how long to maintain the current federal funds rate target after the unemployment rate falls below 6.5 percent, and it offers two options for quantitative post-threshold forward guidance. The first indicates that the Committee anticipates maintaining the current target for the federal funds rate at least until the unemployment rate declines below 6 percent, especially if projected inflation continues to run below 2 percent; the second employs a 5½ percent unemployment rate threshold, but only “so long as” projected inflation runs below 2 percent.

A decision to leave the pace of purchases unchanged and to make further enhancements to the forward guidance at today’s meeting would greatly surprise investors. Interest rates would likely decline and the foreign exchange value of the dollar fall, while equity prices might rise.

Draft directives for each of the alternatives are presented on pages 11 through 13 of your handout. Thank you, Mr. Chairman. That completes my prepared remarks.

CHAIRMAN BERNANKE. Thank you. Are there any questions for Bill? [No response] Seeing none, we can begin our policy go-round with President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. As I pointed out yesterday, because of the significant uncertainties about how to interpret recent data, a strong case can be made for alternative A. With inflation low, we have the ability to more quickly reduce the still-very-high unemployment rate by providing significant monetary accommodation. Despite the recent reduction in the unemployment rate, it still takes too long to reach full employment, given that inflation is forecast to be below our target throughout the forecast period. But given the decision at our previous meeting to place us on a path of measured reductions in the purchase program, though I personally would have preferred to wait, I can support alternative B at this meeting. However, I would note that the fact that we are not pausing despite a weak labor market report, recent correlated stock market declines globally, and persistently low inflation rates implies a very high hurdle for pausing on the path of very gradual reductions in the purchase program. But

if there is a very high hurdle for stopping or slowing the taper, there should then be a very high hurdle for tapering more quickly.

Yesterday I highlighted the uncertainty surrounding the identification of cyclical versus trend movements in the data. Perhaps the most tenuous interpretation involves inflation. Were emerging market problems to more significantly slow the economy, I am worried that our faith in expectations anchoring could be severely tested. We could face a deflationary or near-deflationary environment that would require even-more-aggressive policy responses. In essence, my concern is about risk management. In light of the difficulties in separating trend from cycle in the data and the potential for new shocks emanating from outside the United States, we should be quite sure that the economy is on much stronger footing and that the inflation rate is clearly returning toward target before altering our current path of very gradual changes in our purchase program. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. I support the policy decisions in alternative B and the statement language as drafted. I am comfortable with taking the second tapering step, and I am also comfortable with the conclusion that the public and markets will likely form that \$10 billion per meeting is the baseline intention of the Committee.

I would like to make a few comments regarding communications challenges ahead. As long as the unemployment rate is above 6½ percent, I anticipate increasing public pressure for more information on what “well past 6½ percent” means. And considering the proximity of the 6½ percent unemployment marker, we know the statement is going to have to change before long. We can see that coming. We should think now as a Committee about the language to use once we get to 6½ percent. On those questions, I am reluctant to put down another

unemployment rate marker, as in alternative A. I would prefer to keep our explanation of the Committee's reaction function post-6½ percent more qualitative than quantitative, if that can be done.

As I said yesterday in the economy go-round, I think a falling unemployment rate may be less reflective than we would like of increasingly satisfactory conditions in the labor market when you view it holistically. In my view, we just don't fully understand the factors driving the decline in the unemployment rate. As the staff memo points out, the data on the inflows to and outflows from the labor market within demographic groups do not speak very loudly on the separation of structural from cyclical factors. As a result, I think there is more uncertainty than usual about the path of the unemployment rate, about how much of the decline reflects reduction in slack, and about what level of the rate *per se* is consistent with full employment.

I recognize that resorting to a qualitative characterization of the conditions that would prompt liftoff carries risks. Reliance on qualitative statements that are open to interpretation, both within and outside the Committee, risks some confusion and volatility in trading markets. To deal with the risks associated with qualitative guidance, I think we should consider less relative reliance on the statement in communications over the coming meetings and more weight on other communications methods in our arsenal—namely, the SEP, press conferences, and the minutes. I think there might be value in reopening the question of enhancements to the SEP. I will also support the suggestion of President Bullard, I believe, and others to go to press conferences every meeting supported by refreshed SEPs. I say that with considerable empathy for our new Chair [laughter], given the singular and concentrated burden of press conferences. The Committee has time to deliberate about the design of a communication strategy around the

coming meetings. I am raising the issue now to urge work on these concerns, I hope, well before we get to the “well past” period. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Well before “well past.” Okay. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. I can support alternative B today, but I do think, as President Lockhart suggested, and as Governor Stein suggested yesterday, that one of the things that we need to be doing is looking beyond the decision today to the challenges, particularly communication challenges, we are going to face in coming meetings. I think the challenge is going to be, at least, that there is a reasonable likelihood that our 6½ percent threshold will probably be met sooner than we originally anticipated. There could be a challenge if we reach that threshold and are still in a position of trying to ease policy by continuing to purchase assets. We will not have completed the asset purchase program by then. I think that is going to present us with some challenges for communication. And, indeed, while there are risks that things could turn bad again, there are also risks that things could turn much better faster than we anticipate. I think we have to worry about that as well.

To put it a different way, suppose the alternative scenario offered in the Tealbook comes to pass. Suppose the forecast turns out to be somewhat better than the Tealbook forecast. What kind of policy and communications will we have to engage in at that time? They could be quite complicated. I think that we need to be thinking ahead about how our communications and policies will react in those circumstances. In particular, I think that if we are still buying assets when we reach the 6½ percent threshold, we face two sorts of problems. Some may say, “Well, there actually is no conflict because we haven’t said we would do anything at 6½ percent, so we will continue to buy assets and we will not raise rates.” But I think the language in the statement is going to prove to be problematic. We have placed a lot of emphasis in our statements on both

the unemployment rate and the labor market in particular. One of the risks we face is that—as President Williams said yesterday, and others of us have said—if in fact the unemployment rate turns out to be a better summary statistic for labor market conditions than we have been assuming, then we are going to find ourselves in a difficult position where we are putting too much weight on labor market conditions. I actually think that the better argument for keeping rates low longer, so to speak, is low inflation, not necessarily the unemployment problem or the labor markets. So one thing we need to begin thinking about is how to perhaps shift the emphasis in our language about the reasons that we may not want to raise rates.

Now, having said that, I would also note that if you look at the various rules put together in the Tealbook, by the second quarter of this year, for all but the nominal income targeting rule, we are no longer constrained by the zero bound. Rates are positive in almost all those rules except for one in the second quarter. I would also add that most of those rules don't rely on the unemployment rate. They are looking at the staff's measure of output gaps. Clearly those are related in some sense, but they are not necessarily driven by the unemployment rate *per se*. So I think we will find ourselves in a position in which the rules are telling us we're not constrained by the zero bound. How are we going to behave? That is going to present some communications challenges for us, and even though inflation will be low, the zero bound won't be binding any longer.

Again, I think this will be a communications challenge, and it's important for us to anticipate now how we will deal with that. Our statement has become very complex, with many moving parts, and I think we need to seriously consider revising the statement going forward. If the forecast continues to play out as in the Tealbook, or somewhere between that and the



alternative scenario, I think we may face a challenge, and I would be inclined to encourage speeding up the pace of tapering if that scenario comes to pass.

To summarize, I want to encourage that we not just think about what we will do if things get worse—we need to think about what we'll do if things get better than we anticipated and what kind of language we will use or what kind of actions we will take in those circumstances. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I support alternative B. I think a further \$10 billion reduction in our purchase rate is appropriate, especially given all of our communications at this point. We will have more data in March, and we can further assess the appropriateness of this measured pace of reductions at that time. Currently, I do expect that we'll probably continue to make \$10 billion reductions at these meetings at least through June. That seems appropriate and consistent with our communications so far.

There should be a high hurdle for pausing, in view of the improvement in economic growth that we've seen in the second half of last year. But I do think that our ultimate focus should be on goal-oriented monetary policy. As the unemployment rate gradually falls, we need to see inflation increase to the target. We need for it to be more than just a forecast. We need to actually see it begin to increase, and, frankly, I think we probably would benefit from slightly overshooting that inflation objective. That comes out of a lot of economic analyses about the most appropriate monetary policies, and I don't think that's something that we should fear. In fact, it could help solidify longer-term inflation expectations at our goal rate of 2 percent. At some point we're going to have to actually deliver on that, or else we risk a Japanese-type lack of a relationship between long-term expectations and actual inflation. I think it's important to

demonstrate that our inflation objective is not a ceiling, and, again, a slight overshoot without a lot of dithering about it could help reinforce that. It's not a critical element, but it could be beneficial for vanquishing the zero-lower-bound demons that we might be facing.

Mr. Chairman, I agree with your commentary about the current configuration of our statement. Communications do seem to indicate that the funds rate will most likely stay at zero into 2015. I think that it's a useful package. Still, as the unemployment rate falls to 6½ percent, we're going to have more challenges to the interpretation of our forward guidance. We're going to have to take further consideration of that.

A 6½ percent unemployment rate is certainly better than the 8 percent that we were looking at back in September 2012 when we undertook those actions, but we shouldn't forget that 6½ percent is still a very high number, associated typically with a nasty, recession-level outcome. So we shouldn't pat ourselves on the back too much just because we're getting that, especially when inflation is at 1 percent and it's been low for quite some time.

We need to somehow better describe our reaction-function relationships among inflation, labor variables, and GDP growth. That will continue to be a challenge for us in terms of when the liftoff will be. As President Lockhart mentioned, I suspect that a qualitative description is probably what we're headed for as a consensus. I do think that it is going to feel squishy when we get there. It might be the best that we can do, but we won't be completely satisfied with that.

I want to address a couple of things that were mentioned before my commentary. On the possibility that we could use SEP enhancements to help provide more guidance on our confusion—communication [laughter]—that was totally Freudian, because it is confused. I think we're going to be disappointed when we go about trying to enhance our SEPs as a communications vehicle. The consensus-forecast exercise was just thoroughly discouraging to

me. That's the kind of thing that we would really like to have—a more unified assessment of our forecast—and we could not even agree on the right assumptions that we would jointly carry around in order to get to a forecast. So I'm not optimistic that we're going to be successful. When we have to come back to the appropriate monetary policy assumption, that's going to garble the different policy assumptions that each of us are making but end up producing similar outcomes, and I've never been able to figure out how the public is going to disentangle that usefully. We really need to do an awful lot of work. Perhaps Stan Fischer, the Board's incoming vice chair, could help dramatically cut some type of Gordian knot. I don't know.

And finally, President Plosser mentioned the rules in the Tealbook, and I think that it is quite instructive to always be reminded of what the rules are telling us about monetary policy. Yet I wonder if they are somewhat outdated or exactly how they are relevant. In particular, I think we need to have more discussion about what the intercept term is in those rules, because historically they've just been plunked down. In 1993, John Taylor just said 2 percent for the real rate, 2 percent for inflation, and one-half on weights for the output and inflation gaps. And it kind of fit, over a short period of time. But is the equilibrium real rate really 2 percent? Is that the right intercept level? Why is that the case? The funds rate is really a different object than a longer-term interest rate. Mehra and Prescott told us back in 1985 that part of the equity-premium puzzle was due to the extraordinarily low historical short-term Treasury safe rates that are well under 2 percent in real terms. I think we just need to understand that rate's relevance for the current period before we put too much weight on it. Having said that, they are useful benchmarks, and we should always be reminded of them. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I have just a few brief comments on challenges beyond today for this Committee. I think the key issue for the Committee, as outlined yesterday in our remarks about the economy, is whether this is a false dawn or not. Obviously we've had a lot of stops and starts during the past several years. I thought President Lacker did a good job of outlining the case that some of the economic growth we've seen might be temporary. If it is a false dawn, I think the Committee is actually well positioned. This is the mindset that we've had in designing current policy. We have a leisurely tapering baseline, I would say. We have expectations of the first increase of the policy rate far in the future, and we have a tapering program that's state contingent, so we can alter it if necessary. So I think we're well positioned in the case of economic growth slowing from the pace that it hit in the second half of 2013.

I'm going to concentrate on the other case—What if this is not a false dawn, if it's the real thing?—and follow up on some of Governor Stein's comments yesterday and President Plosser's comments earlier this morning. I think we're less well positioned for this case. Probably our best response in this case would be to increase the pace of tapering, but this would, in effect, pull up the entire time line of the first policy rate increase. That would be okay if it was warranted by stronger data, but that's what we would be doing in that situation.

Let's suppose we do not face a false dawn. Instead we face the real thing, a faster economy that is on a sustainable growth path. My main comment is going to be to outline my version of a key challenge for the Committee in this scenario in 2014, which is the possible emergence of the idea that the FOMC is "behind the curve."

President Plosser has noted yesterday and today that our suite of Taylor-type rules now suggests that the policy rate should be rising off zero either now or in the near future. I'm going to take that as a key fact because I take these Taylor-type rules to describe normal FOMC

behavior as characterized by the research literature. So let's divide the period of a near-zero policy rate into two parts. The first part is the one in which the actual policy rate is near zero and Taylor-type rules also recommend zero. This is the world that we've been in over the past several years, and this is what we're used to thinking about recently. And then there's a different world, in which the actual policy rate is near zero, but the Taylor-type rules recommend more than zero, which is what we're entering into now. In previous discussions around the table here, I've called this second part the "Woodford period." We're now entering this Woodford period, and I see it as a very challenging period for the Committee.

During the pre-Woodford period, we made promises to keep the policy rate lower for longer. One interpretation of those promises, and maybe the one I favor, is that they did not represent a credible commitment by this Committee to keep rates lower for longer. Instead, these promises were interpreted by financial markets as representing a pessimistic outlook for medium-term macroeconomic prospects in the United States. Financial markets expected rates to remain low, indeed, but only because the economy was expected to remain weak. This created an equilibrium of sorts between the Committee and financial markets. We've been in this equilibrium—a word I use loosely here—for some time.

Now we're going to move into the Woodford period, and such an interpretation by financial markets will no longer be possible. Taylor-type rules representing so-called normal Fed behavior will call for a higher policy rate than what's observed. The Committee intends to keep the policy rate low. The Committee will, exactly at this point—that is, in 2014—begin to gain credibility for its lower-for-longer policy. This may, in fact, feed a boom in the U.S. economy. The way this is supposed to work in the Woodford model is that you made the promise a long time ago, three years ago, and you got a boom three years ago because you made

that promise. I'm arguing that that promise wasn't credible. It was interpreted as a pessimistic outlook for the U.S. economy. But now, when Taylor rules are diverging from what we're actually doing with the policy rate, financial markets are going to say, "Well, they really do mean to stay lower for longer," and the boom will come today instead of when it was supposed to come three years ago. Financial markets' interpretation of what we're doing is going to have to change in 2014. Likely what they will do is argue that the FOMC is "behind the curve," which is a typical thing that occurs in financial markets, and they'll just point to simple evidence that the Committee isn't following Taylor-type rules that are calling for higher policy rates. So it's going to sound like past episodes in which the FOMC has lagged behind where markets thought it should be.

I think this is possibly a major challenge for the Committee in 2014. The Committee will need to have a story to counteract this. There are simple stories that can be told. You can lean against the economic data. You can argue that the economic data aren't as strong as they appear to be, that the economy is actually weaker than the markets think it is, and you can have that debate with financial markets. That's fine, but that gets difficult at some point if the data really are coming in stronger than anticipated. There's only so far you can go in making that kind of argument. Another argument that we could make is that this is a Woodford follow-through. We made a commitment to "lower for longer." That means that the reason we're keeping policy rates low today is to make up for the period when we were constrained by the zero bound. I do not see enough consensus on the Committee to make that argument, but that is one argument that could be made. So I don't think we really have a good plan right now about how we're going to handle this in 2014, and we need to think about this. We need to hone our message during coming meetings to handle this possibility. Of course, this is all under the scenario in which

economic growth is actually faster and sustainably faster, not under a scenario in which the economy slows down again.

By the way, I think low inflation is helpful. It does give us some cover, and that's a big advantage for us, but I would remind everybody that inflation is actually included in the Taylor-type rules. So the fact that those rules are calling for liftoff already incorporates the fact that inflation is somewhat away from our target on the low side.

I just wanted to reiterate that point in a way that I hope was more coherent than I usually am. And for today, Mr. Chairman, I support option B as written. I do think we're on a reasonable course for now, and we'll await more information to see whether the false dawn scenario yet again haunts us. Thank you.

CHAIRMAN BERNANKE. Thank you. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. I support alternative B. In December, we took our first step on the road toward ending our purchase program, and alternative B continues on this road at a steady pace consistent with the improving economy. Alternative B also follows through on the state-contingent plan we laid out in December. Markets weren't disrupted by our plan, in part because we successfully communicated that tapering purchases didn't mean we were in a hurry to raise the funds rate. Market perceptions regarding asset purchases and the future funds rate path are currently well aligned with our own.

On specifics of language, I find that in the second sentence of paragraph 1 it's simply too negative to say that labor market indicators were mixed. In fact, essentially all indicators continue to show improvement. Payroll gains were a disappointment, of course, but the Tealbook discounts their signal while noting that the disappointing gains were nonetheless consistent with, and I quote, "some improvement in labor markets." I recommend we replace the

second sentence with the following: “On balance, labor market conditions have shown further improvement.” I think it is more accurate, and it avoids the risk of being misinterpreted.

Like President Evans and many others, I agree with you that our forward guidance has been very successful, but clearly paragraph 5 is about to reach its expiration date in the reference to 6½ percent unemployment. The quantitative forward guidance in that paragraph as amended and bolstered with strong qualitative post-threshold guidance has succeeded in bringing market expectations about liftoff into alignment with our own views, but much of this paragraph is written with explicit or implicit reference to the 6½ percent threshold.

And I just want to mention that we could easily reach that threshold very soon. Perhaps we actually already have, once we’ve seen the January data. So I think we need to rewrite the forward guidance for the post-threshold world as soon as possible. I agreed with President Lockhart’s comments, but he said “over the coming meetings,” and I don’t think that is realistic. I think it has got to be between now and March that we really think about this, given that unemployment could be down below 6½ percent very soon.

Another issue I’d like to bring up is our forward guidance on asset purchases. The unemployment rate is linked to our guidance on asset purchases as well—once the unemployment rate is in the low 6s, it may be hard to understand what we mean by “substantial improvement in the labor market.” So it would be helpful to see options around both of these paragraphs, with some analysis, well in advance of our next meeting.

A critical decision in thinking about paragraph 5, of course, is whether we want to refine our quantitative guidance as in alternative A or rely on purely qualitative guidance regarding the future path of the funds rate. And here, like President Lockhart, my view is that with market expectations well aligned with our own, the experience in December suggests that clear



qualitative guidance can effectively signal the ongoing need for a highly accommodative stance of policy. Thank you.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Mr. Chairman, when I arrived at the Naval Academy as a plebe in 1969, we were given a book called *Reef Points*, about this thick. We had to memorize every word in that book, and we were tested constantly. Because I didn't get a chance to thank you yesterday, I want to pull forward a quote that for the most part is still in my mind since 1969. It was attributed to John Paul Jones, the father of the Navy. It turned out he had a Michelle. She had actually written it, but nonetheless, it's attributed to a great leader. What he said was, "It is by no means enough that an officer of the Navy should be a capable mariner. . . . He should be as well a gentleman of liberal education, refined manners, punctilious courtesy, and the nicest sense of personal honor. He should be the soul of tact, patience, justice, firmness, kindness, and clarity." I don't want to kill you with praise, but in my experience of having worked with you the entire time you've been here, and having the privilege of having worked with your predecessor, every one of those words applies to the way you have run this Committee. Obviously you're not only a mega-capable economist, but you have shown punctilious courtesy—I can't recall a single instance in which you haven't returned my phone call within a remarkably short period of time—and I don't know anybody with a nicer sense of personal honor. There's no one in this town who has humility. You have great power and great influence, but you've shown incredible humility, which is an example for all of us and for anybody here in Washington. And as to patience and kindness and also firmness, you have shown those to me personally, and I just want to thank you for it. I honor you like everybody else at this table.

As to the options before us, I support option B. I felt last time that we could have done more. I was happy to see the way the market took in what we said. I know in preparing for the press conference you were probably prepared to give an answer to “How do you feel about the selloff, Mr. Chairman?” but we actually saw the kind of reaction I expected. I think President Plosser makes a very good point that we should be prepared for the economy perhaps doing better than we are naturally cautious about. I want to keep the book open for doing more as we go through time. We will just have to do this in such a way that we can conclude the program, in my view, as soon as is practicable.

I would like to make some comments picking up on what some others have said here with regard to intermediate-term policy implementation and forward guidance. One of the reasons I think that what we announced was effective was not just because it was an expression of confidence in the economy, but also because we tied it to the forward guidance, and I’ve spoken about that quite a bit. So I’ll just make some brief comments. I very much welcome Bill English and Simon Potter’s promise of additional work on intermediate-term policy implementation. I think President Evans raised a very good question about unemployment approaching our 6½ percent threshold—and, to President Williams’s point, we may already be there, or we’re close to it. I think it’s important that we give urgent and new and serious thought to the nuts and bolts of the post-liftoff conduct of monetary policy and what our post-liftoff tactics will be.

Sandy has been here a little bit longer than me, and Janet has been here longer, but having been around for quite a while, I want to remind the Committee again that our balance sheet is substantially larger and has a substantially longer duration. It has a substantially higher percentage of non-Treasury securities than many of us thought we would ever see back in September 2008 when Lehman failed or even back in September 2012 when the current program

of asset purchases began. I note that banks' excess reserves now constitute two-thirds of the monetary base. Searching through history, the last time we had anything near that, which was about 40 percent or maybe higher, was during the Great Depression. We have zero experience with conducting interest rate policy in this environment. And I admit to some trepidation, Mr. Chairman, despite our new policy tools. In part that's because, as we proceed here, I worry that we may find ourselves, depending on what happens to our portfolio, at risk politically as well as public-relations-wise. But of course, we want to get it right for the purposes of the economy.

Our chances of successfully negotiating the minefield improve if we have a carefully thought-out, well-articulated post-liftoff monetary strategy. Madam Governor, about to be Chair, this will be our greatest challenge, and we can talk about the Taylor rule and the Woodford period and what they tell us, but I think the key point is that we need to do a great deal of work here, and I have a very open mind about the form that our post-liftoff strategy and forward guidance could take. I think there's plenty of room for more staff analysis, and I agree with President Williams—the sooner the better.

In the spirit of humility—which I referenced when speaking about you, Mr. Chairman—I humbly offer a couple of comments and guidelines. As Vice Chairman Dudley mentioned yesterday, a time path is not a strategy, although Governor Stein reminded us that whether we articulate things in terms of time or not, that's the way market operators work. Publishing individual or Committee-agreed funds rate projections may have its uses, but I think we have to acknowledge that it's no substitute for articulating a policy strategy, and I look forward to working with Chair Yellen and with Stan Fischer—and by the way, I have dined out many times or gotten tables using the name Fisher, not spelling it with a *c*. I will thank Stan for that when I see him. Second, I think we should bear in mind that there are limits to invoking “this time is

different” or “under special circumstances” as a rationale for a temporary departure from normal strategy. Invoked for too long, it may erode our credibility, and I think we need to be mindful of that. Even, with all due respect, Governor Yellen, using the term “persistent headwinds”—at some point we have to adjust, and we need to think that through. And then I think we must bear in mind, when we develop a strategy that’s heavily reliant on what we assume to be accurate estimates of potential output, or the natural rate of unemployment, or the natural real rate of interest, that they’re open to question. These cannot be directly observed. We know that even experts disagree about how these variables ought to be estimated, and that all of these estimates are subject to large after-the-fact revisions.

So with those points in mind, I just want to say that I am comfortable with the continuum of choices that was laid out there. I have some quibbles—for example, about the nominal income targeting methodology that was used in the memo—but I very much look forward to that discussion, and I would urge our new leader to press that discussion forward.

And then last, with regard to President Lockhart’s comments about press conferences: If I recall correctly, it was Artemas Ward who said he loved his brother so much that he volunteered him to go to war in his place. We love you so much Madam Chair (Ms. Yellen) that we gladly volunteer you to give press conferences, if you’re willing, at the end of each of our sessions. Thank you, Mr. Chairman, and thank you for your service to our country.

CHAIRMAN BERNANKE. Thank you very much. President George.

MS. GEORGE. Thank you, Mr. Chairman. I support alternative B and the further reduction in asset purchases at this meeting as an appropriate next step in the direction of policy normalization. And I see scope for increasing the pace of these reductions if the incoming data are stronger than expected.

Even with these steps I remain concerned about the general stance of policy and, as others have noted, how we will communicate going forward. As the economy continues to expand, our balance sheet also continues to grow, and the market's ability to price risk and allocate credit remains highly influenced by monetary policy, while the desired influence of policy on business investment, job and income growth, and inflation continues to puzzle.

Our forward guidance is now pushing accommodation past the advice of multiple policy rules, as President Plosser and others have noted. Four of the six rules described in the Tealbook prescribe a policy rate higher than the effective lower bound starting in the second quarter of this year. And although low inflation remains a caution, all of these rates incorporate the 2 percent longer-term goal. I also note the increase in the Tealbook-consistent estimate of  $r^*$ , which is now above the real funds rate by about 30 basis points. In the previous Tealbook,  $r^*$  was about 20 basis points below the real funds rate. With a combined 50 basis point swing, it could be argued that policy is now more accommodative than at the time of the previous meeting. Of course, I understand that considerable uncertainty surrounds such estimates, but those kinds of shifts seem relevant to me in terms of assessing the future stance of policy.

Changes in the estimate of excess capacity also are relevant to current and future policy. While economic growth did surprise to the upside in the second half of this year, potential GDP at the end of 2013 was revised down by about 2 percent over the past year. With the output gap estimated to be 1.9 percent at the end of 2014, a similar revision to potential GDP would put the output gap close to zero at the end of this year. I'm not necessarily expecting that the Tealbook estimate of potential will be revised lower, but my point is that, given the trajectory of labor force participation and the expiration of emergency unemployment compensation, I see such a

revision as a risk, and a concerning risk, given that rates are likely to still be at zero at the end of this year.

In the meantime, our policy settings continue to facilitate incentives that pose potential risks to long-term financial stability. Asset prices and froth in various pockets of the financial sector deserve our ongoing monitoring, particularly in high-yield bond issuance and leveraged lending. I recognize that identifying these risks to financial stability and quantifying their impact today remain difficult for sure, but we should not underestimate their potential effects or their ability to surprise.

Finally, Mr. Chairman, I want to join others in wishing you all the best and thanking you for your service.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I support alternative B. Recent economic data point to a stronger conclusion to 2013 than I had previously expected. And given the incoming data, I am more confident that economic growth will indeed remain above trend over the next few years, as I have been expecting—or perhaps I should say, as I have been hoping—for some time.

In my view, the cumulative progress in the labor market warrants a continued gradual reduction in asset purchases. Nonetheless, with inflation below our objective and unemployment still elevated, policy should remain broadly accommodative for some time. I anticipate that the first increase in the federal funds rate will not occur until well after I am retired. [Laughter] In my view, the first increase will not occur until the projected rate of inflation is approaching 2 percent, and at that time the unemployment rate will be well below 6½ percent.

As a result, I agree with others that it is important for us to continue to work on our communications and to adjust the forward-guidance language as soon as our March meeting. And I plan to be here at the March meeting and engage in that discussion. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. Knowing how much, over the eight years we have served together, you must have enjoyed my policy lectures—I mean, statements [laughter]—I gave thought, in honor of your final meeting, to reviewing and recapitulating the highlights of my recommendations and commentary about how to conduct monetary policy. Instead, I have written a throwback statement consistent with the theme evinced by the many throwback baseball caps that were given to you last night. My policy statement is in the style that was common under your predecessor, when, as our Chair-to-be noted last night, the Chairman spoke first on policy matters and the policy go-round was noted for its brevity. So here goes: “I support your policy proposal, Mr. Chairman.”

CHAIRMAN BERNANKE. That was refreshing. [Laughter]

VICE CHAIRMAN DUDLEY. Better late than never, right?

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. I am going to deviate from the example set by President Lacker. For today, Mr. Chairman, I am willing to support alternative B. As others have noted, with the unemployment rate nearing 6.5 percent, I believe it will be important in the near term to change our forward guidance for the fed funds rate. So I’ll spend my time talking about potential changes in the language that we could be thinking about for March or April. I’ll be giving some context regarding what I see as the main lessons learned about communication in 2013. I think

this context is important because my lessons learned will deviate from the lessons learned by others around the table, and I think that's leading us to different conclusions.

We had two kinds of communication in place at the beginning of 2013. We had qualitative communication in place about the end of the asset purchase program, with a key marker being described as substantial improvement in the labor market outlook. We also had quantitative communication in place about the evolution of the fed funds rate. Now, when I look back at 2013, I see that the latter, quantitative communication was more effective.

The qualitative communication about the asset purchase program created two significant and related problems for us. First, market expectations about the meaning of "substantial improvement in the labor market outlook" evolved in ways that we could not control, and the ultimate size of the program ended up being much larger than most or maybe even all of us anticipated, especially given the fall in the unemployment rate that has actually transpired. Second, and relatedly, the Committee ultimately had to disappoint financial markets. That process led to a very bumpy ride in financial markets in the middle of the year, and I think we were quite lucky that it did not end up having broader economic impacts.

In contrast, the fed funds rate communication worked well over the course of 2013 to pin down market expectations. There was a slight blip in fed funds rate expectations in June and July, but I think it's reasonable to attribute that blip entirely to communications challenges associated with the asset purchase program. And we were able to work through that blip and bring market expectations in alignment with our own because we had the quantitative guidance in place to refer to. So over the course of the year, I would say markets remained convinced that we would not raise rates until the unemployment rate fell below 6.5 percent.



A number of people have expressed concerns about using the unemployment rate as a threshold marker and, I guess, regret having used it in the first place because the unemployment rate is providing an overly optimistic reading of labor market health. That is an opinion I have certainly expressed publicly—that it might well be true that the unemployment rate is sending too optimistic a signal. But I think it's critical to distinguish between thresholds and triggers here. This is a very strong argument against using any particular metric, and, in particular, U-3, the unemployment rate, as a trigger for raising the fed funds rate. It underscores the importance and the strength of the threshold approach, where we explicitly retained optionality against exactly this kind of contingency. We didn't put a trigger in place saying that we were going to raise rates as soon as unemployment fell below 6.5 percent exactly because we were concerned about the possibility that, in fact, the labor markets might not be as strong as that measure indicated.

So the lessons of 2013 have convinced me—*anew*, I would say—that effective monetary policy at the zero lower bound really requires a quantitative approach to forward guidance. And I agree with you, Mr. Chairman—right now, the qualitative approach that we laid out in December is working effectively. But it's something that is going to work effectively until it doesn't work effectively, and then we are going to have to try to deal with market volatility and figure out ways to do so on the fly, as we ended up doing in 2013. I think it's better to have a quantitative approach in place that will pin down expectations to begin with.

Right now, I think our current communication really ignores what I would consider the lessons learned from 2013. Does “well past the time” mean nine months, as in Tealbook A? Or does it mean until the unemployment rate has fallen below 6 percent, as in Tealbook B? I'm concerned that, just as we saw with the LSAP program last year, it is going to be increasingly

difficult for us to manage public expectations about the meaning of this statement as the unemployment rate falls below 6.5 percent, as we all begin, in our own separate communications, to opine on what the meaning of that statement is.

Okay. I have argued strongly for quantitative language. What kind of quantitative language should we use? The threshold approach definitely has its drawbacks, and if you wanted me to argue on that side, I could point to drawbacks. But it is important in communication not to let the perfect be the enemy of the good. Market participants have, I think, grown to understand the threshold approach. And I think it offers us a good mix of commitment and optionality. For these reasons, I think a good starting point for consideration is that, in March, we should be committing to keep the fed funds rate extraordinarily low at least until the unemployment rate falls below some threshold lower than 6.5 percent. I'm sympathetic to some of the comments that President Plosser made about maybe putting a little more weight on the inflation rate, and I'll come back to that in a second.

Now, what threshold, exactly, should we be picking? One thing I learned in 2013 is that we are very reluctant to move thresholds downward, which was a little bit of a surprise to me because I viewed that as always an option before us. But it is clear the Committee has that sense. So when we do adopt the threshold, it should really be low enough that we don't see a substantial chance of later wishing it were even lower. In the economics go-round, I have argued there are good reasons to have lowered our estimates of the long-run mandate-consistent unemployment rate relative to a year ago. For both of these reasons, I would prefer 5.5 percent.

Why wouldn't we adopt such a commitment? I think this comes back to where our estimates of the long-run unemployment rate are. Some participants have estimates of the long-run unemployment rate as high as 6 percent. I am suggesting keeping the fed funds rate

extraordinarily low until the unemployment rate falls below 5.5 percent. Those participants might be concerned that such a policy stance could lead to undue pressures on inflation or risks to financial stability. So let me talk about how to deal with each of those possibilities in turn.

In terms of inflation, I actually think alternative A offers the right way to proceed on this. I'd say we should be keeping the fed funds rate extremely low until the unemployment rate falls below 5.5 percent. We could lead by saying we are going to be keeping the federal funds rate extraordinarily low at least until one of the following conditions is satisfied, and the first condition could be that the medium-term outlook for inflation—the one- to two-year-ahead outlook—is 2 percent. I'm perfectly happy to have that as the lead condition, because it fits in with President Evans's view that one way to explain and articulate policy is through our goals. And we are going to wait until we actually see the outlook for inflation return to 2 percent. That, I think, puts in a guardrail. If you are really worried about inflationary pressures, they should show up in that one- to two-year-ahead outlook for inflation. The second condition would be, as I said, that the unemployment rate falls below 5.5 percent.

Now, the third issue is one that we did not deal with when we laid out our first threshold and that we should be dealing with now, which is that committing to this kind of strategy could lead to undue risks to financial stability. I think the right way to deal with this is to add a third knockout clause—a third condition that would lead us to consider raising rates. It would essentially be a financial-stability knockout clause along the lines of the Bank of England's—language that would allow the Committee the option of raising rates if the Committee saw that doing so would produce sufficient benefits in terms of mitigating potential risks to financial stability. So it would be very open-ended and would allow us, essentially on a meeting-by-

meeting basis, to talk it through, assess what's going on in the financial markets, and see if raising rates would be effective in that regard.

So that's my three-pronged suggestion in terms of forward guidance. We can commit to keeping rates extraordinarily low at least until the medium-term outlook—the one- to two-year-ahead outlook—for inflation has gone back to 2 percent, or the unemployment rate has fallen below 5.5 percent, or whatever the financial-stability knockout clause looks like. And I agree with what's been said before—I think we have to move quickly. I think March will be a very good time to do this.

One last point. I am sympathetic to President Bullard's desire to have a press conference every meeting. Especially given that I am not the one doing it, I think it seems very attractive. But in all seriousness, I'm concerned about the governance. I think the Committee really should take responsibility for what monetary policy is. The right way to take that responsibility is through the statement. And I think we should be working to make the statement an effective communication of our collective views.

Thank you, Mr. Chairman. I thank you for your indulgence, as always, in listening to me for so long. And I appreciate President Lacker's foreseeing that I would need his time.

CHAIRMAN BERNANKE. Thank you. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I support alternative B. I think it's appropriate to acknowledge, as alternative B does, that recent labor market indicators have been mixed. But I sensed at the previous meeting that many of us consider the appropriate hurdle for pausing the process of winding down our asset purchases to be fairly high, and certainly this one employment report doesn't cross that bar.

Moreover, the information we have received concerning final demand suggests that the strengthening we were expecting is now in train. I certainly hope that the two employment reports over the coming intermeeting period will paint a picture that's unambiguously supportive of ongoing improvement. With the inflation news having been roughly neutral since the previous meeting, I think it's appropriate to reduce the pace of purchases by another \$10 billion today.

For this meeting, I also think it's appropriate to make minimal changes to the statement. We strengthened our forward guidance in December, and, as you noted, Mr. Chairman, that guidance still seems quite relevant and appears to be working. Market views currently seem well aligned with our own, and the dealer survey suggests that no changes in guidance are anticipated in this meeting. But, as many of you have pointed out, we could, before our March meeting, or at itg—especially if we receive two strong employment reports—easily be in a situation in which the unemployment rate reaches or crosses the 6½ percent threshold. In that event, we will absolutely need to make changes in our forward guidance. I agree with all of you who have urged that we need to think very hard about how to change the guidance quickly and that we need to be well positioned for either scenario, whether the data end up being disappointing and weaker than we have anticipated or stronger than we have anticipated.

So I definitely think we need to make decisions at our March meeting on how to modify the guidance. This is obviously going to be challenging. You see in alternative A today one possible approach, whereby, as we approach the 6½ percent threshold, we would list a broader set of labor market indicators we would be watching, in addition to the unemployment rate. Obviously, there are other approaches to consider. I have heard clearly in this discussion, and think it's a very useful idea, that we could enhance our guidance with respect to inflation. The

current guidance does indicate that projected inflation will factor into our decision on how long to keep the funds rate in its present range, but we could certainly consider ways to enhance our emphasis on how inflation will matter to future policy decisions.

Listening to the discussion, I've heard some very interesting ideas during this round. I would urge all of you to think very hard about concrete ideas that you have. I plan to reach out to all of you. I hope you will be in touch with me to offer up ideas that you have about the forward guidance. We will try to use this intermeeting period to move forward on this, and I agree that work on this is absolutely urgent.

CHAIRMAN BERNANKE. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I support alternative B. Yesterday I highlighted some of the downside risks to the economy that I saw, but I did that, in part, in an effort to try to balance the discussion, which I thought, at least until Jeff and Bill and Janet began speaking, had a little bit unduly emphasized the upside risks. I do, however, agree that there are upside risks, and so I also subscribe to the Chairman's statement that risks are broadly balanced right now.

I also agree with those of you who have suggested that our action today will solidify market expectations and that there is a pretty high hurdle for departing from a \$10 billion reduction per meeting. I would just add another thought, which is that once we have solidified those market expectations, any deviation from the \$10 billion per meeting reductions will, I think, be read by markets as a pretty strong signal one way or another. So that's probably a further reason to think from our own perspective that there is a pretty strong presumption going in that this is the path we're on. That's in addition to the reason of relieving ourselves from having to have the discussion at every single FOMC meeting.

And, finally, of course, I agree with everybody else that we need to focus on the forward guidance issue and need to be ready to roll it out, if not rolling it out, by the March meeting.

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Stein.

MR. STEIN. Thank you, Mr. Chairman. I also support alternative B, basically for all the reasons that people have articulated. I think we're on a good path. I think policy is appropriately calibrated to the fundamentals. Market expectations are clearly in line. Given where we have been, the homogeneity now is just remarkable. It seems like the market can't disagree about anything other than maybe whether we're going to finish with a \$15 billion reduction or reduce by \$10 billion in October and \$5 billion in December. I think that to the extent that we can sustain that homogeneity and clarity, it is going to serve us well, because we've got all this complicated stuff around the guidance to deal with. So I think that's very helpful.

I just wanted to reiterate a point that a number of people have made about the bar for changing things being high. And I want to emphasize that I think that's a good thing, but it's a symmetric thing. It's not hawkish, as if we were saying that we should keep on this path even if the news gets weak. I want to emphatically agree with President Rosengren that if the news comes in stronger than expected, the bar for accelerating should also be very high. A number of you have alluded to this. Mr. Chairman, as you said, right now the mechanical timing of the wind-down is an important pillar supporting our forward guidance. We are about to possibly remove another one of the pillars as we cross 6.5 percent. As Governor Tarullo said, there is potentially going to be a lot of signal content. Suppose we got to the next meeting with good news and we accelerated to \$20 billion. All of a sudden, we would have moved forward this mechanical aspect of liftoff by three to six months. I would be very, very reluctant to go down

that path. And I think there's a sort of symmetry to financial-stability concerns. If you worry a lot about financial stability, and that makes you careful going in, I think it has to make you careful going out, and you have to keep that balance in mind.

On the guidance, I am in the camp that prefers doing things qualitatively. I just want to put one thing on the table—and I really don't have a clear view on the merits, but I just want to lay it out there for discussion—which is whether, as we think about this, we want to have in the guidance some explicit conditionality on financial conditions. Again, it's symmetric in principle. But the worry I have is that we get to a point where things detach a little bit and term premiums spike. I suspect that, *ex post*, we would be willing to lean against that to some extent by slowing down the rate of increase of the federal funds rate. Do we want to allude to that *ex ante* on the possible theory that letting the market know that we would be leaning against that might tamp down the volatility in the first place? I don't know. It's conceptually interesting. I think it's worth discussing. I don't have a clear view, but I hope it would be something that we could give a little bit of thought to. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. I have made comments like that in press conferences, for example, and it was also one of the rationales for the non-move in September.

MR. STEIN. I was thinking exactly that was the rationale for the non-move in September. Do we want to just emphasize that a little bit more and hope that it has a bit of a preemptive feature?

CHAIRMAN BERNANKE. Okay. Governor Powell.

MR. POWELL. Thank you, Mr. Chairman. I, too, will support alternative B, and I have a couple of comments on the statement and on the work we'll be doing for the March statement.



First, I didn't notice this until President Williams mentioned it, but I do think that saying indicators are mixed in the labor market will perhaps be the headline coming out of this. It is a signal of concern, and I wonder—we have market expectations right where we want them. I don't have great certainty about this, but I worry that it will send a signal that the Committee is concerned. I'd rather not do that, so I like John's suggested change there.

Second, as others have observed, the likelihood of passing through 6½ percent is high. So, obviously, there is going to need to be a pretty significant rewrite of paragraph 5 in this statement. And I would echo what others have already said: That is not something we should be doing at this point in the meeting in March. I think there should be a lot of back-and-forth before then. The purpose, of course, is to enable markets to understand how the Committee will react to changes in the economy and the markets. I think it's important to start by bearing in mind that the markets have got it about right, right now. There is a “first, do no harm” message in there, it seems to me.

I don't pretend to have all of this figured out by a long shot. But I will just say how I'm thinking about how I would react to developments. I think it's ideal to have a plan that covers most of the probabilities out there—not just a few of them, but really most of them—so that the market can react. The first case is what to do if neither inflation nor financial instability increased materially more than is suggested in the baseline. If that is the case, then my strong inclination would be to keep going and to lean in the direction of staying lower for longer. That's how I think about it now. I don't know whether that would be reflected in the statement or not, but a strong prior now is that this band of people that the Chairman added up at the beginning of the meeting are out there and could potentially be gotten back by a stronger

economy and stronger demand, and if we don't have financial-stability or inflation concerns, we ought to keep going and see whether that's the case.

So then the question is, what if inflation reacts? I think that in this situation—and this is with financial stability not reacting—I would tend to support a symmetrical approach to inflation. In a stronger economy in which we were at risk of inflation breaking out—where there was evidence of being near potential and inflation was on a hair trigger—I might well be somebody who would look at 2 percent as a ceiling. I don't really think that's where we are. If you look at the past 15 years, where is it? And I don't really expect inflation to react faster than is in the Tealbook, but I don't know.

The case with which I am going to have a harder time is financial instability. I think the most likely case is that we have a reasonably decent economy, inflation doesn't do much, but the bonfire is burning and asset prices start to move higher and higher. What do we do then? I don't come to this with a lot of preexisting faith in macroprudential policies. I can learn that I'm wrong about that—I'm happy to. But it seems to me monetary policy may have to react.

Looking at the specific language in paragraph 5 of Alternative A that Governor Yellen cited, I just have a couple of comments, assuming that this is a stab at what it might look like. First, if we put something in here, we need to be putting it in to tell the market how we are going to react, and I'm not sure I understand what signal we're sending by including the labor force participation rate in this list of things that we would consider. Is it really that we are uncomfortable with the level of the labor force participation rate—that it says to us that there is a group that is not counted in unemployment, and we are determined to go out and get them, to the extent we can, subject to the dual mandate? Is that what we're saying, or are we saying that we'll react to further decreases in the labor force participation rate? The notion would be that if

it keeps going down as it has been, which nobody in this room wants it to do, how are we going to react to that? The first takeaway ought to be that we are actually closer to the natural rate of unemployment. But if it continues to go down, is the suggestion that we would go lower for longer, even though we're getting a signal that we're closer to the natural rate of unemployment? I'm not sure that makes any sense. On the other hand, if the labor force participation rate flattens out and increases a little bit, that does say that there are people out there who will come back into the labor force, and that's a very positive message. That's a message that, frankly, we'd love to get, and maybe that would provide evidence. So I'd just say that if we are going to put that in there, we need to know exactly what message we are telling the market to take away.

And the second thing I notice, which I'll just raise now, is that we don't talk about wages here. We talk about inflation pressures, but we don't talk about measures of employment costs. I'm sure that was quite deliberate, knowing the process we go through. But I think that might be something worth considering that if we continue to not see any reaction from wages or from employment cost indexes of various kinds, we would take that into consideration. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. I favor alternative B at this meeting. There are a few points I'd make.

One is that the data have been broadly consistent with continuing on the course that we began at the December meeting, but that shouldn't be a surprise. It would be pretty surprising if we got a set of data in this short period of time that caused us to totally revamp our forecast. I don't think it's a surprise that we're staying on the same path. The taper decision in December was very well received by markets. The thing that struck me especially was that the forward

short-term rate expectations remained very well anchored, unlike the situation that we saw last summer. Another positive, of course, is that market expectations about FOMC policy now appear broadly consistent with what we actually expect to do over the next year or two, and that really supports the idea of keeping changes to the statement at a minimum at this meeting, which we all seem to favor.

I agree with others, though, that in March more substantial changes may be warranted. First, the statement is quite long and cumbersome, especially paragraph 5. It seems to me that a rewrite that simplifies paragraph 5 would be helpful. Second, as other people have said, there's a risk that we could get to the 6½ percent unemployment rate threshold by the March meeting. If that were to occur, I don't think a revamp would be optional. It would be necessary, and so we have to have a contingency plan for that. I completely support what everyone else around the table has said, that we've got to start doing the work now so that when we come to the meeting we're of one mind and we know which way we want to go. The third issue, of course, is that our SEP paths could change in a meaningful way, too, at the March meeting, and that might contradict the timing of liftoff implied by a \$10 billion per meeting taper rate and our "well past the time" line. That's another risk in terms of how our policy is going to evolve.

My own very preliminary thinking is that we should put more weight on inflation in our forward guidance. For example, in paragraph 5 we could have language that was more explicit in saying that liftoff is not likely until after the end of asset purchases, and that the amount of time between the end of asset purchases and liftoff would likely depend to a significant degree on how far underlying inflation was below our 2 percent objective. If it were further below our objective, then we would be more inclined to wait longer than if the gap was smaller. We could do that in terms of actual inflation, or we could do that in terms of our inflation forecast. I think

those are two things that we need to evaluate. Putting more weight on inflation or the inflation outlook would create an explicit escape route should slack in the economy tighten much faster than we think and inflation head up a little bit faster.

With respect to the pace of the taper, I agree with people that there's a pretty high threshold now to go at a different rate than \$10 billion per meeting, because the signal from doing so would be pretty strong. But I don't think that means we should just throw away this tool. If data really come out on a consistent basis suggesting that either we should go faster or we should go slower, I think the tool should still be available. I can imagine that over a period of six months data could accumulate in a way that we really wouldn't be comfortable with a \$10 billion a month pace and might want to go faster. So I don't want to put the thing on autopilot, because it is a tool, and the point people have made is that the tool is actually really powerful. To say we wouldn't use a really powerful tool if we needed to seems inappropriate to me.

On the Taylor rule, I just want to reiterate what President Evans said about not putting too much weight on the Taylor rule's use of a 2 percent real interest rate intercept. If you think about the distance between where we are in terms of the fed funds rate target and the equilibrium real rate, we're more than 3 percentage points below that supposed 2 percent equilibrium rate. If you look at our forecast, we have economic growth over the next year about 1 percent above potential. I bet if you went back historically and looked at the Taylor-rule relationship between where you were versus that equilibrium real rate and what subsequent economic growth rate you got, you'd find that you would expect to get a lot faster growth than just 3 percent. I think it would be useful to actually do a little bit more work on this to understand why, if policy really is as easy as the Taylor rule seems to imply, we only have a 3 percent growth forecast. Maybe that would help us tease out President Evans's point a little bit more. What is the equilibrium real

rate? To what degree are headwinds afflicting our economy? I'm worried about this. I'm worried that people in the market are just going to mechanically pull out the Taylor rule, the 2 percent real rate, and say that the Fed should be lifting off when, in fact, there are very good reasons not to, because the equilibrium real rate is not 2 percent. It's considerably lower.

I agree with Jeremy that financial conditions are really what we care about, and to emphasize them a little bit more would be useful. If they deviate sharply from where we want them to be, that's going to be relevant in terms of monetary policymaking. It also feeds into financial-stability concerns, because financial conditions could also deviate in terms of markets getting away from the upside, and we would presumably care about that as well. So I think getting that into the statement somehow or into our discussion would be useful.

In terms of language, I feel like the labor market indicators were mixed. I'm comfortable with the language as it is. I don't think how we shade it is a big deal, but my read of the labor market indicators is that they were mixed.

Finally, I want to say a few short words about Chairman Bernanke. Winston Churchill once said that "great and good are seldom the same man." Well, I think you're a notable exception. I think you're both a good and a great man, and that's a broadly held sentiment among us. That was evident in last evening's remarks and in all the comments of everyone around the table over the past two days. So on behalf of myself and the FOMC as Vice Chairman, I want to thank you for your stewardship. You have very much been the right person in the right place at the right time. Thank you.

CHAIRMAN BERNANKE. Well, thank you all for your comments. We have remarkable unanimity on the statement at this time, but there are a few issues, I think, that we want to discuss.

First is this question of the labor market sentence. President Williams suggested “on balance, labor market conditions have shown further improvement.” The status quo is “labor market indicators were mixed.” Are there any preferences? Do we want to take a straw vote?

VICE CHAIRMAN DUDLEY. Take a straw vote.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. I like President Williams’s suggestion. I do think that, over the past several months, the indicators were coming in pretty strong, even though we got the bad number in the December report. I’m not sure we want to say “mixed” at this juncture—it might feed into the market turmoil that’s going on right now. It is a little bit of a concern. So I think it would be fair to say “on balance.”

CHAIRMAN BERNANKE. Okay. President Plosser.

MR. PLOSSER. I was going to say I agree with President Bullard and President Williams. I think the formulation “on balance” doesn’t say anything to suggest that there weren’t differing signals. But if it’s a description of what we thought on balance, I’d be inclined to support that.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. Well, as Bullard is my witness, I had written out one editorial comment that I forgot to mention in my intervention.

CHAIRMAN BERNANKE. Oh, okay.

MR. FISHER. I don’t think it’s anything to die for, but I noticed that Governor Powell and others referred to it. So I would prefer it, but I don’t think it’s worth dying for.

CHAIRMAN BERNANKE. Well, I hope not. [Laughter] The staff suggested yet a third compromise: “Labor market indicators were mixed, but on balance showed further improvement.” Is that it? Can we go with that?

SEVERAL. Sure.

CHAIRMAN BERNANKE. All right. President Rosengren?

PRESIDENT ROSENGREN. That’s okay.

CHAIRMAN BERNANKE. Okay. So “labor market indicators were mixed,” as stated here, “but on balance showed further improvement. Okay?

Now, the other issue is that apparently we’re having more stress today in the emerging markets, and we asked Steve if he has anything to report on that.

MR. KAMIN. Sure. I will backtrack just to yesterday evening. In the evening, local time, in Turkey, the Central Bank of Turkey announced very sharp increases in interest rates, coupled with a commitment to basically be more straightforward in their monetary policy. That was something the markets had been looking forward to, I think. In the event, the increases in rates are greater than the market anticipated, and the initial response was very positive in terms of the Turkish lira strengthening some 3 to 4 percent against the dollar. That’s what we were looking at, at the very beginning of this morning. Since then, the Turkish lira has retraced and is now more or less unchanged from where it was yesterday. The Mexican peso and Brazilian *real* have fallen in the neighborhood of ½ percent to 1 percent against the dollar this morning. Also, the European stock markets are down about 1 percent. As evidence of flight-to-safety activity, the yen is up ¾ percent against the dollar, as often happens in these things. And U.S. 10-year bonds are down about 3 basis points.



This is not by itself a particularly dramatic turn of events. It's just evidence of continuing reverberations in a context where we might have hoped for more definitive easing of pressures. Again, it's very hard to predict these things. It's actually reasonably typical in emerging market crisis situations for a dramatic move by the authorities to be followed by some positive response, then some retracing. That's pretty common. Now, what's also true is that subsequently it's almost as common for the situation to get a lot better as it is for it to continue to get worse.

VICE CHAIRMAN DUDLEY. So we don't know.

MR. KAMIN. We don't know, and so this is all by way of considering whether you want to put in a short reference in the statement acknowledging that.

CHAIRMAN BERNANKE. Let me just say that a simple thing to do, if we were so inclined, would be just to go back to the old risks language, "having become more nearly balanced," and not change that. That would be a simple thing to do. But do you have a language suggestion?

MR. ENGLISH. I think we have a couple of possibilities. One would be, "The Committee currently sees the risks to the outlook for the economy and the labor market as nearly balanced, but developments in global financial markets bear watching" or "but developments in global financial markets could pose increased downside risks," depending on how firmly you wanted to point to the risks.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. I would really be reluctant to react to what are pretty small movements. [Chorus of agreement] I just think that then it becomes a matter of the timing of the meeting and the timing of the event. It gets over-weighted. You know, if it happened

three weeks ago we wouldn't even be putting the language into the statement. I think it's too small a move to react.

MR. TARULLO. Can I ask a question, Steve? What's happened with the rupee and the *real* and some of the other midrange emerging market currencies?

MR. KAMIN. In fact, at least as of 10:00 a.m., the Indian rupee and the Indonesian rupiah are actually up slightly against the dollar.

MR. TARULLO. That argues strongly for Bill's position.

MR. KAMIN. As is the Korean won. So it is mixed. As I say, it's not a great picture, but it's not a terrible picture either.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. Mr. Chairman, these are very thin markets. I agree 100 percent with Vice Chairman Dudley. I don't think we should be reactive in this fashion. These aren't radical moves. There is the potential of harking back to the Thai crisis, which Governor Tarullo mentioned earlier, but we don't see evidence of that right now, and I wouldn't want to appear reactive.

CHAIRMAN BERNANKE. The only suggestion I would put out for consideration would be not to actively improve the risk balance—that is, to go back to last month's existing language on the risk balance.

SEVERAL. That's fine.

MR. FISHER. But what is the language that we would use, Mr. Chairman?

CHAIRMAN BERNANKE. If you look at alternative B, we would change the risk balance from “sees the risks as having become more nearly balanced” to “sees the risks as nearly

balanced.” The fact is, that is a change, and it’s actually going in the direction of slightly less risk.

MR. FISHER. You just drop those three words.

CHAIRMAN BERNANKE. I’m just putting on the table keeping that unchanged so that there’s not a sense of greater risk, but not a sense of less risk either. President Kocherlakota.

MR. KOCHERLAKOTA. Sorry. Yes, thank you, Mr. Chairman. I don’t like doing that in response to the news received, but now that you’ve pointed out that that change was made, I think it’s better not to have made it. It’s good to keep the language the same as much as possible. So I’m in favor of that.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. Well, there’s a question about what the meaning is here, frankly. Saying “having become more nearly balanced” means you’re moving in the direction of the risks receding.

CHAIRMAN BERNANKE. It means relative to the recent past.

VICE CHAIRMAN DUDLEY. I know, but you can read it both ways. I mean, it’s not obvious. I can live with either.

MR. FISHER. I can live with that one, Mr. Chairman. I think that’s wise.

CHAIRMAN BERNANKE. All right. May we just go back? President Bullard.

MR. BULLARD. I’m not sure this is an improvement. We said at the previous meeting, “having become more nearly balanced.” Now we don’t want to say that we’ve made further improvement.

VICE CHAIRMAN DUDLEY. Right. That’s my point.

MR. FISHER. I don’t think it’s going to be noticed.

MR. KOCHERLAKOTA. It will not be noticed.

CHAIRMAN BERNANKE. It won't be noticed. It will just be relative to earlier statements when we were saying that the risks were still to the downside.

VICE CHAIRMAN DUDLEY. I don't think it's a big deal one way or the other, Mr. Chairman.

MR. FISHER. This won't be noticed, Mr. Chairman. If you want to leave it, I'd leave it.

MR. LACKER. There's a paradox here, because the way the language was, it referred to an improvement having occurred. Repeating that suggests that further improvement has occurred over the intermeeting period, which isn't the meaning you want to convey.

MR. FISHER. But now we're saying we're already there with the new wording. I don't think it's noticeable.

CHAIRMAN BERNANKE. I think a lot depends on the reference point, which is vague.

MR. LACKER. So it would be odd for us to refer to a change that occurred two intermeeting periods ago rather than one. I'd leave it the way it's written.

VICE CHAIRMAN DUDLEY. I really don't think it matters one way or the other.

CHAIRMAN BERNANKE. All right. May I exert executive privilege here and just ask to put it back to where it was the last time? I don't think it's going to be read any way other than as just a repetition of our assessments last time.

Are there any other thoughts or considerations? [No response] If not, the only change we have is the second sentence. "Labor market indicators were mixed"—then how did it go?

MR. LUECKE. "But on balance showed further improvement."

CHAIRMAN BERNANKE. "Labor market indicators were mixed, but on balance showed further improvement" in the second sentence.

MR. ENGLISH. And we're undoing the change to the risks statement in paragraph 2.

CHAIRMAN BERNANKE. And we are undoing the change to the risks statement. All right. Would you call the roll please, Matt?

MR. LUECKE. This vote will be on the language that Chairman Bernanke just indicated and on the directive as found on page 12 of Bill English's handout.

Chairman Bernanke	Yes
Vice Chairman Dudley	Yes
President Fisher	Yes
President Kocherlakota	Yes
President Pianalto	Yes
President Plosser	Yes
Governor Powell	Yes
Governor Stein	Yes
Governor Tarullo	Yes
Governor Yellen	Yes

CHAIRMAN BERNANKE. Thank you. A statement about the overnight reverse repurchase agreement exercise has just been passed out. Let me ask Simon to say a word about it.

MR. POTTER. Actually, I think, Lorie—

CHAIRMAN BERNANKE. Or Lorie.

MR. POTTER. In her new role.

MS. LOGAN.<sup>5</sup> Given the directive on asset purchases and the resolution passed on the overnight RRP exercise, the Desk intends to release two statements simultaneously with the FOMC statement, and there should be two being circulated at the moment.

The first statement indicates that the Desk will begin buying agency MBS and Treasury securities at the lower \$30 billion and \$35 billion monthly pace beginning in February. Further, it notes that the Desk will complete the existing January schedules as previously released, and all other elements of the statement are identical to what we released with the December Desk statement on asset purchases.

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<sup>5</sup> The materials used by Ms. Logan are appended to this transcript (appendix 6).

CHAIRMAN BERNANKE. Okay. So that's just simply the statement. That's just the announcement of the asset purchases.

MS. LOGAN.<sup>6</sup> The second statement, which in your handout is titled "Statement to Revise Terms of Overnight Fixed-Rate Reverse Repurchase Agreement Operational Exercise," notes that the Committee has authorized the Desk to continue the overnight RRP exercise through January 30, 2015, and to modify the terms. It notes that the maximum allotment cap will be increased starting in tomorrow's operation, to \$5 billion, and that over the coming months it may be increased further. Last, it notes that the fixed rate on the operations continues to be authorized between 0 and 5 basis points, and that the current fixed rate will be maintained at 3 basis points.

This statement has been adjusted from the one circulated ahead of the meeting in the memo on the overnight RRP, in order to remove a clause in that original draft that noted, "The individual counterparty caps may be lifted altogether with the operations conducted in a full allotment." We made that adjustment to reflect the discussion yesterday and to maintain more opportunity for consultation about whether and when to take that last step. Thank you.

CHAIRMAN BERNANKE. So there's no reference to full allotment in the statement?

MR. LACKER. That's good. I appreciate that.

CHAIRMAN BERNANKE. Sure. Any questions for Lorie? [No response] Any other business? [No response]

Okay. There is coffee available. You can take as long as you like. Lunch is available here at noon, if you're still around and would like to socialize, and the next meeting shall be led by Chair Yellen. It is March 18 and 19, 2014.

Thank you all very much. The meeting is adjourned. [Applause]

END OF MEETING

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<sup>6</sup> The materials used by Ms. Logan are appended to this transcript (appendix 7).