Meeting of the Federal Open Market Committee on July 29–30, 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, July 29, 2014, at 10:00 a.m. and continued on Wednesday, July 30, 2014, at 9:00 a.m. Those present were the following:

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

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, Paolo A. Pesenti, Mark E. Schweitzer, and William Wascher, Associate Economists

Simon Potter, Manager, System Open Market Account

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

Robert deV. Frierson,[1] Secretary of the Board, Office of the Secretary, Board of Governors

[1] Attended the joint session of the Federal Open Market Committee and the Board of Governors.

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

Matthew J. Eichner,[1] Deputy Director, Division of Research and Statistics, Board of Governors; Maryann F. Hunter, Deputy Director, Division of Banking Supervision and Regulation, Board of Governors; Stephen A. Meyer and William R. Nelson, Deputy Directors, Division of Monetary Affairs, Board of Governors

Jon W. Faust and Stacey Tevlin, Special Advisers to the Board, Office of Board Members, Board of Governors

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

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

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

David Bowman, Associate Director, Division of International Finance, Board of Governors; David E. Lebow[2] and Michael G. Palumbo, Associate Directors, Division of Research and Statistics, Board of Governors; Fabio M. Natalucci[1] and Gretchen C. Weinbach,[1] Associate Directors, Division of Monetary Affairs, Board of Governors

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

Eric C. Engstrom, Patrick E. McCabe,[1] and Karen M. Pence, Advisers, Division of Research and Statistics, Board of Governors

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

Francisco Covas and Elizabeth Klee,[1] Section Chiefs, Division of Monetary Affairs, Board of Governors

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

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

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

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[1] Attended the joint session of the Federal Open Market Committee and the Board of Governors.
[2] Attended the portion of the meeting following the joint session of the Federal Open Market Committee and the Board of Governors.

Peter M. Garavuso, Records Project Manager, Division of Monetary Affairs, Board of Governors

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

David Altig, Ron Feldman, Jeff Fuhrer, and Daniel G. Sullivan, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Minneapolis, Boston, and Chicago, respectively

Michael Dotsey and Meg McConnell, Senior Vice Presidents, Federal Reserve Banks of Philadelphia and New York, respectively

Fred Furlong, Group Vice President, Federal Reserve Bank of San Francisco

Antoine Martin,[1] Douglas Tillett, David C. Wheelock, Jonathan L. Willis, and Patricia Zobel,[1] Vice Presidents, Federal Reserve Banks of New York, Chicago, St. Louis, Kansas City, and New York, respectively

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

[1] Attended the joint session of the Federal Open Market Committee and the Board of Governors.

Transcript of the Federal Open Market Committee Meeting on July 29–30, 2014

July 29 Session

CHAIR YELLEN. Good morning, everybody. I would like to begin today's meeting by giving the floor to President Fisher, who asked if he could take a minute to address the group.

MR. FISHER. Thank you, Madam Chair. I wanted to apologize to the group for having an excerpted part of my speech in the *Wall Street Journal* on Monday during the blackout period. I asked them not to publish it during the blackout. Michelle has seen the string of e-mails.

They sent me back what I actually said, which is always dangerous, on the 16th of July. I did correct it because there were a lot of misstatements in there that they had created from the speech. Having said that, I think all of us, especially me, need to be conscious of the fact that whatever we say can appear. I did argue with them about publishing it. They were firm on it.

But I think, Madam Chair, I am embarrassed because this is a sacred institution. I am also embarrassed because they had one of the San Francisco Fed's dollars in the picture. It had an "L" at the very end, rather than a "K." I don't want to embarrass my colleague from San Francisco, and I just wanted to issue a public "I'm sorry." Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Next I want to mention that the subcommittee on communications is up and running under the leadership of Governor Fischer. I thought I would just turn over the floor to him for a second to report on their activities.

MR. FISCHER. Thanks very much, Madam Chair. We are waiting for the third "Fisher" to come follow me and say something. [Laughter] The communications subcommittee consists now of Jay Powell, Loretta Mester, John Williams, and me. We had our first, primarily agenda-setting, meeting this morning, and the first item on the agenda is going to be revising the

statement on longer-term goals and monetary policy strategy that was agreed on in January by the Federal Open Market Committee.

We've had the idea of circulating some of the discussion that took place in this Committee when that was discussed, so that people can see what the issues are. We are clearly going to have to find some way of relating to the financial-stability function, which is not defined as part of our dual mandate. We have a hard time getting financial stability into the dual mandate, but we clearly are focusing more on it than we did in the past, and it will have to make an appearance of some sort. There are other issues that you discussed earlier, ones that possibly we could make another incremental step on, but we will see what those are, and we hope to have something ready to discuss at the December meeting. Thank you.

CHAIR YELLEN. Great. Thank you. Our first two items this morning will be considered in a joint meeting of the FOMC and the Board. I need a motion to close the Board meeting.

MR. FISCHER. So moved.

CHAIR YELLEN. Without objection. Thank you. Let me turn over the floor now to Simon for the Desk report.

> MR. POTTER.[1] Thank you, Madam Chair. Over the intermeeting period, domestic financial conditions eased as longer-term interest rates declined and equity prices increased. As shown in the top-left panel of your first exhibit, markets responded to some better-than-expected labor market data and Federal Reserve communications that focused less on the recent uptick in inflation than some had anticipated. Market participants paid particular attention to the discussion of policy normalization in the June FOMC meeting minutes, which reportedly put downward pressure on short-term interest rates. Broad U.S. financial markets were little affected, on net, by unfavorable geopolitical developments, though they led to declines in Treasury yields at times.
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> In terms of broader themes, market participants continued to focus on the substantial decline in longer-dated forward rates across advanced economies and the

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

low levels of volatility in financial markets since the beginning of the year. There is also growing attention on the relative stability of the expected federal funds path. The top-right panel shows this path is little changed since December, despite better-than-expected labor market data and shifts higher in the SEP rate projections. At present, the market-implied path lies notably below the median of the June SEP paths.

The Desk's surveys can be used to examine more directly whether aspects of market beliefs on the path of policy have changed more materially despite the relative stability of the market-implied path. Since dealers' and buy-side participants' responses were not notably different from each other in the most recent surveys, I will focus on the dealer results, for which we have a longer history. As shown in the middle-left panel, since December the average probability dealers assign to liftoff occurring in 2015 has increased about 25 percentage points. Further, the dealers are placing increasingly more weight on liftoff in the first half of 2015. However, views of the pace of tightening thereafter do not seem to have changed much. The middle-right panel shows dealer average responses for the modal pace of tightening after liftoff since the start of 2013. On average, dealers expect the FOMC to tighten about 125 basis points per year for the first two years after liftoff, and there has been little change in this view. The modal pace in the third year is lower, and has declined recently, consistent with the lower expectations for the longer-run neutral rate.

One explanation for the recent stability in the modal pace of tightening in the first two years of rate normalization is that market participants' broad economic outlook is not markedly changed. Indeed, while unemployment rate forecasts from the Desk's and other surveys have markedly declined since December, GDP growth and inflation forecasts for 2015 and 2016 are little changed. With regard to the growing difference between the market-implied path and the SEP path, contacts have suggested this partly reflects the interpretation of the so-called dots. Market participants generally believe that the futures market is priced near the perceived level of the Chair's projections, which most believe is the 4th to 7th lowest dot.

However, there are many market participants who suggest the market as a whole might be overly complacent in forming their expectations for monetary policy amid continued accommodation supported by forward guidance and low market volatility. Direct evidence on this issue from market reaction to economic data releases is mixed: The Tealbook, examining a sample going back to 1990, finds little convincing evidence of excessively low sensitivity to economic news. However, Desk analysis using a smaller sample finds, as does the Tealbook, that the responsiveness of longer-term interest rates to economic data surprises has been lower this year than it was in the prior three years.

Market prices that could register possible unease about the policy rate path show almost the opposite of concern. Measures of fixed-income skew, while still positive, have declined since the start of the year, as shown in the bottom-left panel, suggesting investors in these markets now see less risk of a shift up in rates. Additionally, as shown in the bottom-right panel, longer-term measures of inflation compensation are very stable, although shorter-dated measures have increased in recent months along

with realized inflation. However, if there was excess complacency in financial markets about the level of longer-term interest rates promoted by the accommodative stance of advanced economy central banks, this complacency might also cause measures of interest rate skew and inflation compensation not to reflect the underlying risks. An alternative explanation for some of the patterns observed in financial markets given by some market participants—not related to complacency but perhaps even more concerning—is that the decline in long-forward rates is partly driven by the risk of a policy error, whereby the Committee will tighten policy before the economy can sustain higher rates, necessitating a subsequent easing of policy back toward the zero bound.

Your next exhibit reviews international developments over the period. In the U.K., market attention focused on recent communications from the Bank of England. These included Governor Carney's Mansion House speech, in which he stated that a rate hike could happen "sooner than markets currently expect." This comment prompted an increase in front-end U.K. interest rates and a modest rise in shorter-dated interest rate implied volatility, as shown in your top-left panel. While these moves partially retraced, following evolving Bank of England commentary, both interest rates and implied volatility remain higher. Longer-dated interest rates and equity prices in the U.K. declined following the speech and remained lower.

Global risk asset performance was mixed, with U.S. equities outperforming those in Europe over the period, as shown in the top-right panel. European financial markets responded to concerns about the possible imposition of further criminal penalties on European banks, which increased in April following media reports on this topic. Since then, the share prices of many of the largest euro-area and U.K. banks have declined due to increasing uncertainty regarding future litigation and associated penalties. U.S. banks have been less affected by these concerns as market participants view them as more advanced in resolving outstanding litigation. Separately, European banking sector concerns escalated further after corporate governance issues and liquidity stresses intensified at Banco Espírito Santo. Its shares have fallen more than 50 percent over the intermeeting period, and have damped investor sentiment toward other peripheral banks.

These banking concerns and, to a lesser extent, rising geopolitical tensions also contributed to a small widening in euro-area peripheral government bond spreads, as shown in your middle-left panel. Similarly, U.S. high-yield corporate spreads widened slightly over the period, in part because of a paring back of investor positions as spreads reached average levels from 2005 to 2007.

Emerging market asset prices continued to increase despite a marked decline in Russian financial markets, shown in your middle-right panel. Prices of Russian assets fell because of a worsened growth outlook, partially as an effect of sanctions related to the Ukraine situation and to fears of further sanctions following the downing of a commercial airplane in Ukraine. Spillover of these concerns to other emerging markets was limited as asset price increases likely reflected the ongoing reach for higher-yielding investments amidst low volatility, better-than-expected economic data

in China, and continued highly accommodative monetary policy in advanced economies.

With regard to the ECB, euro-area money market rates continued to trade at very low or negative levels in the wake of the rate cuts and liquidity measures announced at the June ECB meeting, including the new targeted LTROs, which will begin in September. These so-called TLTROs are intended to incentivize lending to euro-area nonfinancial corporates and households, with contacts estimating up to €850 billion in participation across all eight operations. Such usage could result in further modest downward pressure on euro-area money market rates, including the already negative overnight repo rates for French and German collateral shown in the bottom-left panel.

The Desk's management of the SOMA and ESF euro foreign currency reserve portfolio has been affected by these negative money market rates. To minimize the effect of negative rates, the Desk extended the term of some investments. This has caused the portfolio duration to rise very close to the Desk's 12-month internal limit, as shown in the bottom-right panel. In the current environment, we will continue to face tradeoffs between accepting negative rates and extending duration by investing in longer-dated positive-yielding instruments. Depending on the evolution of market rates, the Desk may seek the Committee's approval to extend the public 18-month duration limit.

In domestic operations, usage of the overnight RRP, shown in the top-left panel of your final exhibit, averaged about $130 billion per day over the intermeeting period, about $30 billion lower than in the previous period. The decline was primarily due to decreased demand from money market funds, which had higher-yielding alternatives than last period, when decreases in the supply of Treasury bills put downward pressure on money market rates. However, over quarter-end, overnight RRP take-up reached $339 billion, with nearly $200 billion flowing into the operation on June 30 and exiting on July 1.

This large one-day increase reflects the contraction in borrowing activity associated with banks' and dealers' behavior around financial reporting dates. As a result, short-term investors, including money funds, have fewer investment opportunities. In the absence of the overnight RRP exercise, these funds would increase their unremunerated balances at custodial banks or invest in other assets at lower and perhaps negative rates. The top-right panel shows some of these dynamics: Reserve balances of foreign banking organizations decrease sharply at quarter-ends as they pare back the size of their balance sheets, while reserve balances at custodial banks rise. The contraction in FBO borrowing activity at quarter-ends has increased as firms prepare to comply with Basel III leverage ratio requirements and excess reserves continue to grow. In addition, this was the first quarter in which balance sheet size will be used to assess whether an FBO will need to form an intermediate holding company and thus become subject to U.S. regulatory requirements. This consideration may have further encouraged dealers owned by foreign financial institutions to shrink their balance sheets.

Participation in TDF test operations was also influenced by quarter-end dynamics. As you are aware, the staff completed its most recent series of tests, which involved increasing the offered rate over the past four operations. As shown in the middle-left panel, take-up rose as we offered higher rates, and reached $153 billion in the final operation. The operation that covered quarter-end was an exception to this trend, as some large domestic and foreign participants appeared reluctant to hold term deposits over their regulatory reporting date.

As discussed in a memo you received before the meeting, a wide range of banks continue to note that demand for TDF deposits is constrained because of how these deposits effect the LCR. If banks had the option to withdraw funds on a same-day basis prior to maturity, TDF deposits would become LCR-compliant. The staff has developed plans for preliminary testing in late summer or early fall of a variation of the TDF that includes an early withdrawal feature. Under such testing, a penalty rate would be charged to firms for breaking a TDF deposit, and it would be set at a level that would make opportunistic withdrawal of funds very unlikely.

Turning to Treasury markets, as shown in the middle-right panel, fails increased sharply in June, although they were quickly resolved and did not affect broader Treasury market functioning. The increase largely reflected a temporary bout of fails in three of the most recently issued, or "benchmark," securities. Non-public data suggest that large holdings by certain foreign official accounts, which tend not to lend securities, help explain some of the spike in benchmark fails in June. Importantly, it does not appear that the fails are related to large SOMA holdings of individual securities. In fact, our holdings often help prevent fails because we make them available to the market through Desk securities lending operations. There has been little change in our securities lending activity despite the rise in fails, largely because recent fails have been concentrated in benchmark securities of which we have few, if any, holdings. Some market participants have speculated that changes in the regulatory environment may have made fails more likely, perhaps due to reluctance on the part of dealers to devote their balance sheet to low-margin businesses like repo or securities lending.

In the MBS market, lower mortgage rates and increased summer purchase activity led to faster prepayment speeds on the SOMA portfolio, with paydowns increasing from $17 billion in June to $19 billion in July. As a result, reinvestment purchases will exceed the size of outright purchases. Following the discussion of reinvestments in the June FOMC minutes, nearly all Desk survey respondents expect the Committee to continue reinvestments until after liftoff.

If the Committee reduces the pace of Treasury or MBS purchases at this meeting, as expected by nearly all market participants, we would release a Desk statement at the same time as the Committee statement. Lorie and I will have copies of the statement available for review tomorrow.

Next, I will review the market reaction to the discussion of policy normalization in the June FOMC minutes. Prior to the minutes, many market participants

anticipated that the overnight RRP and IOER would be the primary tools used to control rates, particularly while the balance sheet is large. Market participants now expect overnight RRP to play a more supplementary role. Some market participants were surprised that the Committee anticipates a spread between the IOER and ON RRP rates that is near or above its current level. Following the minutes, the median expectation for the spread at liftoff seen in the Desk's surveys shifted from 10 basis points to 20 basis points, as shown in the bottom-left panel.

Market participants still have dispersed expectations for usage of the ON RRP. Among survey respondents who expect the spread between the IOER and ON RRP rates to be 20 basis points, the median expected level of overnight RRP usage at liftoff is $350 billion, down a bit from expectations ahead of the June FOMC. Some market participants have argued that ongoing regulatory developments, including recently announced money market fund reforms, could lead to higher average usage in the future.

Dealers' expectations for the levels of short-term rates at liftoff appear to have coalesced following the minutes, as shown in the bottom-right panel. The average respondent now expects the effective federal funds rate to trade in the middle of the range created by the IOER and ON RRP rates, rather than near the top of the range. Following the discussion in the minutes, most respondents now appear to interpret liftoff as entailing the first increase in IOER rather than just a tightening of the spread between the IOER and ON RRP rates. When we condition on the views of respondents who had a consistent definition of liftoff across the June and July surveys—specifically, the 20 respondents who expected IOER to be 50 basis points, represented by the red dot—we find that expectations for the effective federal funds rate at liftoff declined, on average, 13 basis points between the surveys. This decline is consistent with the market reaction following the release of the minutes. Money market rates broadly declined, with rates on Eurodollar futures maturing in late 2015 and early 2016 falling as much as 9 basis points. Market participants suggested that both secured and unsecured money market rates may trade lower than previously expected as a result of the wider anticipated spread between the IOER and ON RRP rates.

Finally, I would like to highlight briefly two distinct counterparty proposals from the Desk. In early August, the Desk is planning to announce a pilot program to extend our MBS trading relationship to a few firms that are too small to qualify as primary dealers, similar to the nearly complete Treasury Operations Counterparty Pilot Program. Both pilot programs will provide useful insights into our counterparty framework. Second, in a memo you received before the meeting, we discussed that in light of the understanding under which the current extended counterparties in the ON RRP operations were enrolled, the interests of reasonable governance argue for revisiting the counterparty list. Specifically, we requested authorization to open an enrollment wave to firms that meet the current eligibility criteria. However, if preferred, we can postpone reopening until the Committee has finalized the normalization principles. Thank you, Madam Chair. That concludes my prepared remarks.

CHAIR YELLEN. Thank you. Questions for Simon? President Rosengren.

MR. ROSENGREN. Thank you. Looking at your charts 13 and 14—when I do econometric work I spend a lot of time looking at outliers, and it looks like the end of the quarter has outliers that are relevant for understanding short-term credit behavior. When I think of federal funds, I think it's a GSE-dominated market. When I think of excess reserves, I think of it as basically a foreign branch–dominated market.

I wonder if you could expand a little bit more on the behavior—we have been calling it "window-dressing" in some of the memos, but it might be worth just elaborating a little bit more on what is encouraging the branches to dramatically change toward the end of the quarter, and what would be the implication—are there other ways that we could affect behavior? If we had significant limitations on some of our facilities, are there other alternatives that could make us think about foreign branch behavior at the end of the quarter?

MR. POTTER. My view of what's going on is that a large amount of the reserves in the system are held at these foreign banks. About 52 to 54 percent is the average. Most of the trading in the federal funds market, and also the Eurodollar market, is an arbitrage trade. It is an overnight trade, in which someone who doesn't have access to interest on excess reserves gives money to a foreign banking organization who can then earn interest on excess reserves.

At quarter-end, the easiest way for the foreign banks to reduce their balance sheet is to reduce those excess reserves, because they are not really serving any purpose other than the arbitrage trade. It's a rather neutral event within financial markets for the foreign banking organizations. It does cause challenges for the investors that they deal with. As you can see, last year what would happen is the custodial balances in big custodian banks would go up at that point, because there wouldn't be balance sheet available elsewhere.

In terms of how we could change this, I'm not completely sure what the economics are behind the window-dressing that happens. It seems that there could be accounting incentives to do it. There are regulatory incentives. Clearly, the incentive—not in the branches here, but for the other parts of a foreign banking organization—to reduce their balance sheet in the most recent quarter were quite strong because of their trying to calculate the $50 billion asset threshold for the IHC requirement. I think it is worthy of more investigation.

But overall this is reasonably neutral. I think going in and out, there is no friction within money markets from the existence of the overnight RRP. It probably does make it a little bit easier for some of the people who want to do this behavior to maintain the relationships they have after that. If I'm a money fund, I feel less disturbed by the fact that I have to go to the ON RRP for one day, and then I form my relationship back with a foreign banking organization.

MR. ROSENGREN. Just one quick follow-up. This is indexed to 100. When I look at $630 billion, how much of a movement was there just of the FBOs in terms of quantity of excess reserves?

MR. POTTER. It was a reduction of 25 percent. We have the numbers. [Aside to Ms. Logan] Is that right? How much? $150 billion?

MS. LOGAN. $350 billion, maybe—something on that order.

MR. POTTER. It's in one of my notes—$340 billion or 25 percent.

MR. ROSENGREN. Thank you.

CHAIR YELLEN. President Fisher.

MR. FISHER. Can I just follow up on chart 13? If we weren't to have a discussion, as we're about to have this morning, or change the parameters, the normalization principles, all of

the things we hope to issue in September, and we come to quarter-end September, would you expect a similar bar to what you saw in Q2?

MR. POTTER. These bars have been growing. One of the differences from the previous quarter-end was that the cap was $10 billion rather than $7 billion. I think four funds were maxed out at quarter-end, if I remember exactly, might have been a few more. I would expect this to perhaps be a little bit higher, depending on what the dynamics were in money markets at that time.

The dynamics were quite unusual in this quarter-end, as dealers were trying to net down their repo books. It's hard for us to think through what the rate configuration was, because rates are actually quite high in the GCF market. That wouldn't be predictive of this kind of spike, but that's what we got. It was a pretty sudden spike. I think it surprised some of us here that it was that big. Is that fair, Bill? Yes.

CHAIR YELLEN. Further questions? Governor Powell.

MR. POWELL. I have a question on the term deposit facility, and that is, we have a reference in the draft normalization principles to our other supplementary tools, which I take to include the TDF. The take-up is kind of interesting. There is really a big increase in take-up. I guess my question is, if you eliminate the individual caps, make it LCR-friendly, and then start playing around with price, what kind of size could it get to? Really, the question is, at the start, is this a tool that we can actually think might have some effect around the time of liftoff? Or how many reserves do we really need to drain, do we think?

MR. POTTER. I'm going to let Bill answer this one—I'm sure I will agree with him.

MR. ENGLISH. I guess my first answer is, we don't know. We'll be doing testing of the breakable TDF, and we will get better information on how much that helps to increase the

amount that we can drain. I think that my expectation is that it will help a fair amount—that we will get considerably larger amounts that we can drain. But I don't think they will be so large that we will get to a situation in which reserves will be scarce, and we can kind of implement policy through scarcity of reserves, unless the rate is extraordinarily high.

Nonetheless, draining some reserves in this way, and offering an attractive investment for banks that they can then respond to, and their actions in other markets, should help to firm rates. The extent to which that's the case—it's just hard to judge, I'm afraid.

MR. POTTER. Yes. I think that there are two things that could happen—the profits of banks go up, or they pass on some of this rate increase, and there will be some mixture. We will have more rate control from it the less it just increases the profits of banks.

MR. POWELL. We shouldn't count on this tool being useful at the time of liftoff?

MR. POTTER. I think in terms of theatrics, it might be useful, that we are actually doing things. But in terms of changing some of the competitive dynamics that might be there, you'd have to work really hard because it's the same set of counterparties who have access to interest on excess reserves. You are not changing that competitive dynamic in money markets.

MR. POWELL. Okay. Thanks.

CHAIR YELLEN. President George.

MS. GEORGE. I wanted to go back to something President Rosengren asked, to make sure I understood. On chart 14, when you look at those quarter-end responses from the foreign banks, so this is not eliciting a regulatory response in terms of managing the balance sheet as it relates to capital? Or is this just a function of the amount of reserves in the system?

MR. POTTER. I am not a supervisor, so—I think that the answer I gave is they have massive reserve balances, so they've got 52 percent of $3.6 trillion. That's a big number. They

are not really using it for anything other than the arbitrage trades, so they are reducing it down. It's risk-weighted capped to a charge of zero, so it doesn't matter. But on the leverage ratio, it has the same weight as everything else, which is the behavior you're seeing.

CHAIR YELLEN. President Lacker.

MR. LACKER. It was my understanding that there is an asymmetry between the domestic and foreign banks in the degree to which daily averaging was the relevant balance sheet measure versus quarter-end. And the foreign banks are more tilted toward quarter-end, and, thus, they place sort of a higher shadow value on actually doing it. Is that understanding correct?

MR. POTTER. As I said, I'm not a supervisor. I think our leverage ratio is calculated as an average. There's less of an incentive to do it. It is not obvious how people are going to apply the Basel III leverage ratio to foreign banking organizations, but they seem to be thinking that it might be applied more at the quarter-end. There's some uncertainty. If you talk to some of the people who have to manage these balance sheets, they are unsure on a number of aspects about what the final rules will look like. They still have the net stable funding ratio, for example, that has to be finalized.

CHAIR YELLEN. President Rosengren.

MR. ROSENGREN. One more, just to follow up on that. The Europeans are doing a stress test this fall. If they are worried about their balance sheet at the end of the quarter, would we expect during the stress test that we might see even larger movements by the foreign banking organizations and need to be aware of that as we go into the fall?

MR. POTTER. I think that you saw that at the end of last year, when it was true that European banks tried to get their balance sheets a little bit lower, because that was the snapshot that was taken for the AQR and also for the stress test, in my understanding. That is less of an

issue now. But in countries in which there are other regulations coming on—the United Kingdom, for example—you are going to see these dynamics continue if you do all of the measurement at a particular point in time.

CHAIR YELLEN. Further questions for Simon? [No response] Seeing none, I need a motion to ratify open market operations.

MR. FISCHER. So moved.

CHAIR YELLEN. Thanks. Without objection. I think we are now ready to turn to the next topic, which is monetary policy normalization. Let me just make a couple of introductory comments to start things off.

I want to begin by once again expressing my appreciation to all of you for the productive discussions you have had over the past two meetings and also for your thoughtful and constructive comments on the draft normalization principles and the memos that were circulated for discussion today. I also want to thank the staff for their continued excellent support.

I think we all agree on the importance of clearly communicating to the public our normalization plans well before the first steps in tightening policy become appropriate. In light of the good progress we have made so far, I believe we are on track to roll out our revised policy normalization principles and strategy in September. As you know, staff circulated a revised set of normalization principles yesterday that reflect the comments we received late last week. I hope that any further revisions that seem necessary can be locked down in the coming weeks so that we can finalize and release these principles in September.

Therefore, my first goal for today's meeting is to make sure we agree on the general approach to conducting monetary policy during normalization that is spelled out in the main memo, and incorporated in the policy principles, and that we iron out any remaining issues with

the overall approach during today's session. Secondly, I hope we can make progress on the mechanics of our approach, and in particular on the role and design of the overnight RRP facility, something that is clearly a concern to many of you and to me as well.

I think that most of you agree that the overnight RRP facility needs to play a supplementary role in enhancing our control over the federal funds rate during the normalization process. Personally, I will say that I think it's important for us to demonstrate convincing control over short-term rates at liftoff. But because of our concerns about this facility's potential to create systemic risk or to cause significant and unintended changes in the structure of money markets, we will definitely need to address these concerns.

With respect to the numerical parameters pertaining to the caps, I would suggest that we still have time to work out these details, and we can and should wait to finalize these choices until we have done some further testing. We are likely, in that testing process, to learn more about usage and the limits that will be needed to establish adequate monetary control. There is no need to nail down the parameters today. That said, I will surely be asked questions about the facility in September, and I'd like to be able to describe some of the key design features of the overnight RRP facility at the press conference. But the draft normalization principles omit technical details, and I think we can say at that time that we have made no final decisions on numerical parameters.

A third goal today is to address how we will handle intermeeting adjustments in the event that the funds rate moves outside the target range set by the Committee. As we have discussed before, under the unprecedented circumstances we face, we cannot know with certainty how well any specific approach to normalization will work in practice. We, thus, need to be able to adjust our mix of tools flexibly. One important issue raised in the staff memos regards the possible

need to make an adjustment to one of our tools between FOMC meetings in order to help keep the funds rate in the Committee's target range.

We hope that this need would not arise very often, but I think we need arrangements for making adjustments that are prompt and effective and also appropriate from a governance standpoint. As noted in the staff memos, one possibility is for the Committee, at the outset, to delegate carefully circumscribed authority to me as Chair to make such intermeeting adjustments. I want to make clear that I am not asking for this authority now, but I am interested in hearing your views on how we should proceed if, say, the federal funds rate moves significantly or persistently outside of our target range. Of course, the Committee is responsible for setting the stance of monetary policy, and I would not support any plan that, in practice or in appearance, distances the Committee from policy decisions.

I think we are ready to get to it. As in our previous discussions, I encourage you to make good use of the Q&A period after the staff presentations. We will then have a go-round to hear everyone's views on the proposals. With that, I am going to turn the floor over to Patrick McCabe, who is going to start us off on the staff presentation.

MR. McCABE.[2] Thank you, Madam Chair. My colleagues and I will be referring to the exhibits labeled "Monetary Policy Normalization."

At the June FOMC meeting, many of you emphasized that using an ON RRP facility during the normalization process could have unintended effects on financial markets. Participants noted the possibility that surges in take-up during periods of financial stress could exacerbate dislocations in funding markets and that expanding the Federal Reserve's footprint in financial intermediation could reshape markets in unpredictable ways that could prove undesirable.

However, the Committee has also recognized over the past several months the potential utility of an ON RRP facility. In particular, it was generally agreed that the facility could play an important supporting role for IOER by helping to put a firmer floor under money market rates when the time comes to tighten policy. Thus, the risks on which the Committee focused in June need to be weighed against the

[2] The materials used by Mr. McCabe, Ms. Weinbach, and Mr. Meyer are appended to this transcript (appendix 2).

usefulness of an ON RRP facility in improving control over the federal funds rate during normalization.

Given this tradeoff, participants discussed several design features—including constraints on usage and a relatively wide spread between the ON RRP and IOER rates—that could help address unintended consequences while preserving the usefulness of the facility for implementing monetary policy. In that discussion, participants appeared to envision an ON RRP facility that would be relatively small and limited in its possible growth, which would provide opportunities for adjustment by the Committee as experience is gained, and that would not remain in place permanently.

In my remarks, I will discuss a specific structure for an ON RRP facility that has these features. This proposal, which aims to address participants' concerns while maintaining the facility's ability to assist in managing the level of short-term rates, was the subject of one of the memos that you received in advance of this meeting.

The top-left panel of exhibit 1 outlines the basic structure of the staff proposal and its key parameters. Clearly, the Committee could choose a different configuration of these parameters, and the initial settings could be adjusted during the normalization process, as experience and the Committee's weighing of considerations dictate. First, reflecting the Committee's concerns about the potential size of the program in normal times, the spread between the ON RRP rate and the IOER rate would be 25 basis points, a bit wider than the current spread. Second, the proposal includes two distinct safeguards that are intended to mitigate the possible adverse effects discussed by participants in June—that is, usage would be the lesser of: (1) a $500 billion *overall limit* on the size of the program that is intended to place a bound on the Federal Reserve's footprint in money markets, and (2) a dynamic aggregate *circuit-breaker cap* that aims to limit sudden and potentially disruptive surges in take-up that may occur in periods of financial stress. As outlined in the memo, the circuit-breaker cap would be equal to average usage over the previous five business days plus $100 billion.

We expect take-up at the facility to remain below the overall limit in normal times, particularly given the wide spread between the ON RRP and IOER rates. In the event that the circuit-breaker cap reached the overall limit, the Desk would consult with the Committee regarding possible policy responses. The Committee could also delegate to the Chair the authority to make limited, temporary changes to the overall limit or circuit-breaker cap during an intermeeting period.

Finally, the cap system would be implemented as part of a daily uniform-rate auction, which would provide a market-based allocation mechanism that sets the rate on ON RRPs in the event that either of the caps is binding. That auction could also have limits on the take-up by any single counterparty to preserve broad access to the facility and discourage counterparty business models that may depend on large potential use of ON RRP.

As noted to the right, the combination of the overall limit on usage and the circuit-breaker cap has some advantages over either safeguard on its own. An overall limit on aggregate take-up assures that the Committee would determine the maximum size of the facility. A circuit-breaker cap alone would constrain surges on a given day but would not prevent take-up from continuing to rise over time. To be sure, an overall limit on its own would be more straightforward and likely simpler to communicate to the public. However, it could allow very large surges into the facility when recent usage has been low, unless the overall limit itself is very low, but a very low limit might bind often and materially reduce the facility's ability to establish a floor on short-term rates. The circuit-breaker cap, in contrast, could be effective in containing surges without binding frequently. Another advantage of including a circuit-breaker cap is that its automatic adjustments in response to routine market developments would not convey information about policy intent.

The middle panel illustrates the proposed combination of safeguards using actual ON RRP usage to date—that is, the gray bars in the panel. To be sure, if the current exercise, which employs uniform caps for each counterparty, is modified to utilize the proposal's combination of aggregate caps, future counterparty behavior and take-up may differ from current patterns. Still, observed take-up provides a useful means of illustrating the relative utility of different types of aggregate caps.

The blue line shows the proposed circuit-breaker cap. Beginning on January 30, when the authorization of the exercise was extended for one year, that circuit-breaker cap would have been binding just twice, on the quarter-end dates of March 31 and June 30. Potential one-day surges into the facility—that is, the differences between the heights of the bars and the blue line—would have averaged $98 billion, with a standard deviation of $26 billion and a maximum of $145 billion. In contrast, a standalone $500 billion overall limit, the red dashed line, would never have been binding to date, but it would have allowed very large surges into the facility. The average potential surge with such a static cap on its own would have been $378 billion over the sample period, and the maximum potential surge, $451 billion.

The proposed circuit-breaker cap, as mentioned earlier, would be based on average usage over the previous 5 business days. As discussed in the appendix of the staff memo, the 5-day moving average has some advantages over alternative measures, such as average usage over the previous month, calendar week, and 10 business days. Compared with caps set using these alternative measures and calibrated to allow similar magnitudes of average potential surge, a cap based on a 5-day moving average would have been binding or close to binding on fewer days. Moreover, because of its greater sensitivity to changing conditions, this cap would have resulted in lower volatility in potential one-day surges and a smaller maximum potential surge. Measuring previous usage over a longer period would make the cap less responsive to evolving market conditions and would result in greater variation in potential surges into the facility. That said, during a period of financial stress, a cap based on a shorter period, such as the proposed 5-day moving average, could increase fairly quickly. Such a cap itself could rise by more than $100 billion in a week and allow for larger potential surges into the facility. This point highlights that this type

of cap should be considered primarily as a circuit breaker intended to limit the size of an initial surge while giving the Committee a few days to assess the situation and consider policy alternatives.

The lower-left panel highlights some key remaining questions for the Committee. First, is the proposed structure of the facility, including the combination of an overall limit on the size of the program and a circuit-breaker cap, appropriate? Second, if so, are the proposed calibrations appropriate? Is $500 billion the right level for the overall limit? Is $100 billion the right amount to add to past usage to set the circuit-breaker cap? Should past usage be based on the average take-up over the previous five business days? Of course, if the proposal were adopted—with these calibrations or with others—the parameters could always be adjusted as more is learned about the operations, effectiveness, and usefulness of the program.

A related question is whether to allow the circuit-breaker cap to bind occasionally, such as at quarter-ends. Doing so would allow staff and market participants to become more familiar with the operational procedures associated with a binding cap, such as the auction process, so that their first experience with a binding cap would not occur during a period of market stress. Furthermore, having caps that bind occasionally would encourage market participants to temper their reliance on the ON RRP facility and better incorporate in their contingency planning the possibility that an auction may leave them with more uninvested cash than expected late in the day. A potential cost is the reduction in the facility's effectiveness in establishing a floor on rates, directly on the days when the caps bind and perhaps also indirectly as counterparties adjust their strategies in response to the expectation that the caps will bind occasionally.

Regarding timing and communications, as noted to the right, the Committee could adopt the proposed combination of an overall limit and a circuit-breaker cap with a new resolution authorizing the ON RRP exercise at the September meeting. The Committee also could publicize the shift to a new structure in conjunction with the announcement of the normalization principles and through a Desk statement.

The authorization might also include options for additional testing of the design features of this proposal, particularly given the remaining uncertainties about the efficacy of the proposal in establishing a floor on short-term rates. The results of these tests could inform the Committee's balancing of its objectives of managing the level of short-term rates and mitigating concerns about financial-stability risks, and aid in refining its calibration of key parameters.

The Committee might also consider small-value tests of a binding cap outside of the regular daily operations. Such tests could provide some operational experience with a binding cap while limiting any effect on interest rate control.

In addition, during the testing process, staff could consider whether the use of projections for normal ON RRP demand would be more effective for setting the circuit-breaker cap than measures of past usage. If projections were used in this

manner, the Desk could publish in advance its projections for take-up and the resulting levels of the cap.

If the Committee is interested in testing any of the design features of the facility, including those that I have highlighted or others, the staff could provide a more specific proposal for testing for approval by the Committee. Such a proposal also would outline how to assess the test results in terms of costs and benefits and the tradeoff between the two objectives of managing the level of short-term interest rates and mitigating financial-stability risks. Gretchen will now continue our briefing.

MS. WEINBACH. Thank you, Patrick. In my remarks, I will summarize the key aspects of the overall approach to normalization discussed in the staff memo, and then describe some possible adjustments that could be made to allow for a smaller role for the overnight RRP facility if that were desired. As noted in the top panel of your second exhibit, under the approach in the staff memo, you would continue to set a target range of 25 basis points for the federal funds rate; that target range would be your primary means of communicating the stance of monetary policy. Framing the stance of policy in terms of the federal funds rate would focus monetary policy discussions and communication on a rate that is familiar to market participants and the public. In addition, setting a target range rather than a point target would afford some leeway in achieving your stated interest rate policy while the quantity of reserves in the banking system remains elevated, and could be especially helpful during the early stages of liftoff.

The IOER and overnight RRP rates would be used as tools to move the effective federal funds rate into the target range and to maintain it within that range. The IOER rate would be set equal to the top of the target range and the overnight RRP rate set equal to the bottom of the target range, settings that would be straightforward to communicate. Because the resulting spread of 25 basis points would be a little wider than the current 20 basis points, it should continue to encourage a volume of trading in the federal funds market that is similar to the current level. A spread of 25 basis points would also help to mitigate concerns about having a large footprint in the nonbank financial sector during normal times. As I already noted, I'll return to the topic of the role of overnight RRP operations in this approach a bit later.

Communicating adjustments to the stance of policy would be straightforward under this approach. For example, the first tightening move could be to set the target range to 25 to 50 basis points, with the IOER rate at 50 basis points and the overnight RRP rate at 25 basis points. Subsequently, the target range could be adjusted in steps of 25 basis points, or multiples thereof. At a typical FOMC meeting, you would primarily focus on setting the target range for the federal funds rate. The staff memo included an illustrative draft of a postmeeting liftoff statement announcing the first change in the target range. The statement notes that, "In a related action to help move the effective federal funds rate into the new target range," the Board had changed the IOER rate. It also notes that the Board had approved a change in the primary credit rate in the same way that changes in the discount rate have been communicated for quite some time. Next, the draft statement also notes that the FOMC had changed the

overnight RRP rate. Mentioning the IOER rate first in the statement, and the overnight RRP rate subsequently, would help to signal that the IOER rate was seen as playing the primary role in implementing monetary policy. Of course, you do not have to mention the overnight RRP rate in your statement; it could be noted in the directive to the Desk instead.

Assuming that the limits on usage of overnight RRPs were designed to rarely bind, as presumed in the staff memo, the staff expects that this approach would result in the effective federal funds rate residing in the lower portion of the target range. But if the federal funds rate were to move outside of its target range, you might find that you need to adjust some of the parameters of this approach, or employ other measures. As noted in the bottom-left panel, your preferred response would likely depend on the specific circumstances at hand. For example, if the baseline approach works broadly as intended, but the effective federal funds rate nonetheless moved out of its target range often enough and by a sufficient amount to warrant a response of some sort, you might decide to adjust the administered rates.

Such adjustments could be made at the next scheduled FOMC meeting, or you might prefer to hold an unscheduled joint meeting of the Committee and Board. Alternatively, the Board and FOMC may want to delegate to the Chair the authority to make modest adjustments to the IOER and overnight RRP rates between meetings, if such changes were judged necessary to keep the effective federal funds rate within the target range established by the FOMC. For the same reason, as Patrick noted, you might also choose to authorize the Chair to adjust the caps on usage of the overnight RRP facility, if necessary. The Board and Committee would, of course, set limits on the size of the adjustments that the Chair could make under delegated authority and, consistent with past practice, the Board and Committee could instruct the Chair to consult them, if feasible, before making any intermeeting adjustments.

If such adjustments were not successful in keeping the funds rate in its target range, there are several additional steps that you could take if warranted. For example, if the federal funds rate remained persistently below the bottom of its target range, you could use term-draining tools or sales of short-term Treasury securities to firm money market conditions.

You may want to consider ways to alter this approach in order to allow for a more complete assessment of the need for overnight RRP operations as part of the normalization strategy, as noted in the bottom-right panel. One possibility would be to lift off by setting the target range for the federal funds rate to 25 to 50 basis points and the IOER rate to the top of that range, just as in the baseline approach, but keep the overnight RRP rate at its current level of 5 basis points. Relative to the baseline approach, having a wider spread between the IOER and overnight RRP rates at the outset should reduce the attractiveness of the facility, but it would also result in the facility providing a lower floor on short-term interest rates. It is possible that the federal funds rate and other short-term interest rates could move up nearly one for one with increases in the IOER rate. If so, the Committee could subsequently maintain the wider spread between the IOER and overnight RRP rates, or consider widening

that spread further in order to minimize use of the overnight RRP facility. However, if the IOER rate did not provide enough lift for the federal funds rate or other short-term rates, the Committee would likely need to make adjustments to the overnight RRP rate to move the funds rate into the target range. But in this case the first policy tightening would not have been successful, which could significantly undermine the Federal Reserve's credibility and greatly increase uncertainty in financial markets. Such an outcome could also have reputational consequences in the political sphere, in which criticism of the asset purchase programs has included concerns about difficulty of exit.

As a consequence, the Committee might want to take a more cautious course by first using the approach in the staff memo to lift off from the effective zero lower bound, setting the target range for the federal funds rate to 25 to 50 basis points and the IOER and overnight RRP rates to the top and bottom of that range, respectively. From that policy position, the Committee could then assess the size of the overnight RRP facility and conditions in money markets, and decide if the spread between the overnight RRP and IOER rates could be widened while still maintaining acceptable control over the level of the federal funds rate and other short-term rates. When it seemed prudent, the Committee could widen that spread, either at the time of the next policy tightening or sooner if desired. Such an approach would be consistent with the Committee learning about the tools during normalization and making adjustments to their use in order to best balance the Committee's various objectives. That said, assessing the contribution of the overnight RRP facility to the behavior of the federal funds rate, a key feature of this approach, could be difficult. Steve will now continue our briefing.

MR. MEYER. My assignment is to introduce revised drafts of the "Policy Normalization Principles and Strategy" document. Releasing such a document is one tool that you might use to give the public more information about how you intend to normalize the stance of monetary policy. The current drafts reflect your comments on the version we distributed with the two memos on normalization back on July 18. I suspect that the document will evolve further in light of your upcoming discussion.

First, I will briefly compare the current drafts with the June 2011 "Exit Strategy Principles." Then I will discuss how the current drafts differ from the version we sent you with the two memos.

The June 2011 "Exit Strategy Principles" are reproduced as exhibit 3 in the handout. I've highlighted the portions of that document that staff took as principles—the rest seemed, to us, to be tactics. The highlighted principles appear—either verbatim or in substance—in both new versions of the normalization principles. Those new versions appear as exhibits 4 and 5. I should note that the organization of the two versions differs, but the content is the same. Exhibit 4 shows the principles as major bullets and the Committee's current thinking, as we understand it, about how it will implement each principle in indented subbullets. Exhibit 5 more sharply separates tactics from principles.

The key differences in the draft normalization principles shown in exhibits 4 and 5, from the June 2011 exit principles, include: (1) ceasing or reducing reinvestments will come after the first increase in the federal funds rate, rather than before; (2) instead of referring to "temporary reserve-draining operations," as in 2011, the current drafts refer to temporary use of an overnight RRP facility and other supplementary tools; and (3) the Committee now anticipates that it will rely primarily on ending reinvestments rather than on selling assets to reduce its securities holdings—particularly its holdings of MBS—although it retains the option to sell MBS to eliminate residual holdings in the longer run.

The strikeouts and red text in exhibit 4 show the changes from the draft that we sent you with the memos on July 18. With respect to the high-level principles, the key change is adding back language, in the fourth principle, that explains why the Committee intends to reduce its securities holdings and return to holding primarily Treasury securities. With respect to tactics, there are two major changes from the earlier version. The first is to make clear that a standing ON RRP facility will be a supplementary tool to be used only as necessary to help improve control over the federal funds rate and, further, that the facility will be phased out as soon as it is no longer needed for this purpose. The second major change is to state that the Committee "currently anticipates that it will normalize the size and composition of its portfolio primarily by ceasing to reinvest repayments of principal on securities held in the System Open Market Account." These words indicate that the Committee expects to let maturing Treasuries roll off but does not expect to sell Treasury securities. However, other new language—language stating that, during normalization, the Federal Reserve will use "other supplementary tools as needed to help improve control over the federal funds rate"—holds open the possibility of selling either Treasury securities or MBS if necessary to maintain control of the funds rate.

The changes that I just summarized are also incorporated in exhibit 5, though they are not shown in strikeout and red in that exhibit. The markup shown in exhibit 5 shows wording changes from the version in exhibit 4.

That brings me to the final page of the exhibit, which reproduces a set of questions that you received with the July 18 memos. You may wish to address these questions in your remarks today and, by doing so, give the staff guidance about how to proceed in further refining the approach to policy normalization so that it can best meet your objectives. I should note, however, that question 2 asks about the draft directive and postmeeting statement that Gretchen mentioned earlier, and that were attached to one of the memos. We jumped the gun with that question. There is no need for you to address statement and directive language today. Patrick, Gretchen, and I would be happy to answer any questions that you may have.

CHAIR YELLEN. Let's go to Q&A for the staff, and President Lockhart.

MR. LOCKHART. The implication of implementing an overnight reverse repo facility is that you have some doubt that IOER will work, that it will be a powerful enough tool, and that

the arbitrage relationships that historically have had some power will not be as potent in the future. Can you elaborate a little further on how you come to that conclusion, or why you think or doubt that the IOER tool will be powerful enough, and maybe talk about the latest we know about arbitrage relationships?

MS. WEINBACH. I would just say—and maybe Simon would want to talk about the latest developments—but, in general, the activity that is going on in the federal funds market now is predominantly a singular kind of transaction. We have seen at quarter-end and other times when the purchasers of those funds who earn the spread by depositing in IOER, are unwilling to do that consistently on a through-and-through, day-in and day-out basis. That is one indication of why the strength of that upward pull might be limited, at least at times. And so—

MR. POTTER. I think what might happen is then the federal funds rate would jump to the top of the range but reflect these trades among banks that aren't really relevant to the financial conditions that you are trying to set. There is a mixture of the low rate and high rate trades, and that is how you get the effective rate as it is now. That is one of the concerns we have had in terms of—

MS. WEINBACH. I would just say the TDF has the same kind of merit in terms of rate control, in terms of trying to be kind of an upward force on money market rates. But it has a secondary merit in terms of the reserve scarcity properties, and so that could provide some upward pull as well.

MR. MEYER. But, President Lockhart, rather than saying we doubt that IOER and arbitrage will work, I would say we are unsure about how well it will work, about how much the spread between the IOER and funds rates might widen when we start raising the IOER rate.

MR. ENGLISH. I think the spread between the IOER rate and the federal funds rate reflects a number of factors, but one is the balance sheet cost to the borrowing banks, of having a larger balance sheet. One is imperfect competition in that market, and understanding how that would play out if there were, say, a gap of 50 basis points between the IOER rate and overnight RRP rate, instead of 25 basis points, is just very difficult to know.

We don't, I think, have enough understanding of exactly who the marginal player is and what the pressures are on the marginal player that are determining that spread to know how that would work. It is possible that if you raised the IOER rate, the way the markets would play out is you'd end up with roughly the same spread between the IOER rate and the federal funds rate, other short-term market rates. Rates would just kind of move up together, and that would work out okay. But we are not confident of that and the evidence that we have seen from the overnight RRP exercises is that it does help to provide a firmer floor under money market rates. I think it would provide greater confidence when it comes time to liftoff. You'd get the effects on market rates that you desire.

MR. LOCKHART. Is there scope for more study to understand the details of the federal funds market and the arbitrage activity in the coming weeks? Or do we essentially know as much as we're going to know?

MR. POTTER. With the new FR-2420, I think that we have learned more about what that arbitrage looks like compared with the brokered data that we have. Then we can see which banks are actually doing this trade and how much they account for that trade. What's very hard to work out is the competitive environment when we increase the interest rate on excess reserves.

The notion, I think, that the effective federal funds rate would stay at 9 basis points seems hard to imagine if we moved IOER to 50 basis points. If you have some trades at 25 basis

points, and those trades move to 50 basis points, that is going to get you 5 basis points to start out with if that's 10 percent of the trades. So you would expect some firming in the effective rate at that time.

Our issue is whether you could be pretty confident you would get the effective rate above 25 basis points. Most likely, you would, most of the time I think from the arbitrage, but you would be running some risk, both that you wouldn't get over 25 basis points and, more importantly, that the federal funds rate might disconnect from other money market rates. Those are two possibilities.

MR. LOCKHART. Thank you, Madam Chair.

CHAIR YELLEN. Two-handers from Vice Chairman Dudley and then President Kocherlakota.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. Isn't there also a problem that the regulatory regime in which these firms are operating is changing, and it's not clear exactly at what point in time they are actually going to take on board fully these new regulations that are going to be phased in over time? At the margin we would expect that the incentives to arbitrage are probably going to lessen because the leverage ratio is going to become more important for the foreign banking organizations. It comes back to what Simon said—there's the issue that just the incentive to do the arbitrage will change as the regulatory environment changes.

The second set of issues is that the federal funds rate itself could become different, more idiosyncratic, as this process unfolds. I think there are sort of two sets of issues. Having an overnight RRP rate that ensures a floor, I think, potentially can be important for the credibility of this Committee.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Yes. My question might have been answered already, but I'll ask it anyway. I'm thinking about the bottom-right panel on page 2, the upper possibility, in which you raise IOER at liftoff but keep ON RRP at the current level, and we observe that short-term rates, money market rates, don't move up as much as we expected. Isn't there a response whereby you could actually raise IOER by more than we had originally raised it? So we had raised it to 50 basis points. We can just go up by another 25 basis points and see what happens. That would be—

MR. POTTER. Completely. Yes.

MR. KOCHERLAKOTA. Okay.

MR. ENGLISH. That's right. I think we felt that at some point having the IOER rate far, far above the federal funds rate and other short-term market rates would be viewed by the Committee as a potential problem. It's just paying a whole lot of money to banks to get a funds rate to 25 basis points if you have to have an IOER rate of 75 basis points or whatever. I mean, at some point that spread presents real problems.

It also potentially leaves you with less good control, in the sense that rates may be moving around in some range. Again, having a floor may limit that variation over time and help you to have improved control over short-term market rates.

MR. KOCHERLAKOTA. Thanks. I will come back to my one-hander questions later, which I will follow up on.

CHAIR YELLEN. You are next for one-handers as well.

MR. KOCHERLAKOTA. Ah. That's convenient then.

MR. TARULLO. Then we go to your zero-handers. [Laughter]

MR. KOCHERLAKOTA. I'm going to return to the same panel I was referring to earlier, which is the bottom-right panel of page 2. It makes reference to the need to have sufficient interest rate control—it is certainly an important element in our decisionmaking. Sufficient for what? What are we trying to achieve by interest rate control? There are references to reputational risk and credibility. Let me try to talk about economics for a second. Does the staff think that inflation expectations would rise in a material and untoward way if short-term money market rates do not rise one-for-one with the IOER rate?

MR. ENGLISH. I don't know exactly what would happen. I think that the confidence in the Federal Reserve's ability to raise and control rates would be damped, for sure. The Committee would be subject to considerable criticism from various outsiders over the confidence it expressed earlier that it could tighten policy smoothly when the time comes. And, gee, that doesn't really look like it's true, and that would undermine the credibility of the Committee. If you could quickly reestablish control, presumably that has only limited effects. If it took a while and there was kind of flailing around, as perceived from the outside, I think that could have adverse effects on expectations.

MR. POTTER. As we thought of it, there is a tool that would allow you to quickly reestablish control, which is the overnight RRP. You just have to do it in a much bigger size at that point. But you would probably not get much of a hit to how credible you were for a few weeks. You could try to explain that it doesn't affect how you are going to achieve the long-run objectives. People in money markets might not listen to that, though. They might just question whether we are really serious about trying to raise rates.

MR. KOCHERLAKOTA. Yes. I guess I am still struggling with this, but that is somewhat helpful. Another question I had was on the new normalization principles on page 4 of

8, exhibit 4. What would be the conditions that would lead to phaseout? It's phased out as soon as it is no longer needed for this purpose, and certainly a line of questioning that I think this Committee will face if it were to issue these principles would be questions about, well, how long will that be, or—we could deflect that presumably and talk about conditions instead. What would be the conditions under which we would no longer be using this facility?

MR. ENGLISH. As Gretchen said, I think it is difficult to know and to judge precisely what the overnight RRP is contributing to control without experimenting. But if, for example, you raised rates once or twice, and found that usage of the facility was modest and rate control was pretty good—rates were not at the floor, they were above the floor by 5 basis points or 10 basis points—then I think you would, when you raised rates, you would raise the overnight RRP rate less.

You could, in some sense, phase it out over time. You would allow that spread to widen. Maybe the funds rate and other short-term market rates move down a bit relative to the IOER rate, but that's not so bad. Then you continue in that track. After a while, the spread is large enough that takedown at the overnight RRP facility is extremely small, and you just say, "Okay, we are going to close the doors." That is what I had in mind.

MR. POTTER. I think I view it in a slightly different way. One of the ways we think the facility works is by changing the competitive conditions in the market. Usage could be low, but it could still be helping to form the floor. Can we achieve something similar to those competitive conditions in the market with a different tool? As reserve balances fall, I think we could use more traditional reverse repurchase agreements to achieve that similar effect, if it is still the case that we would have money funds as the counterparties. A lot of this, from my perspective, is

how comfortable you feel for a period of time having the money funds as counterparties, because if we have the money funds that helps you with the competitive pressure to firm rates.

MR. KOCHERLAKOTA. If you don't mind, Madam Chair, a follow-up. I think you are describing benchmark outlooks to a certain extent. When you make a commitment of this kind, it is more about what is the worst-case scenario. What is the worst that could happen? That is what we're sort of on the hook for. What's the worst that can happen in terms of using this facility? Is it until reserve balances get back to normal? Is that—

MR. POTTER. No it's not. I was saying that reserve balances are about $2.6 trillion right now. Last time we thought about exit, I think they were about $1.1 trillion, $1.2 trillion. We will have currency growing over time. That will help us. We will have the portfolio run off. Then, we will also have the IOER rate moving up. We will have a better understanding of the dynamics. I'm not sure at what point, but two to three meetings is one way to go. The other way is thinking it might be two or three years. At that point, you feel you have sufficient control from other tools. You could still use sales as well if you wanted to. There are lots of tools that you have. I think our focus has been on the initial time that you raise interest rates. Having as little drama around the engineering of raising rates would seem helpful for you.

MR. KOCHERLAKOTA. "As little." Okay.

MR. POTTER. As little. No drama at all would be good. They'll move up and nobody will even notice that. They're just talking about something else.

CHAIR YELLEN. President Fisher, you had a two-hander. You're also next on the list for one-handers.

MR. FISHER. You mentioned portfolio runoff. We're still, under the proposal, contemplating reinvestments. Give me the time frame in which you think the portfolio runoff actually begins to occur, its size, and when it would be subject to the influences you described.

MR. POTTER. Lorie, can you summarize? What's—2016 is how much? I'm just trying to add some numbers in my head: $160 billion plus $200 billion, so $360 billion in 2016, then another $400 billion in 2017. So it gets quite large.

You could also, if you wanted to, sell short-term Treasury securities. Suppose you're at a point at which the federal funds rate is in the range—we have to say "range" now—of 2.75 to 3 percent. Then you might feel comfortable at that point selling some of the short-term Treasury securities because that's not going to have the kind of signaling effect it would have now. If you defined short-term Treasury securities as we did in the MEP, we'd have $300 billion to $400 billion at least of those, which, if we sold at $50 billion a month, would amount to $600 billion over a year.

MR. FISHER. The total size of the portfolio would then be what?

MR. POTTER. The total size of the portfolio would be under $3 trillion probably. And remember, currency under the way that we do the projections is moving up at about 6 percent, I think at this time—6 percent or 7 percent. One of the other issues is, when we came to you in the summer of 2012, we had the other side of what the new regulations would do, which would increase the demand for reserves, and that is still going to be true as we get to smaller reserve balances. I think the demand for reserves will be higher than under the old regulatory structure.

MR. ENGLISH. In our projections, we've written down a somewhat larger number for reserve balances than we had in the past, but I think only $100 billion if I remember correctly. It might be larger than that.

MR. POTTER. But there are other central banks. The Bank of England, as I've told you, is thinking they'll run with a high level of reserves at that point because of the regulatory demand produced for high-quality liquid assets.

MR. FISHER. Thanks, Simon.

CHAIR YELLEN. President Fisher, did you have a one-hander?

MR. FISHER. No, ma'am.

CHAIR YELLEN. Okay. President Rosengren.

MR. ROSENGREN. Yes, just two kind of follow-up questions to the first two that you got. One actually is a comment—if the IOER has to be raised significantly to get market rates up, what we would be doing is paying a very high rate predominantly to foreign branches in order to get a small increase in market rates. I can imagine that in testimony that wouldn't play particularly well. I think there is a political risk that if that were the predominant way that we decided to move forward that that would be an issue.

In terms of risk management, we've talked a lot about the risk management related to financial stability at the previous meeting, and I think it is good to get a better sense of kind of the subjective probabilities for monetary policy control. Simon mentioned the phrase "pretty confident." I just wanted to get a sense of what kind of confidence I can have—and I know this is subjective and very hard for you all to answer—but if we just relied on the IOER rate and we were to raise IOER to 50 basis points, what kind of probability would you put that we would be in the range for both short-term rates and the federal funds rate? Is that 1 percent? Is that 5 percent, 10 percent, 25 percent? That subjective probability of how likely we are to miss actually does matter. Now, I know it's an unfair question, but if you could just scale it to me, am I 99 percent confident or am I only 80 percent confident?

MR. POTTER. I'll start, seeing as how we talked beforehand, but I didn't tell Bill he was going to get this question. My view on the federal funds rate is that there's probably a 75 percent chance that you'll get it in the effective range. Basically, the FBOs have to offer around 22 basis points to collect the money to get the effective rate to around 25 basis points. I am sure that they'll be completely aware of what they need to offer such that we wouldn't make any changes in that framework because they're making money from it, and this is the other side of not having the overnight RRP. One of the comments that we got when the minutes came out from one of the foreign dealers is that the carry trade was still live, which I thought was quite interesting—they quite like this trade, because they're making money on it.

MR. ROSENGREN. And just to follow up—

MR. ENGLISH. Simon is a little more optimistic. I think if you just raise IOER, it certainly is completely possible—

MR. POTTER. Just the federal funds rate, though; I wasn't talking about the other short-term rates.

MR. ENGLISH. Agreed, but I guess I am making up numbers here, right? But 50-50 chance, whether you'd end up with the funds rate in the 25 basis point target range—

MR. POTTER. To get the federal funds rate in the target zone?

MR. FISHER. Does that make you feel good, Eric?

VICE CHAIRMAN DUDLEY. Madam Chair, could I ask President Rosengren a question? What comfort level do you like?

MR. ROSENGREN. A one-in-four or a one-in-two chance of not achieving our goal when we announce it strikes me as a very high probability. I'd much rather get it down—

VICE CHAIRMAN DUDLEY. To 95 percent.

MR. ROSENGREN. —to 95 percent. Economists have a 95 percent confidence level for a reason. As I think about those kinds of probabilities, they seem extremely high, that we wouldn't have the monetary policy control at the time that we first announced. Now, obviously as we got further down the road, we could widen the spread, and that would be much easier to achieve, but I'm worried about how that first announcement would go.

MR. POTTER. I think you also just want to be careful—there are things we could do with the calculation of the effective rate that could make it much more likely. But that doesn't help you if repo and other rates are still below 25 basis points. You're trying to move up all of the rates. I'd be closer to Bill's estimate if you ask me about all of the other money market rates, but the effective federal funds rate is this rather strange market, and I think we could probably have a lot of influence because the FBOs would be saying, "Well, they're just going to roll out the overnight RRP if this doesn't work, and why would we let that happen because we're going to lose money? Let's price this trade at a certain amount."

MR. ROSENGREN. Thank you.

CHAIR YELLEN. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. I have a question that in the greater scheme of things may be trivial, but it's the dynamics around quarter-end and how you're thinking about that. Quarter-end would constitute, as we've seen at least, a surge, and the circuit breaker then would conceivably bind, which would lead us to an auction, and then my question is: What would be the likely rates around that auction? Probably rates would rise to the extent that participants really, really, really want—

MR. ENGLISH. They'll fall.

MR. POTTER. They'd have to go down.

MR. LOCKHART. They would not be bidding up?

MR. ENGLISH. They're offering money. They would be taking a lower return on their investment.

MR. LOCKHART. Then there may be need for the Chair to try to raise that return?

VICE CHAIRMAN DUDLEY. Rates would trade soft that day.

MR. LOCKHART. I am confused then. Just at quarter-end are we likely to end up with some kind of chronic dynamic every quarter-end that requires the Chair's intervention and just how do you think it would work?

MR. ENGLISH. What would happen is that the FBOs wouldn't be borrowing. More funds would come into the overnight RRP auction or, as you say, if the cap were kind of as we expect it probably would be, it would probably bind, and the rate that would clear at the auction would fall. That's actually okay. That's kind of what happens at the end of quarters. It happened at the ends of quarters before we had an overnight RRP program. Rates would fall, and I think the issues then are exactly the ones that Patrick raised. There's kind of a tradeoff. On the one hand, you may be perfectly happy with that. You're not encouraging the sort of adjustments in balance sheets at the end of the quarter, and you may feel that's okay. On the other hand, your control over rates is less good. You've said that the funds rate is going to trade in some range and then it's not trading in that range, and it's possible that that could also result in different behavior of money market participants. They would want to make sure they'd have some place to park their money at quarter-ends. They'd be parking money with folks at low rates not at quarter-ends to make sure they have access to that balance sheet. It could affect your control some even not at quarter-ends, but that's the tradeoff. I mean, all of this discussion is full

of tradeoffs. You can have a benefit on the one hand and a cost on the other, and we're trying to trade off those things in a way that's comfortable.

MR. LOCKHART. Thank you.

CHAIR YELLEN. Governor Fischer, you're next.

MR. FISCHER. Well, actually I was going to ask the question that President Lockhart has asked. I will pass.

CHAIR YELLEN. President Mester, you had a two-hander.

MS. MESTER. Yes. I just wanted to ask: Would the recommendation be that when we do liftoff, it shouldn't be at quarter-end?

MR. ENGLISH. If you were going to lift off right at quarter-end, which actually—it's an issue, given the timing of meetings. You might want to have a higher cap at that quarter-end just to show that you can hit your target.

MR. POTTER. I think the federal funds rate would be less susceptible to this because as the arbitrage trading goes down, those high rate trades would still be there. Even though other rates would have gone down, a lot would depend on how much you just want to achieve that federal funds rate target range versus getting other rates to conform.

CHAIR YELLEN. President Plosser.

MR. PLOSSER. Thank you, Madam Chair. I have a different question, and Gretchen alluded to this in her comments about the revised principles, and I want to turn attention to the balance sheet for a moment.

In the new language in the revised statement, there's a new bullet that says that the Committee currently anticipates that it will normalize the size of the balance sheet primarily through stopping reinvestments, in other words, primarily through no sales whatsoever. Then it

makes another blanket statement that says we're not going to sell MBS, and then it makes another statement that says our goal is to return to a portfolio of nearly all Treasuries. I find these three statements kind of confusing and partially at odds and inconsistent with each other because I don't know what the path is then to normalizing back to an all-Treasuries portfolio if we've flatly said we're not going to sell MBS. We're actually going to be going in the opposite direction for a while probably.

I'm trying to figure out exactly how to put these pieces together in a coherent way because to me it's a bit confusing in terms of how we're expressing it. Can somebody help me figure out how the markets and others ought to interpret these sorts of conflicting messages?

MR. POTTER. At least it's really clear for the market how to interpret it. You're unlikely to sell stuff from the portfolio, and they're going to be scratching their head—"Well, maybe they'll get there in 2033." A lot will depend on how much currency grows in the 2020s. The faster it grows in the 2020s, the more we will have to do outright sales of MBS to get back to an all-Treasuries—pardon?

MR. PLOSSER. If we're not going to get to the right composition until 2033—

MR. POTTER. If you buy mortgage-backed securities, then it's 30-year mortgages. Absent paydowns, it's going to take a while.

MR. ENGLISH. The third subbullet does say "although limited sales [of MBS] might be warranted in the longer run to reduce or eliminate residual holdings." So I guess I had in mind that after the size of the balance sheet is more or less normalized—admittedly you're in 2020 or something like that—then the Committee may well choose a gradual, pre-announced, clearly communicated trajectory for selling down the MBS over a few years so that we get out of the MBS business.

MR. PLOSSER. Implicitly, that signals a sequential decisionmaking process in terms of normalizing the balance sheet in terms of its composition.

CHAIR YELLEN. Two-hander?

MR. KOCHERLAKOTA. Yes. I actually am going to follow up with the line of questioning that President Plosser had, although I'll probably take a slightly different tack on it, which is: This prediction in the fourth bullet that we're not going to hold more securities than necessary to implement monetary policy efficiently and effectively—we're only going to hold Treasury securities—when Governor Stein was here, he had a number of interesting ideas about using the balance sheet as a tool for financial-stability concerns. Is this bullet designed to rule out the use of the balance sheet for those purposes or not?

MR. ENGLISH. I think your staff was trying to not rule things out, but just to say that the size of the balance sheet will be determined by the way that you choose to implement policy and what policies you implement in the longer run. I think this sort of wording originally came up as a way of avoiding saying that the Committee was going to go back to a corridor system or a floor system with the larger balance sheet. You could choose whichever system you like. One would involve a larger balance sheet than the other, but the idea was that it would be the smallest balance sheet that you need to implement a policy given the policy structure that you've put in place.

If the Committee decided that as part of it—it would still be monetary policy—they wanted to pursue something along the lines that Governor Stein had suggested to have a bigger balance sheet and engage in overnight RRPs in volume to, in some sense, crowd out what we think of as undesirable, short-term, money-like assets, that would be fine. This would say you're going to have the smallest balance sheet that you can, consistent with that intention for monetary

policy. But we were trying, I think, to leave flexibility for later on. The Committee has got a bunch of decisions to make about how it's going to implement policy post normalization in the longer run and we are not prejudging that here.

MR. MEYER. I'm going to do something dangerous by disagreeing with my boss.

MR. ENGLISH. You're finished. [Laughter]

MR. MEYER. Well, the language that you were just discussing doesn't rule out something like Governor Stein was suggesting. I think another bullet, which says you intend to get rid of the ON RRP facility as soon as you no longer need it for interest rate control, does rule that out. If you wanted to go the route that Governor Stein was suggesting, you wouldn't want the language in your principles that says it's a temporary facility.

MR. KOCHERLAKOTA. Absolutely right.

MR. DUDLEY. The consensus of the Committee isn't necessarily where Jeremy was.

MR. POTTER. I think we should also point out that if we change these each year, people might not think that they're that cast in stone as well.

MR. MEYER. Yes.

CHAIR YELLEN. Do you have a two-hander or one-hander?

MR. TARULLO. I guess it's two. [Laughter]

CHAIR YELLEN. I'll dock you for a two.

MR. TARULLO. Steve, are you saying—and I agree with this—that it appears to eliminate the use of an ON RRP facility, but you wouldn't understand it to eliminate the possibility of holding a somewhat bigger portfolio of securities of different durations with the potential for Committee decisions to purchase or sell those securities in an explicit effort to affect the shape of the yield curve?

MR. MEYER. Yes.

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

MR. MEYER. I would point out that we were responding to the comments we received from you, right? [Laughter] If we haven't captured your intent or desires correctly, let us know and it'll change.

CHAIR YELLEN. Two-hander, President Kocherlakota.

MR. KOCHERLAKOTA. Right. Just to elaborate on this point about the penultimate bullet, the ruling out of holding mortgage-backed securities does rule out certain kinds of balance sheet interventions that the Committee might want to contemplate later. The reason I'm bringing this up is I think the staff has done a great job of reflecting the comments they've received. It's more that these are principles that are intended to bind the Committee over the next 10 to 20 years, if I understood correctly, and I could imagine the composition of the Committee changing over that time, maybe in ways that might perhaps be even beyond imagination. I wonder about to what extent we should be viewing these as commitments and that kind of thing.

CHAIR YELLEN. President Evans.

MR. EVANS. Thank you, Madam Chair. I have two questions. The language in the penultimate bullet about "will hold primarily Treasury securities, thereby minimizing the effect of Federal Reserve holdings on the allocation of credit across sectors of the economy"—could the staff explain the logic behind that additional insertion?

MR. ENGLISH. Those are words from the 2011 principles. We received comments suggesting they be put back in as a way of explaining why the Committee would want to go back to a Treasury-only portfolio.

MR. EVANS. Okay. Thank you. The second question I had was we talked a lot about monetary control, and I know that is very important obviously, and it is obviously important because we are going to talk about a federal funds target range, and there is an expectation that we are going to hit that. Simon and, I think, Vice Chairman Dudley at various points have talked about how there could be a disconnect between the funds rate and other money market rates. Are we contemplating any communications about the transmission mechanism for monetary policy?

That strikes me as a very important additional line of communication. It could be the case that at some point the funds rate is going to be soft relative to our target. These are things that historically we've experienced at various times, and you can imagine some collection of financial market indicators, money market rates of some sort, auto loans, the things that matter for transmission, and if we could point to them moving up in our announcements, that would mitigate the embarrassment if there's some period of softness.

I'm just trying to get at how much discomfort we should have over things taking off slowly and perhaps if we choose to experiment a little bit with spread sizes and things like that. I realize that most of the discomfort is concentrated here in Washington and with you, Madam Chair, but just a question if anybody has considered the financial interest rate effects and how that might be communicated.

MR. POTTER. Were you talking about loans that consumers and firms have?

MR. EVANS. When we announce that rates are going to take off, other interest rates are going to move up. Historically—

MR. POTTER. The primary rate will, yes.

MR. EVANS. Well, and they'll have a little bit of term to them, too, right? Like auto loans of five-year maturity and such, and the fact that things like that are moving up and the

entire monetary policy transmission is that we want more financial restrictiveness. We'll be able to point to that as being in train, maybe even in a bigger sense since sometimes these things start out more quickly than we think. The slope of the term structure might be higher.

MR. POTTER. I'd say rates linked to LIBOR, which might be more closely linked to interest on excess reserves, would probably move up in a stronger way. We seem to have seen something like that, perhaps, when the minutes came out. The repo market is pretty important, though, for overall financial conditions, and that will be harder to see directly in the rates that households and firms are getting on that day. Over time, that kind of disconnect between the federal funds market and a really large market will be important for how policy is going to be interpreted. But I think you're correct that some of the actual rates that people face would move up with the interest rate on excess reserves and the increase in the federal funds rate.

MR. EVANS. For instance, it's the entire time path of what we're talking about. That's why I'm talking about the term aspect of this. In the past, we've seen sort of outsized reaction in bond markets and other aspects. That might be enough for people to sort of have confidence that, yes, tightness has begun.

MR. ENGLISH. Could I rephrase your question?

MR. EVANS. Yes, please.

MR. ENGLISH. I think I understood it, but I'm not positive. We'll raise, at some stage, the target range for the funds rate today, but we would expect that that would move up expectations for the trajectory of the funds rate, and that would then be reflected in longer-term rates and maybe also, probably, there'd be some increase in volatility, and so term premiums might widen out, and that would push up longer-term rates as well. I would expect to see those effects even if there was some floundering around in actually getting the funds rate into its target

range. I think the concern would be if there was a difficulty and it took time and a further adjustment to get the funds rate in its target range, you may get more volatility than you want, and so more term premium than you want, and some concern—it depends on how big the problems were—

MR. EVANS. But the higher term premium would mean higher rates. I mean—

MR. ENGLISH. Maybe you're okay with that.

MR. EVANS. Well, I'm just saying one of the concerns, I think, throughout this is we don't get rates up. If term premiums are going up, then certain rates are going up even more. The balance is what we presumably care about. You're talking a lot about morning-call-type issues here with respect to monetary control as opposed to a little bit more emphasis on the monetary policy transition.

MR. POTTER. I think our viewpoint is that, unless this looks smooth, then a lot of people want to be on the morning call to work out exactly how we're going to fix the problem that we said we weren't going to have.

CHAIR YELLEN. Exactly.

MR. POTTER. And I can agree with you that, in the big scheme of things, you're tightening financial conditions. The reason you want control over overnight rates in the money markets is, the more volatility that you have in there, the less control you have of that transmission from your intentions to the future.

CHAIR YELLEN. I have two-handers from Governor Fischer and Vice Chairman Dudley.

MR. FISCHER. Yes, just to continue President Evans's comment, I assume that what we want is a very moderate version of the taper tantrum result—that is, things will move up, all the

way up the term structure and then we'll know we've done something. But we're going to have to do it in a way that shows we can control the short rate. Otherwise it's going to be all over the place.

MR. EVANS. I think that's a fair point, and through this discussion we've sort of had it on both sides of this. The short-term policy rate might not move, but the term rates might go up a little bit like the tantrum that you're talking about, and that might be enough to convince markets that we're serious at the outset. It is hard to know exactly what the circumstances are going to be when we start doing this.

MR. FISCHER. Yes. Well, that's one of the arguments for using the overnight reverse repo rate actively, and it is sort of hard to imagine a setup in which the short rate doesn't move and the long rates do move as a result of things we did at the short end. I don't know.

VICE CHAIRMAN DUDLEY. I think, to just amplify, Governor Fischer, how much long rates move in response to our moves in short rates—there are a whole bunch of things that affect longer-term rates other than the path of short rates, and it also depends on what the expectations are for the monetary policy change. If the market expected us to do 50 basis points and we did 25 basis points, long rates would probably fall. I think it's pretty complicated when you look at long-term rates and try to tie them back sort of in a simple way to short-term rates and what we do. I think that would just be very hard for us to explain, *ex post*, why long rates either did or didn't do what we wanted them to do.

MR. POTTER. Is your question—suppose IOER goes up to 50 basis points and we can't get the federal funds rate to quite move, but everyone knows we will at some point. We'll have the intended effect on the long rate. Is that the way you're thinking about it?

MR. EVANS. I guess I'm interpreting this commentary as a bit of hand-wringing over the thought that we're not going to be effective at the outset of our interest rate liftoff. But there are just a number of other factors that are going to come into play whereby a market reaction is likely to be, "Oh, this is restrictive." It may not be concentrated in the money market funds in the New York morning call–type activities, but I think I'd be surprised if people out in the economy weren't seeing this and if we continued that with our further actions, I think that it would have the intended effect largely.

VICE CHAIRMAN DUDLEY. But shouldn't tighter control lead to a more solid linkage between financial conditions and what we do in terms of monetary policy? Wouldn't we want to have that link be as strong and as robust as possible?

MR. EVANS. I'm trying to get at this from risk assessment, which is, of course, if we get the monetary control right, then I think it works better. But what if we don't quite get it exactly? Is it as bad as most of the commentary here is suggesting? That's how I'm coming at it.

CHAIR YELLEN. Two-hander—President Lacker, President Kocherlakota, and then President Fisher.

MR. LACKER. It's pretty clear that the staff scenario should be on the table, the one in which we let the ON RRP rate sit at 5 basis points for a couple of weeks. Worst case, a couple of weeks later, we get the RP rate up. The import of President Evans's question is, I think, it should be obvious that it's only if we fail to bring the RP rate up that we're going to fail to have an effect on the rates we care about, which are things like three-month, six-month, one-year interest rates.

To me, it means that the embarrassment factor, the "egg on the face" factor, doesn't have to do with our effect on the economy. It's just this little optical thing that people in the markets can kind of write clever newsletters about. The other thing to keep in mind here is that, I may be wrong about this, but I think my sense is that we're not going to "spring" liftoff, right? It's not going to be a bolt out of the blue. We're going to signal beforehand. Rates are going to rise before the meeting. We can actually find out if they expect it. We'll be able to read off before the meeting whether they expect us to have control of short-term rates or not.

MR. POTTER. That was part of my briefing.

MR. ENGLISH. Isn't that kind of the problem? If there's a problem and maybe the Committee doesn't view there as being a problem, but they expect us to have control. If the time comes and we don't have control, that's—

MR. LACKER. Two weeks' surprise and one-year rates don't budge.

MR. ENGLISH. Maybe.

MR. LACKER. For what we care about, it's not going to matter.

MR. POTTER. President Lacker, the example of the release of the June minutes—it's controversial and I think the staff might disagree. The interpretation of the Desk is that the changes that we made did ease money market conditions through 2015. I'm not sure completely why.

MR. LACKER. I'm sorry. What changes do you mean?

MR. POTTER. The effective federal funds rate was going to trade lower in the range, less of a tight spread. You also saw that in the survey. Of the 20 people across the two surveys who thought we'd have the interest rate on excess reserves at 50 basis points in the first tightening move, the median of the change in their effective federal funds rate was down 13 basis

points. That was in my last chart. That's consistent with the money markets, and it could be the newsletters they're writing; I agree with you completely that the people in the middle of the country are not aware of it. That is something that is likely to happen.

We could disagree on how likely it is that we'll get above 25 basis points, but that's a lot of noise, and it probably is going to mean the other rates aren't exactly where you want them to be. But if you wanted to run this, you should probably just explain clearly in advance that's the system that you're going to do and see what kind of reaction you get. If you see a big easing of conditions—some of the letters that we got after the release of the June minutes said thanks for the rate cut. You have to think about whether that's the situation you want to be in, whether you want to communicate a quite high path for the interest rate on excess reserves to get that insurance because that's what you could do. You could communicate, instead of 50 basis points for the first move in the interest rate on excess reserves, something like 75 basis points.

MR. LACKER. Well, let me ask this. What research have we done on the effect of the overnight reverse repurchase facility on longer-term rates, like three-month, six-month Treasury rates and term RP rates? What do you know about the effect of that?

MR. POTTER. It has been at 5 basis points, so not much. I mean if—

MR. LACKER. Well, it didn't used to be at 5 basis points. You told us you wanted to do some research.

MR. POTTER. No, it was 0, 1, 2, 3, 4, 5 basis points, but for a long time we've had it at 5 basis points, and as you know, the quality of the floor has improved over that time, so it's hard for—

MR. LACKER. Then you should see an effect.

MR. POTTER. At 5 basis points, though, it's hard to say what effect you'd expect to see if it's consistent with what we've been saying, but we did see rates in 2015 and predictions of repo in 2015 fall after the minutes.

MR. LACKER. I don't understand. You told us that the evidence that you've gathered suggests that you've been able to establish an effective floor.

MR. POTTER. Of 5 basis points.

MR. LACKER. I think you've represented to us that you've influenced the RP rate.

VICE CHAIRMAN DUDLEY. The fact that the expectations of the spread widened, and that's what pulled down money market rates. That's what happened.

MR. LACKER. The expectation of what spread?

VICE CHAIRMAN DUDLEY. The spread between the interest rate on excess reserves and the overnight reverse repo rate was changed by the June minutes. Market expectations widened, and that's what caused the money market rate—

MR. POTTER. It's possible that people just had a trade on, and that's what we saw unwind at that point.

MR. LACKER. Before the minutes, you could have been looking at this, right?

MR. POTTER. We looked at the futures market to understand that. We do see influences from the announcements that we've made, and maybe 1 basis point or 2 basis points, because if you wanted us to do an experiment, which you wouldn't, what happens if we put the overnight RRP at 25 basis points for a month in a surprise way? I think we would have a strong effect on financial conditions in the United States. You probably would want to move up IOER at the same time, but you'd have a strong effect.

MR. LACKER. Madam Chair, you can cancel my one-hander.

CHAIR YELLEN. Okay. I have a two-hander from President Kocherlakota. Is that still on?

MR. KOCHERLAKOTA. Yes. I'll be brief, Madam Chair. I just want to build on this really interesting conversation triggered by President Evans's question. The Vice Chairman correctly reminds us that there are so many factors that are influencing the monetary transmission mechanism to two-year, three-year, five-year rates, which is the way we were actually trying to affect the economy. I think we want to keep in mind the magnitude of this particular effect relative to all of the other variables that are going to be affecting that transmission mechanism, including the speeches we give on an everyday basis and that kind of thing that are also having an influence on all of that stuff. How we shape the expectations of what we're going to be doing over the next three to five years, and how we are responding to shocks, those are all going to be really important characteristics of liftoff, and we should be putting this in the context of that bigger picture, I think.

MR. POTTER. The only actual thing that they get to see from you is what's happening in money market rates or if you buy a large amount of assets. The signal that is clearest for them about your intent is what's happening in those money market rates. That's, I think, the debate we're having here—whether you can send the same signal when you have less control than you used to have, or whether you have to give a really clear signal of control at liftoff.

CHAIR YELLEN. President Fisher had a two-hander.

MR. FISHER. I was just going to suggest that there will be other indicators that may not be manifest in rates themselves—covenants or, I think Charlie mentioned, subprime lending. If you look at autos, that's where the growth is in autos—subprime lending. We're going to get lots of signals, and we may get them before we see rates increase. That was the simple point I

wanted to make earlier. These are subsidiary indicators, and we are just going to have to monitor them very carefully because I would expect, if there was confidence that we were going to be firm here and this would stick, then you would see some shift in these patterns. Not an esoteric point, but I think it's an important point to bear in mind. Thank you, Madam Chair.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I just wanted to follow up on what Simon just said, that the only way markets can get a signal from the Committee is to look at tangible objects. Doesn't that bring into question putting so much emphasis on the federal funds rate? It's a very idiosyncratic market. It's moving around in odd ways. It seems to me you should be emphasizing other interest rates as policy rates and not the federal funds rate.

MR. ENGLISH. I'm not sure it's true the funds rate has been moving around in an unusual way. We had a Board briefing that was distributed to the Committee—

MR. BULLARD. There's certainly a smaller number of players in the market than there has been.

MR. ENGLISH. I agree with that, but the rate itself is moving about as closely with other short-term market rates as it has in the past. I don't think it's—

MR. BULLARD. Okay. If federal funds behaves normally, then we don't have to worry about all of these issues. The question is if federal funds does not behave as expected.

MR. ENGLISH. I don't think that's right—sorry—if I'm understanding what you're saying. I think the funds rate is moving with other short-term market rates about as it has in the past. I think with the 25 basis point spread between IOER and overnight RRP, that's likely to continue to be true. The question in my mind is, if you raise IOER, for example, without raising overnight RRP, what will happen to the funds rate and the whole panoply of short-term market

rates? Will they move up roughly one-for-one with the higher IOER rate or will they move up less than one-for-one?

My concern is they'll move up less than one-for-one and we won't have the funds rate where we want it, and there are ways of handling that, as President Kocherlakota said. You could raise IOER more. Another way would be to raise the overnight RRP rate to provide a better floor and move all short-term rates up. But, given the spread that you around the table seem to prefer between IOER and overnight RRP, I'm not so worried about the funds rate becoming suddenly an idiosyncratic rate. It's kind of moving with other short-term market rates and there are, as we've talked about in the past, ways of making that a more robust benchmark as well. Simon may disagree.

MR. POTTER. No, I think that's correct. IOER is what's really causing that to happen, and that's reasonably stable. The issue is whether you need the overnight RRP to support the arbitrage by putting more competition into the market. I think our feeling is from the testing that it's helpful, but people could disagree both about how important the overnight RRP is and whether you really need to worry so much about the precise control in the overnight rates, as President Evans was saying.

CHAIR YELLEN. President Evans, you have a two-hander?

MR. EVANS. I had a one-hander, but I'm happy to ask it.

CHAIR YELLEN. Oh, okay. Governor Fischer has a two-hander.

MR. FISCHER. In thinking about the benefits of the auction at the end of each quarter, what we say is well, at that time, there's great demand for funds and so we're going to let the interest rate go down.

MR. POTTER. Well, great demand to invest funds. That's the crucial point.

MR. ENGLISH. Yes.

MR. FISCHER. Right. We're going to let the interest rate go down. Why do we want to let the market work once every quarter and not otherwise? Why do we want to not use the rate for the rest of the quarter?

MR. POTTER. We could run a quantity-based operation. That's one of the things we've been thinking about, where each day we just auction off a certain quantity, and you could have the same counterparties for that, and you could basically just take whatever rate was produced fulfilling that quantity, and that would be another way to go. That's probably going to be larger in usage than the overnight RRP because it won't have the same impact as when the Federal Reserve is offering a rate—this was the original way that we talked about it. I can go trade with some other people and say, "If you don't offer me the Fed's rate, I will go to the Fed and I'll get a higher rate."

The problem we encountered is, at times of financial stress, if the Fed is there offering this fixed rate, a lot of people might just want to go there, which I think we've been trying to balance over the past three meetings—that is, the desirable part of adding in this notion of an outside option or threat point of going to the Fed facility versus what happens if there's financial stress. The old-style RRPs we used to do, we'd just announce we're going to do $700 billion, say, and we'd run an auction, and that would not have the financial-stability risk in the same way because if we thought there was a financial-stability risk, we wouldn't auction that much and there would be no understanding that we're going to auction more. That's going to require a really big footprint with the money funds to do that.

VICE CHAIRMAN DUDLEY. You'd get some interest rate volatility day-to-day.

MR. POTTER. You'd get some volatility in interest rates. If we're using the federal funds range, I think this would be reasonably effective. It's a big operation to do each day.

MR. ENGLISH. One small point, Governor Fischer, is, just to be clear, we would be running an auction every day under the arrangement that the staff has suggested, but with an amount that we would be auctioning that we would expect would exceed the demand for placing funds with us at the maximum bid rate. We would be auctioning an amount with a maximum bid rate, and we think most days, except maybe quarter-ends and occasionally other days, the quantity would not be the thing that would bind. It would be the maximum bid rate, but there would still be an auction every day. If there were events in markets that caused a surge in demand, as is laid out in the memos, then the quantity would bind and the price would be set at the auction.

CHAIR YELLEN. President Evans, did you have a further—

MR. EVANS. I do, if we are finished with that.

MR. FISCHER. Yes.

MR. EVANS. Okay. Back to monetary control issues, I want to make sure, as we have talked about this, all of the proposals on the table, as I understand it, envision some role for the overnight reverse repo facility. Maybe IOER plays a stronger role for trying to push the funds rate than otherwise. But we still contemplate having this facility, and it is going to set a floor for the funds rate, right? Maybe we have to adjust our thinking on what the target range for the funds rate should be. I wonder if somebody could comment on President Plosser's proposal in his memo about the 50 basis point spread between the IOER and the overnight reverse repo rates, because I, frankly, found that interesting. I am thinking that if we implemented something like that and adjusted our public commentary about the federal funds target range appropriately,

wouldn't we expect the monetary policy transmission mechanism to behave in the same way? That is, the funds rate would trade in a certain area. Other market rates and the nonfinancial borrowing rate would go up, and that would work to tighten as much as we were expecting if we got that right. Or would there be more of a difficulty?

MR. POTTER. Let me just understand. Interest on excess reserves goes to 50 basis points, and we say we are happy that the federal funds rate is trading between 0 and 50 basis points, is that it? Then we just move up the overnight RRP—

MR. EVANS. Yes. I think it's a little cleaner if we get as far as 100 basis points on the IOER rate and overnight reverse repo rate is 50 basis points and the funds rate is 50 basis points. It might have to start off a little bit higher, but once we get going, wouldn't everything move up the same way? Or are there added difficulties with a wide spread?

MR. ENGLISH. I think that that would be a plausible way forward. I think the wider spread gives you a smaller overnight RRP facility, which you may like. Where in the 50 basis point range market rates would end up, I am not sure. Probably higher relative to overnight RRP than now, but I'm not sure how much higher, because as we were discussing earlier I'm not sure how powerful a "magnet" the IOER is for market rates. I don't think there is a conceptual problem with implementing policy that way. The control over money market rates would be less tight in the short run. There would be just a bigger range and probably more variability of rates from day to day. How much you care about that is yet another thing to trade off against the size of the overnight RRP program and the expense involved with the IOER rate being higher relative to market rates.

MR. EVANS. All right. The expense I understand, but "less tight" I'm not quite sure. It's a definitional matter. What if you just sort of took the viewpoint that IOER is just going to

be at a premium for a while, because we've got a large balance sheet, we understood this at the outset. So you might just sort of acknowledge that IOER might be 25 basis points higher than you could have imagined. It will take a while for the funds rate to get up, but it will still be within 25 basis points, maybe, of the floor—the overnight reverse repo rate—until you see it start to tighten and then you adjust that range.

MR. POTTER. So I gave you a version in which LIBOR might be linked more to interest on excess reserves. You are going to have a lot of segmentation across these money market rates. I don't know what that does to financial conditions. I think your assumption is, I can just move up interest on excess reserves, and look at where the federal funds rate is, and that is what the center of policy is. I wouldn't be so confident that I haven't just said to banks, "Well, don't bother lending stuff out. Here's 75 basis points just to put money back with us." If this was the question about that, that's the hurdle rate now. You're increasing the hurdle rate of banks to lend to the households and firms relative to just putting cash back with us.

MR. EVANS. Isn't that the point of financial restraint? We're trying to curb lending at some level.

MR. POTTER. You are, but I don't think your intent is to curb it quite that quickly, because if that's the path of—

MR. EVANS. I say this in public all the time. People ask, "Aren't you worried about inflation?" Oh, inflation could be when money starts growing. That means when banks start lending, and what we want to do is to restrict that. Then I stop and think, it's a little hard to envision this because banks aren't really lending that much. But that's the mechanism here.

MR. POTTER. It is the mechanism, and the way you prevent them from doing that and getting the big increase in the money multiplier would be to have a high interest on excess

reserves and they'll just put the money back with us. I don't understand what that would look like in terms of the intent, because it would be a new world for us with that big of a gap.

MR. MEYER. Presumably that restricts bank lending, but it might just shift borrowing out of banks into nonbanks.

MR. POTTER. Well, if they're offering much lower rates, yes.

MR. MEYER. Unless other market rates go up.

MR. EVANS. That's very important. I mean, if I understood that better, that would change my preferences a lot. If the narrowness of the spread on this is very important for the effectiveness of monetary policy, I'd like to know more about that. I could have a very different attitude on the overnight reverse repo if somebody clarified and strengthened that argument. It would play a more important role, but to date I have not heard that, or, if I have, I missed it.

CHAIR YELLEN. Further questions? [No response] Okay. Why don't we begin the go-round, and then maybe in half an hour we'll take a break for lunch. First on my list is President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support the general approach in the revised principles and strategies of normalization. I'd also prefer the reorganized revised principles, though I do have a few suggestions.

First, I view the use of the federal funds rate as a communication tool rather than a hard target. This is consistent with the second main bullet in the reorganized revised principles memo that says, "The Committee intends to adjust the stance of monetary policy primarily through actions that influence the level of the federal funds rate and other short-term rates." I like that phrasing. "Influence" is not the same as "target." Specifically, we are communicating using a federal funds range, but it is important to move short-term rates more generally. I am less

concerned about a thinly traded market dominated by the GSEs. I would like some more background provided at future meetings on federal funds trading patterns to get a better understanding of the arbitrage relative to IOER, as President Lockhart had suggested.

Second, I like the principles document having no numbers. Precise numbers have a way of becoming hardwired and difficult to change. I would prefer that we not hardwire details until we are more confident about how markets will react to our actions and gain experience that can help us better understand the interrelationships among the IOER, the overnight reverse repo facility, and the federal funds rate.

Given the concerns raised about the overnight reverse repo facility, it may be worth making a technical change that would help us infer how much we can rely on the IOER alone. I would suggest that we make a technical adjustment to the IOER of perhaps 5 or 10 basis points at a meeting prior to when we officially begin to tighten policy. If all relevant short-term rates move up, we can have more confidence that we can more heavily rely on IOER as our policy instrument.

I would also note that I would view it as a significant problem if we observed little response by other relevant short-term rates through an announcement that we were tightening policy by 25 basis points using only the IOER. We have said in speeches and testimony that we are confident that we can raise rates when that becomes appropriate. Announcing our intention to raise short-term rates with only modest reactions from short rates other than our administered rate would seriously harm our credibility and could lead to unnecessary financial turbulence.

We need to carefully balance the goal of meeting our monetary policy objectives with the legitimate concerns raised about the reverse repo facility. I would view the initial announcement

to tighten as critical to meet our monetary policy objectives. Depending on the market reaction, I would then adjust the reverse repo facility and potentially the IOER−ON RRP rate spread.

In terms of the caps, I would eliminate the dynamic aggregate circuit breaker. The two main concerns raised at the previous meeting regarding the reverse repo facility were that the facility would have too large a footprint in short-term credit markets, and that the facility would exacerbate financial-stability problems during periods of financial turmoil. Having a large initial spread and an initial overall cap seems sufficient to avoid these two issues. However, the dynamic aggregate circuit-breakers do not as effectively address either concern and will be quite complicated to explain. For example, I am not sure why I should be concerned with declines or surges in the reverse repo facility take-up that have been primarily influenced by end-of-quarter window-dressing, which largely reflects decisions being made by foreign branches. Better understanding the role of foreign branches in short-term credit markets at future meetings would also be useful.

In addition, it is not obvious to me that a $100 billion change in the use of our overnight reverse repo facility constitutes an alarming change in short-term markets or will significantly affect the global supply of short-term credit. Given the size of financial markets, and the fluctuations in the facility to date, the dynamic cap is set quite low and would likely be influenced by one-day declines or surges that seem immaterial as long as the overall cap is not breached.

I would also prefer to keep the caps simple. A complicated structure may imply more permanence than necessary. I would imagine an initial cap that would be lowered when it becomes clear that the IOER is sufficient to move short-term market rates when that is appropriate. The key point is that we need to be confident that we can move short-term market

interest rates when that is appropriate. We can scale the reverse repo facility flexibly as we learn more about how rates react to our actions. I think the revised principles make clear that this is a temporary facility.

Finally, I would not rule out using our balance sheet for financial-stability purposes, which is relevant to President Kocherlakota's comments. Thank you.

CHAIR YELLEN. Thank you. President Lacker.

MR. LACKER. Thank you, Madam Chair. Thanks to some helpful memos from the staff and from some other Committee participants, I can be relatively brief on the questions on the table today. There is one important issue I would like to spend a little time on. I'll save it for last.

First, I support the general structure of the approach to conducting monetary policy during normalization outlined by the staff, including the directive and the statement. Like President Plosser, I don't see a need for the proposed delegations of authority to the Chair. In the past, we have been able to schedule videoconference meetings on very short notice. And in this instance, the potential need for consultation is fairly predictable, so we might even want to schedule a videoconference in advance for the week after our liftoff announcement.

As for the structure of the overnight reverse repurchase facility, I very much share the concerns expressed eloquently by Governors Tarullo and Powell and President Plosser. I strongly support their proposal for a significantly lower overall cap. I agree with President Rosengren; I don't believe a surge cap is necessary. It's complicated and a bit too fussy. I also support President Kocherlakota's proposal to issue a public consultation paper. The implementation of such a facility is clearly as consequential as many other things that we've put out for public comment on the grounds that they have an effect on the industrial organization of a

particular sector. And I think there are useful things we could learn from the process, despite all the research that the Desk has done.

Regarding the spread between the IOER and the overnight RRP rates, 25 basis points is about the smallest spread I could support, including the option outlined today by the staff of leaving the interest rate on ON RRPs at 5 basis points when we lift off. If the RP rate doesn't rise, we can raise IOER within a week or two and limit the egg-on-the-face phenomenon to a relatively short time horizon.

Regarding the spread between the IOER and the discount window rate, the rate on primary credit, I question leaving it at 50 basis points. We haven't discussed this at all, and we haven't seen any staff analysis. We had a fairly thoroughgoing study when we first set the spread at 100 basis points more than a decade ago. I think it deserves more thought, and I think the Committee would benefit from staff analysis of the pros and cons of a spread of 50 basis points versus restoring what I thought we carried around as our view of the normal spread of 100 basis points.

For the most part, I support the new statement of our normalization principles. I particularly support the revisions to the second bullet point that emphasize the possibility that we could withdraw and wind down the program, and that we intend to use it only as a supplementary tool.

Finally, I would like to make a few observations about the plans for our holdings of the securities issued by or backed by Fannie Mae and Freddie Mac. There is a tension within the principles as written, and President Plosser raised this question during a Q&A. In one sub-bullet we state that we don't intend to sell Fannie Mae and Freddie Mac securities. In the second-to-last bullet, we say we want to minimize the effect of reserve holdings on the allocation of credit

across sectors of the economy. And these two, I think, directly conflict. If we want to minimize credit allocation, we would obviously plan to sell Fannie Mae and Freddie Mac securities as soon as possible.

You might be wondering what credit allocation looks like. Fortunately, the staff has provided us with quantitative estimates of the effects. An August 28, 2012, memo reports the estimates of the effects of buying $500 billion of long-term U.S. Treasury securities and compares that with the effects of buying $500 billion in MBS. Buying Treasuries is estimated to lower both mortgage rates and the Treasury term premium by the same amount, 21 basis points. Buying MBS is estimated to lower mortgage rates by more, as you'd expect, 24 basis points, but to lower the term premium by less, only 16 basis points. Combining these estimates implies that by holding MBS rather than Treasuries, we are lowering mortgage rates but raising the term premium on long-term Treasury securities. For example, if we sold all of our $1.7 trillion in MBS and bought Treasuries with the proceeds, the theoretical effect would be to raise mortgage rates by 10 basis points, but to lower the Treasury term premium by 17 basis points. And we have been operating on the notion that the Treasury term premium passes through to other people's borrowing rates, so borrowers outside the housing market are, in essence, paying higher interest rates by 17 basis points as a result of us choosing to hold Fannie Mae and Freddie Mac securities instead of U.S. Treasuries.

Now, there may be reasons for variance. Actual results may not match up with the staff's estimate, but—

VICE CHAIRMAN DUDLEY. Don't try this at home. [Laughter]

MR. LACKER. And the staff may have updated the rest of this, but these are the estimates on which we based our decisionmaking in September 2012, when we embarked on the

latest purchase program. I think they're the best we have to go on regarding this effect. So this is a measure, a 27 basis point twist in relative borrowing rates, that we're engineering by holding MBS instead of Treasuries alone.

Now, you might be tempted to resolve this tension by deleting the clause about minimizing credit allocation, but that's not the only source of tension. For several decades now the Committee has had standing guidelines for the conduct of System open market operations in federal agency issues. They state that "System open market operations in federal agency issues are not designed to support individual sectors of the market or to channel funds into issues of particular agencies." Now, it's true that these guidelines were temporarily suspended in January 2009, but we did not abolish them, and they're still on the Board's website.

Moreover, these guidelines have deep roots in Federal Reserve history. They were first adopted in August 1971, a few years after Congress passed legislation authorizing Federal Reserve purchases of federal agency securities. They did that with the intent to allow the Fed to buy the obligations of Fannie Mae and Federal Home Loan Banks to support the housing market. The Board did not want to buy agency securities, and the FOMC initially instructed the Desk to just test doing repos in agency securities but to hold off making outright purchases. But Congress repeatedly pressured the Fed to use its authority to make outright purchases and had some very contentious hearings on the subject. Senator Proxmire explicitly threatened legislation to reduce the Fed's independence.

For a time the Fed resisted. Chairman William McChesney Martin testified that to have any effect on mortgage rates, the Fed would necessarily have to restrict credit to other sectors of the economy, such as state and local governments and business borrowers, consistent with our staff's 2012 estimate. He said that it would "violate a fundamental principle of sound monetary

policy in that it would attempt to use credit-creating powers of the Central Bank to subsidize programs benefiting special sectors of the economy." Arthur Burns wrote in a similar context, "Decisions as to social priorities in the use of credit are inherently political in character. If such decisions are to be made at all, they should be made by the Congress, not by an administrative and nonpolitical body such as the Federal Reserve. After all, tilting credit in favor of some borrowers implies denying credit to someone else."

The most problematic source of tension surrounding our MBS holdings, however, is the March 2009 joint statement by the Department of Treasury and the Federal Reserve, titled "The Role of the Federal Reserve in Preserving Financial and Monetary Stability." The second point in that document states, "Actions taken by the Federal Reserve should also aim to improve financial or credit conditions broadly, not to allocate credit to narrowly defined sectors or classes of borrowers. Government decisions to influence the allocation of credit are the province of fiscal authorities."

So here we are, quite clearly engaged in credit allocation. Our holdings of Fannie and Freddie securities are lowering mortgage rates by 10 basis points and raising borrowing costs outside the home mortgage arena by 17 basis points, and yet the official policy of the Federal Reserve and the Treasury is that influencing the allocation of credit is the province of fiscal authorities and not the Federal Reserve. I don't see how to reconcile these two. I don't see how we can justify deciding on our very own that more housing activity and less business investment would be a good thing. I don't think we can claim we are ameliorating a dysfunctional market for mortgage-backed securities, as we might have plausibly claimed at the end of 2008. I don't see us arguing that we should hold onto Fannie and Freddie securities to avoid realizing capital losses and impairing our remittances to Treasury. I also don't see how to ignore the political

risks associated with continuing to hold Fannie and Freddie securities indefinitely. The longer we hold them, the longer the door is open to what I think are mischievous efforts to involve us more deeply or permanently in housing finance.

GSE legislation came close to passing in the Senate earlier this year, and it failed because of an apparent inability to bridge the gap between the desire of affordable housing advocates for more resources and the desire of others to limit the resources extracted from the housing finance sector for that purpose. It seems plausible to me that some bright minds on the Hill will turn to the Fed's balance sheet to attempt to bridge that gap. After all, our balance sheet has been raided in the past to provide ersatz solutions to fiscal problems.

So I continue to believe it's a mistake for us to buy and hold securities issued by or backed by Fannie Mae or Freddie Mac. I recognize I may be out of step with the brave new world of central bank activism. I recognize that our long journey into housing finance is less troublesome to many of the participants in this Committee, but from a broader historical perspective, this strikes me as an important component of our deliberations today, one that deserves careful thought. Should we continue along the path we seem to be on, of holding Fannie and Freddie securities to maturity, I believe some public explanation of our stance on credit allocation is necessary. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. In case it proves controversial later, I'd like to start by saying at the outset that I agree with the Chair that it's unwise and premature to try to make a firm decision today on the precise numerical parameters of the facility. At the September meeting the Chair can set forth the draft normalization principles that we finalize and release. She can discuss them at the press conference. She can describe the facility as narrow in purpose,

scope, and time. She can say that there will be appropriate size limitations in place, including aggregate and surge caps if appropriate, and that in finalizing those restrictions before liftoff, we're all going to be informed by testing results and use patterns that we observe and analyze over the coming months. So just to underscore that point.

If you ignore the quarter ends and look at the use patterns so far, we had a spike in April and May to the $200 billion range, really because of cash flow coming into Treasury and, therefore, bill supply decline. Other than that, usage has been in the $100 billion to $150 billion range. And maybe those levels will rise between now and liftoff. We don't know that. But if we try to make a decision today, it stands a big chance of being off by quite a bit, and therefore, the incentive is to guess high so as to avoid weakening monetary control—for example, by having a $500 billion overall cap, which is so much higher than these other levels. By next spring or summer when it's time for liftoff, the Committee will have a much longer period of data that's been observed when we are trying to set these levels.

Let me turn to the four questions in the appendix to the memo that we're asked to respond to. On the first one, I do support the approach to conducting monetary policy during normalization that is described in the memo, and I would also favor giving the Chair limited discretion to make adjustments to IOER and ON RRP rates in order to keep the federal funds rate within the range set by the FOMC. I am a little less enthusiastic about giving the Chair intermeeting discretion to increase the aggregate or surge caps, as that would risk sending a signal that the facility is designed to expand; I guess I would support that discretion, but prefer that it be used only as necessary.

Second, I find the draft postmeeting statement broadly acceptable for governing and communicating policy during normalization.

And, third, I also support the draft set of normalization principles set forth as appendix 3, and I think the level and specificity of information are about right. I am also okay with the alternative version, which divides into principles and tactics.

Coming back to the overnight RRP just for a moment, I support its overall design but have suggested a number of changes, which are set forth in the comments that Governor Tarullo and I submitted before the meeting. I see the ON RRP exclusively as a monetary policy tool to be deployed as long as needed to provide a floor for the target range for the federal funds rate. I like the 25 basis point range. That makes sense to me as an appropriate level of control, and while it might be okay to tolerate a little deviation from that, I would tend to want to see it in that range.

Without going through the whole memo, let me just say that the facility raises serious financial-stability concerns and related concerns about unpredictable effects on industry structure. At the same time, it is very important, in my view, to demonstrate convincing monetary control at the outset, and for me, that would mean I would want the ON RRP to be used at liftoff to help assure control. I will also say that the sentence that's been added to the policy normalization principles about phasing out the facility is a very helpful one.

I want to emphasize one aspect of why, to me, the financial-stability problem—and it has been said by many around the table, and I think it's right, that the caps would come under pressure during a financial stress event. I do think that's right. But it just seems really unlikely to me that that would ever be a good idea. It's one thing to offer liquidity in a crisis. It's entirely another thing to invite it to come onto our balance sheet. So any sense in the market that there is a home here at all, that there is capacity that will be enlarged, is itself potentially very, very

destabilizing. And I think that the Committee needs to lean hard, really, against the perception that that could be the case.

I won't go through all of the details, but again, I would support reducing the caps. If I had to make these decisions today—and fortunately, we don't—I would reduce the aggregate cap to $300 billion and reduce the surge cap to $50 billion. I don't see any public purpose to be served in facilitating quarter-end window dressing. I also think there are some benefits in having a cap that does bind with reasonable frequency, although I wouldn't want it to bind much at the outset as we're lifting off. Those benefits would include sending a signal that hitting the cap is not a big stress event. In addition, it would acquaint market participants with how the mechanics of allocation will work, and it would send a signal that the Committee's intent is not to seek or accommodate significantly higher levels of demand over time. I think changing the window from 5 to 10 days would limit the growth in the facility in times of stress without materially changing its operation in ordinary times.

In terms of adding new counterparties, I guess I would prefer to defer that question until the September meeting when we set forth our principles so that we're sending the clear signal of limited time and scope for the facility.

Finally, I would offer this. I share many of the same concerns that President Kocherlakota has, but I am skeptical of the idea of engaging in any kind of public consultation process. I do like the idea of getting input from the public, and that has been ongoing, but not in a formal consultation process. I do think that the facility as we're now talking about proposing it, and the language we're talking about including, would make it much less of a target in any event, but I think this is actually quite a dangerous precedent and a Rubicon that we're crossing

here. It's inviting political actors into our business, and I think that the risks of it would outweigh any potential benefits. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. Thank you, Madam Chair. First, I want to say that the discussion at the last meeting and the meeting before that—in my 10 years here, these have been the most interactive and interesting and challenging discussions we have had. I actually went back and read the entire transcript from the last meeting. I stayed awake for most of it [laughter] and so I want to start there because you made some key points that condition this discussion today.

First, you mentioned that "there is a general desire to preserve trading activity in the federal funds market," and that second, to paraphrase the June transcript, in the range of uncertainties and concerns about the overnight RRP facility, there was a desire to keep that facility modest. You also highlighted the need to decide how to limit the financial-stability risks associated with the overnight RRP facility. And also at the June meeting, you said we need to decide on our reinvestment strategy. I'm going to come back to that. I want to comment on ON RRP—it is so hard to say "ON RRP," so I just thought "on RIP and go"—and our reinvestment strategy. I'm also going to comment a little bit on MBS, but not to the same extent as my colleague from Richmond.

At the last meeting I said that I had concerns about the ON RRP proposal. I worried aloud about the expansion of counterparties, what I called at the time "the more the merrier" approach, and I suggested that we ought to have a clear and principled dividing line between those with access to the facility and those without; that without a dividing line, this facility could "grow like Topsy"—I'm quoting myself here—and maybe grow out of control. And I said I was struggling with what the order of dimension would be like. I said that we might create

something, if we're not careful, that puts us in the place of being too much a part of the market. Governor Powell just referred to this. We can delay that discussion until later, but I still maintain that sentiment. Unspoken but implied was my concern that the ON RRP facility could exacerbate liquidity movements, particularly in times of market stress.

Now, before Governor Tarullo's and Governor Powell's memo, which I'll come back to in a minute, I sent a note to you and to Mr. English repeating a sentiment that I expressed at that meeting. I suggested that we make it definitive and clear that we're not planning to rely heavily upon this tool, and I suggested alternative language to that draft, which was then appendix 3 and is now appendix 4 of the normalization memo—to wit, that the sentence under the then fourth and now third sub-point should read that "the Federal Reserve will use overnight repurchase agreement operations as a supplement and contingent tool only as needed to keep the federal funds rate in the target range."

I was very pleased to see Governor Tarullo's and Governor Powell's more specific suggestion sent out that same evening. I fully endorse their recommendations. I want that on the record, and I think as you just went through this, we're not going to get into that now, but I think it is important that we reduce the aggregate spending and surge caps; that we allow periodic binding of the caps; that we include a single counterparty cap. I like the idea of changing the surge range to 10 days and that we tread—and I thought this was a very important point—we tread very carefully in sending unintended signals through the testing of the facility.

I think the important thing that was crystallized by the Tarullo–Powell memo, or any other approach we take, is that we convey unambiguously that the ON RRP facility is only a backstop, that the scale will be modest. It will be carefully allocated so as to prevent abuse, but at all costs, it will do nothing to precipitate runs or financial instability.

With regard to the revised statements that we got last night and the further revision today—there's one word that's revised in what we got this morning from last night, changing the word "the" to "it"—but I would just add that the ON RRP facility is still explicitly referenced, of course, but it's more clearly intended to be a subsidiary to the IOER, as I read it, as a tool for influencing the funds rate. I am comfortable with that.

In the second sub-bullet under the second bullet, I would feel more comfortable if there was explicit reference to the FOMC and not just to the Federal Reserve. I can envision changing the wording to say, "From that point on during the normalization period, the Federal Reserve intends to adjust monetary policy primarily by changing the interest rate it pays on excess reserve balances in order to achieve the target range for the fed funds rate set by the FOMC." I may be a little paranoid about this. Someone mentioned 10 years or 20 years, a long time period, but we will have a different set of policymakers, as you mentioned, and I think it is best to avoid any ambiguity about the role of the FOMC and to always underscore the primacy of the FOMC. So just adding those words at the end, I think that would be helpful.

With regard to the 25 basis point spread, I feel most comfortable with that.

And then I want to address the governance question, which others have raised, and I say this with great respect. I am uncomfortable in giving the Chair—and, again, we have to think of the very long term here, and this has nothing to do with you as the Chair—intermeeting discretion with regard to the IOER rate and the surge caps. The IOER rate will be the main tool for implementing the regularly scheduled funds rate decision in the Federal Open Market Committee. Smooth governance hinges on there being a mechanical link between the FOMC's fund rate decisions and the IOER rate. And as I said earlier, I want to maintain the primacy of the FOMC. I really think we can deal with short-term problems, intermeeting problems, either

by conference call or by having it clear that we let the Desk perhaps deal with some short-term perturbations.

Now, as to reinvestment policy, this is something I articulated in my speech on July 16, but was not reprinted in the *Wall Street Journal* on Monday. I realize I'm in a very distinct minority on this front, although the idea came to me from President Rosengren from Boston, and that is I still think it would be a best first step to normalization to gradually taper reinvestment, including MBS, before raising rates. I am still definitely at one end of the range of views on this. Again, I'm in a distinct minority. But at a minimum, if the majority of the Committee wishes to cease reinvestment only after liftoff, then I would suggest tighter wording than the current sentences we received this morning.

I have particular concern about the phrase "at some point." To me, that provides too much room for equivocation. At a minimum, I would suggest that the first bullet point—wherever it is, first, second, wherever it is now in the new order—read that "the Committee expects to cease or reduce reinvestments shortly after it begins increasing the target range for the federal funds rate." By in saying "at some point" we're just leaving the door wide open; I don't think it provides any kind of guidance, and I am uncomfortable with it.

And then the last point on mortgage-backed securities, the third subsidiary bullet point, I don't accept the idea that we should not sell MBS under any conditions. Let's say the market is suddenly robust for housing in 2017 or 2018, more robust than the Committee expects. Why wouldn't we consider it? I think that sentence could be edited without losing its underlying meaning and reassurance by saying, "The Committee does not intend to sell mortgage-backed securities to normalize its security holdings unless the housing market becomes more robust than

currently envisioned and market conditions for mortgage-backed securities can accommodate sales without disruption."

Now, I am not as far over as President Lacker on this subject matter. I love President Lacker, and I mean that in a manly way. I'm not as far over as he is on a lot of things, but on that one I think he has a point, but that's not the point I want to make here.

Let's assume that the market is robust and conditions get out of hand. We're talking several years hence. To say that we'll never sell mortgage-backed securities doesn't make sense to me. I would like to apply a condition and simply say that we do not envision doing so, but if it becomes robust and market conditions for mortgage-backed securities can accommodate sales without disruption—I think that would be a nice addition to that sentence. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Why don't we have President Williams and then we'll take a break for lunch?

MR. WILLIAMS. I have a very lengthy statement. Thank you, Madam Chair. [Laughter] I think we actually have made a great deal of progress on these issues over the past few months, and I think we have really benefited from some exceptional help from the memos and the presentations from the Board and the New York staff.

My main point today is to answer the first question that was asked, and that is that I wholeheartedly endorse the outlined normalization approach of communicating the quarter point range for the federal funds rate with the IOER as our primary tool, and the overnight reverse repo facility playing a supplementary role in that. I think this appropriately balances the pursuits of monetary control, clear communication, and financial stability. And importantly, the outlined

approach does retain quite a bit of flexibility so that we can evolve our framework as we learn along the way.

Now, my answers to the other questions are going to follow from the same general principles that we need to balance monetary control, clear communications, and financial stability while retaining this tactical flexibility. In terms of question 1.a., I do support giving the Chair authority to make modest intermeeting adjustments during the normalization process, modest changes in the administered rates. The repo quantity limits are properly viewed as technical adjustments to support achieving the Committee's desired range for the federal funds rate. Giving the Chair the authority to make such minor adjustments in the transition period is straightforward to communicate and should be widely viewed as dealing with back-office operational issues.

For question 2, the draft statement and directive are excellent models of how to communicate our policy stance and make clear that we are focused on using the familiar federal funds rate to pursue our monetary objectives and using the administered IOER or overnight reverse repo rates to support a desired federal funds rate outcome.

In terms of question 3, I favor the new reorganized, revised potential policy normalization principles and strategy approach that is in exhibit 5 of the handout. It appropriately focuses on strategy and not on operational details. I do have a question about what the title should be, given that the title says "Principles and Strategy" while the document says "principles . . . and . . . tactics." But I think it does have the right mix. It's the principles and really the strategy, without getting into the specifics of numbers and all of those issues that we can clarify later. It communicates clearly that our goal is to best achieve our dual mandate, and then lays out a clear strategy of how to accomplish that goal.

And regarding this suggestion to eliminate any reference to the overnight reverse repo facility, that does seem to run counter to our goals of transparency and clarity. The statement already makes clear—and the revised statement, I think, does a good job of this—it makes clear that the repo facility is in a distinctly supporting role, and that it will be phased out as soon as it is no longer needed.

Importantly, the set of principles is sufficiently flexible. It allows us to learn and adjust along the way, and I think we should start with a 25 basis point spread between the IOER and overnight reverse repo rates. If that is too much or too little to achieve monetary control, as we have been discussing quite a bit this morning, we can make adjustments. And as we learn how our tools work in controlling the federal funds market, we can narrow the announced range for the federal funds rate.

I do want to emphasize something. I was in support of a federal funds target range, a 25 basis point range in terms of our target. That is basically just the reality, that in the current environment it is probably going to be very difficult to—or be impossible, maybe, to control the federal funds rate at a point target as we have done in the past. I don't think it would be advisable to go to a 50 basis point range or looser view of what our target is. I think there's a governance issue here, too. The FOMC is making a policy decision. We want a federal funds rate or short-term market rates trading in a certain area, and we definitely want to have the tools that allow us to achieve that goal.

Finally, question 4, the design of the reverse repo facility should, for the most part, allow it to supplement the IOER rate in achieving monetary control while having adequate safeguards to preserve financial stability. And again, I think the 25 basis point spread is a good place to begin, because just the economics of it will limit the desired take-up.

Now, some caps on take-up also seem appropriate. I agree with the points that Governors Powell and Tarullo made in their memo. Like some others who have spoken already, I don't actually see the need or see that much benefit from the surge caps or the dynamic caps. I think the overall cap achieves that goal. But I recognize that others do like the belt-and-suspenders approach that the Federal Reserve prefers, and having a combination of dynamic and static caps seems to be a reasonable compromise between the need for monetary control and clear communication on the one hand and concerns around market functioning and financial stability on the other.

In terms of aggregate limits, it was unclear to me whether $500 billion was the right number in the beginning. I think we do need more staff analysis to quantify these tradeoffs. But it's really going to be the real-world experience, I think, that is going to help us understand that. And given the concerns about the potential size of the facility, again expressed by Governors Tarullo and Powell, it may make sense to start with somewhat lower caps than the $500 billion, that bind only occasionally. We can revisit these decisions later. That said, I don't think it would be wise to lower the caps too far or to jettison the overnight reverse repo entirely, since that could materially interfere with control of the federal funds rate.

Now, I want to talk just very briefly, but I think this is an important issue. There are a number of commentators out there actively saying that the Federal Reserve cannot control interest rates with the $4½ trillion balance sheet. This is not just a theoretical exercise. This is a view that is expressed regularly out there, that we don't have the ability to do that. We can say we do, but I think an important part of this normalization statement is not only to state that we know how to do it, but to demonstrate how we are going to do it in a way that works from day one. I think that is actually very important for confidence in the Federal Reserve, it's very

important for our credibility, but it is also very important for our ability to conduct monetary policy as appropriate for our monetary policy objectives. So I think that the ON RRP provides a useful tool to not only assure ourselves that we actually have the tools to conduct monetary policy the way we need to, but also to assure the public that we have the tools. Again, I think it's very important that as we go out the gate that we don't stumble, because although you can easily sit here today and say, "Well, we can figure it out over the next couple of weeks," I do think that it would play to an already expressed view that the Federal Reserve doesn't have the capability to control monetary policy.

Regarding the idea of adding counterparty caps as well, I have to say that I already view this as a bit of a Rube Goldberg contraption, and with the dynamic caps, the static caps, all of the mathematics underneath that, I don't think that we really need to be adding individual counterparty caps, or that maintaining the ones we have is necessary. It likely would add to confusion and uncertainty. And, again, it comes at some potential cost in terms of monetary control. I think that the aggregate caps are all that we really need.

In terms of testing, I think that of course it is important that we thoughtfully and thoroughly test the caps that we plan to use in an appropriate time and in an appropriate way. I agree with the comments that we don't want to allow the testing to confuse or drive market participants to come to wrong conclusions. But, still, we do want to have a good understanding of how this will actually work. Thank you. And then, I guess we get to eat lunch.

CHAIR YELLEN. I think we can eat. Thank you very much. So why don't we take a half-hour break for lunch and come back—you know, when people are mainly finished, we'll start up again.

[Lunch break]

CHAIR YELLEN. I think we are ready to resume. Let me turn next to President Plosser.

MR. PLOSSER. Thank you, Madam Chair. It is great to be first after lunch. Everybody can put on their snoozing caps [laughter] for the next few minutes, take a little nap. But anyway, I, too, want to thank the staff for an excellent set of memos on normalization. I think this is the second meeting in which we have had excellent discussions, and I also want to thank the Chair for the opportunity this morning of having such a robust interactive discussion. I think it was really quite productive, and I have benefited from that.

I support a number of the features enumerated in the staff memos, and I disagree with some of the particulars. For instance, I agree that using a range for the effective funds rate to communicate the stance of policy is the way policy should be conducted and communicated. I also agree that the primary tool for adjusting the funds rate should be changes in the IOER, at least until such a time that a smaller balance sheet allows us to return to a corridor system, and thus the targeted funds rate could be above IOER, which is something I have long advocated. I am less enthusiastic about a large role for the "on rip" or ON RRP or whatever—maybe it should be "ripoff," I'm not exactly sure. In any event, I would prefer not using it at all, if possible, and that there be no specific reference to it in the statement of principles. We should simply refer to "other supplementary tools."

Many around this table have expressed reservations about this facility, and I share many of those concerns. Others believe that the facility could be useful if managed properly. I have doubts about managing it properly. I am greatly concerned about unintended consequences of such large interventions as anticipated. However, if the facility is used, I'd prefer a much larger spread between the IOER and the ON RRP rates—say, 50 basis points—with a much lower overall limit and a cap of, say, $250 billion to $300 billion. Initially, I recommend we lift off

without the use of the ON RRP facility. We leave it where it is, go ahead and lift off. This will allow us to test how effective the IOER is on its own at lifting rates. If we're unhappy with that outcome, then we could gradually increase the scale and operation of the ON RRP to begin closing the gap and narrowing the spread between the effective funds rate and IOER. And it would be good if we could even shrink that spread gradually.

My own view is that I would be willing to tolerate more volatility and a bigger range for the funds rate than some around the table. And I think we could do so and communicate it effectively if we are willing to, in fact, talk about that—that here is what we anticipate, here is the volatility that we anticipate. I think that would serve to mitigate claims that we can't control rates. But if we start off with a rather wider range, I think we can mitigate some of those communication concerns. In any event, by only gradually introducing the facility over time, we also could learn a great deal about the sensitivity of the federal funds rate to the size and scale of the ON RRP program, and so forth.

Further, as I said in my memo that I circulated before the meeting, I believe the overnight reverse repo market facility should be viewed as temporary and shelved when it is no longer needed. The revised principles make this point very clearly, and I support that. But I think it is easier said than done. One of the things I worry about is that whatever particulars that we do have—for example, the spread, the cap, the size, the number of counterparties—will influence our ability to shelve the program. That leads me to a preference to see us limit the counterparties rather than expand them, and make the caps smaller to keep the program of a small size, because as it expands and the counterparties grow, it will be harder and harder, I think, for us to convince ourselves to pull out of such a very large intervention and scale of operations. I think at the last meeting we talked a little bit about the possibility of limiting, for example, accessibility to

government-only money market funds rather than all money market funds. There may be dimensions like that which we should think about—limiting the number of counterparties. At a minimum, I don't think we should do anything about our counterparties today until we have more discussion about this.

Regarding the dynamic caps, I don't see a lot of reason for them. I'm not too concerned about the volatility on odd days, and I think we could over-engineer this process if we are not careful, again making it more difficult to shelve when the time comes. The degree of interest rate control that was the primary concern in the memos was of the day-to-day variety and seeking to prevent volatility on certain days of the year, like quarter-end. That kind of volatility has always existed in these markets. It is not a new volatility, and I don't see a particular concern for the conduct of monetary policy on those two or three days of the year.

In addition, we have so little knowledge of what it would take to keep the intraday effective funds rate trading within its target range, that I am reluctant, at least initially, to cede authority to the Chair to make intermeeting adjustments in the IOER or ON RRP rates, or caps. Altering the trading range of these rates could involve decisions reflecting a menu of choices, and I think that at least early on they should be made by the FOMC, if changes were deemed necessary. And the question is partly, at what level do you begin to decide whether an intermeeting call is actually even necessary? Maybe we should just wait until the meeting. But, again, if it's deemed necessary for some reason. As we learn more about how the federal funds rate reacts to changes in the IOER, I can see giving the Chair some authority on certain aspects of that, or perhaps the ON RRP rate, with limits during intermeeting periods, if we were more comfortable and we had learned more about how it was going to work.

I have a few other concerns about the treatment of the balance sheet and the principles, as I alluded to earlier. First, I believe that we should start shrinking the balance sheet sooner rather than later. Delay seems to accomplish very little in my mind, yet it will likely force us to raise rates higher and faster than we otherwise would choose to do under a smaller balance sheet. At a minimum, I think we should remove the word "gradual" from the description of the path of the balance sheet, as we may find that constraining at some point.

The second part of that—in announcing we will not sell MBS, we prolong our credit allocation policy and favor housing credit at the expense of other sectors, as President Lacker's comments so clearly enunciated. I would also add to that, though, that we also don't know how the world is going to unfold. We may find it appropriate and desirable to sell MBS at some point. I don't think it is wise to make such blanket, unconditional statements about our future policies. President Rosengren suggested that he didn't like hardwired numbers in a set of principles. Well, zero is a hardwired number, and I'm pretty uncomfortable with that as a statement of principle. Those are my remarks, Madam Chair. I'm done. Thank you.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. First, my compliments, too, to the staff for their outstanding work in preparing us for this discussion. I've come to the view at this point in our deliberations on normalization that the wisest posture is to limit the role of the overnight reverse repo tool as much as possible. That puts me in sympathy with the thrust of the broad concerns expressed by Governors Tarullo and Powell in their memo, President Plosser in his memo and his remarks, and the concern of President Kocherlakota in his memo. Considering what I know now, I am comfortable with a limited and possibly transitional role for an overnight

reverse repo facility, but I'm not comfortable with the prospect of a major, permanent, and institutionalized element of the short-term money markets and monetary control architecture.

To the extent that we're firming up today, and in the near future, our thinking about the preferred approach, I favor a phased approach to implementation of an overnight reverse repo tool. I prefer starting with an increase of the IOER rate and the federal funds rate range while holding the overnight reverse repo rate at or near current levels to see if IOER is strong enough to do the job. I am not yet convinced that IOER will not work. In reality, we won't know for sure until we start to execute, and we'll be learning by doing. I acknowledge that the Committee's credibility may be put in the balance by opting for measured escalation, but at this point, my sense is that a situation involving some trial and error can be managed.

Now I'll respond to the questions. I'll start with question 3, on principles. For the most part, I think the revised draft of normalization principles is workable for September dissemination. As I said a moment ago, at the outset, I prefer that the heavy use of an overnight reverse repo facility be positioned as conditioned on necessity. Prior to the recent revisions, I was going to propose one change in the wording to downplay reliance on the overnight reverse repo tool. I wanted "if needed" inserted in the sentence on the tool, along with reference to other tools. Mission accomplished, without even resorting rhetorically to some suggestion of that.

MR. LACKER. Telepathic.

MR. LOCKHART. Thank you. Though I am satisfied on that point, I think the statement may go too far by laying down the principle that the overnight reverse repo facility will be phased out as soon as it is not needed for this purpose. I don't see the need to lock ourselves in to this degree. I'd prefer to maintain some optionality.

I like the clean presentation of the reorganized version that distinguishes between principles and tactics. Under tactics, in the bullet point on normalization of the size and composition of the portfolio, if this statement is interpreted as taking asset sales off the table, I would try to avoid that interpretation. I would suggest that the word “mostly” could be substituted for “primarily” to avoid this interpretation.

On the first question on approach, I think the approach described in the memo is a good starting point for the Committee’s decisionmaking as we get closer to actual liftoff. That said, I have concerns about immediate implementation at liftoff, as I’ve already said, of a $500 billion facility priced at 25 basis points. I think we should consider the option of not raising the overnight reverse repo rate for the first move. I believe President Lacker proposed this at an earlier meeting. Such an approach would imply, based on current reverse repo transactions, a starting spread to IOER of about 40 basis points versus the 50 basis points that President Plosser suggested. By initially holding the overnight reverse repo rate at its current level or close to that, we can see if the IOER increase alone has the hoped-for effect. Apparently I have more confidence than others that IOER will work to raise the effective federal funds rate. If IOER proves insufficient, the Committee or the Chair can walk the overnight reverse repo rate up based on assessment of timing requirements.

On the question of giving the Chair authority to make intermeeting period adjustments to IOER and overnight reverse repo rates as well as daily circuit breaker caps and an overall limit on take-up, I have no problem with tactical adjustments made at the discretion of the Chair to address intermittent, sporadic issues in the federal funds market. If we experience persistent and material failures to maintain the funds rate within the target range, we would have deeper issues to address as a Committee, in my opinion.

Finally, I'll conclude with some comments on further testing. I think the Desk should proceed to test the auction mechanism at a lower cap chosen specifically for that purpose. But more generally my thinking is the Desk should design and come back to the Committee with tests in the spirit of moving the program to a point of operational readiness as a contingent tool. This may fall short of the complete readiness and comprehensive communication to market participants the Desk feels is needed to protect against the perception of tentativeness that might undermine credibility.

Crafting guidance to the Desk and staff at this stage involves tradeoff judgments. There is a tension between ensuring effectiveness of the tool and putting constraints on the program to balance off other concerns. Boiled down, the effectiveness concern is the argument that if you take a tentative approach, it may not work. I'm not convinced of that. My starting point is the presumption that with effective communication that prepares markets for liftoff, followed by the decision to raise IOER and the federal funds rate range, the FOMC will get what it wants. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. Staff did an excellent job putting together memos and a proposal consistent with the input the Committee gave them at the last meeting, and the recent changes were appropriately responsive to the concerns that a number of Committee members raised. I think the resulting plan is a sound one. I guess that's my answer to question 1. I'm not going to go through the numbered questions.

First, I agree that it is appropriate for the Committee to set a range for the funds rate. Next, I also agree that it is highly appropriate to use IOER as the primary tool to pull the funds rate up into a higher range when that becomes appropriate. Of course, the real question for today

is the role of our ON RRP facility during the policy normalization period. The three memos circulated by Powell and Tarullo, Plosser, and Kocherlakota all express concerns about the design and use of this program, and I share many of these concerns.

Revised principles have addressed many of these issues. Well, here are my views regarding the ON RRP program. President Fisher has tried the pronunciation "on rip." My own staff uses "on ramp," although it is really more of an off ramp, but that doesn't go with the "on."

During policy normalization, I believe the overnight program can play a useful role in defending our federal funds target range. However, I prefer that markets form an expectation that the program will be small and will only be used during the normalization period. The latest principles draft makes it clear we expect this program to be temporary. A smaller program cap of $250 billion to $300 billion further supports the formation of these expectations, as Governors Powell and Tarullo and President Plosser suggested.

In terms of the IOER to ON RRP spread, I can support the 25 basis point proposal, but I will say I'm sympathetic to President Plosser's suggestion that this spread start out at 50 basis points, and I guess President Lockhart's suggestion was similar, if I understood it correctly. Although this might limit the initial effectiveness of setting a floor for our federal funds target range, we don't know that with sufficient certainty. An initial wider spread will signal to markets the Committee's strong reluctance to use the ON RRP program vigorously. This would again reinforce the primary role of IOER and enhance the expectation that the program will be temporary, which I favor.

I think there's sufficient scope for experimenting with the spread initially. In my view, the initial setting for the funds rate floor is unlikely to be critical in the early stages of policy normalization in terms of generating financial restrictiveness. We're going to want to get this

started and exactly how quickly it goes up isn't going to be the critical issue, I anticipate. IOER ought to be able to exert most of the necessary lift even if the funds rate trades soft initially. Based on our monetary control discussion this morning, if we learn that we need a tighter spread, this will be valuable information and we can adjust our tools accordingly. And I think we could do it quickly. All this said, if the Committee prefers a 25 basis point spread, I can support that.

President Williams made reference to exhibit 5 on the principles versus tactics formulation of the statement. I haven't given this a lot of deep thought because it appeared only recently, and I haven't seen anybody describe much about this. I'm not sure I'm a fan of this formulation. The policy normalization principles are separate. They're stated at a high level, and they're kind of a snoozer. I think it's going to be ignored. It's boilerplate language. It's a little bit like airline takeoff precautions, if you read through them. I think that people will actually sort of ignore that part and go very quickly to the policy normalization tactics where the meat is, and that's where all the action will be. I think if we spread it out the way we've done it before it will be a little more effective, but that's just a personal view.

On the issue of delegating intermeeting adjustments to the Chair, I'm quite comfortable doing this for modest adjustments. It's the Chair's job to assess, navigate, and lead the consensus of the Committee regarding policy adjustments. I'm quite comfortable with the Chair's judgment on these assessments, and obviously any intermeeting adjustments will be carefully discussed at the next meeting.

Assuming the IOER to ON RRP spread is 25 basis points, I thought the draft FOMC statement and directive were pretty reasonable. If a larger 50 basis point spread were chosen, the obvious adjustments to the draft FOMC statement should work. The principles statement also does a good job giving markets and the public a good preview of what we'll be doing during

normalization, and at the same time making it clear that we don't expect ON RRP to be a permanent program.

My last point on this overnight program is that the Committee seems unsure of the benefits of the overnight reverse repo program and more comfortable with raising IOER more, and perhaps to higher levels, in order to gain monetary control. At the moment that's how I am, but the discussion of monetary control issues suggests the Committee may learn to value this overnight reverse repurchase program much more highly. And frankly, if this comes to pass, we should welcome all the hard work that the staff has done and the fact that it is there for us to take advantage of and quickly readjust. So I think we're in a pretty good place. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. First, let me add my thanks to the staff for once again providing a very useful set of memos. I think we've made considerable progress toward a consensus on both strategy and communications on normalization, in no small part due to the staff's excellent job of identifying the common ground among the participants. And I believe we're making more progress today.

I feel some urgency to reach a consensus so that we are fully prepared when we begin our exit from the period of extraordinary monetary policy accommodation. That time is sooner than we once thought, given the considerable improvements we've seen in labor market conditions and confirming evidence that inflation will gradually move back to our target. In light of the potential for continued upside surprises, I believe it's prudent that we are prepared in the event the Committee needs to act sooner than currently anticipated. My comments are meant to be constructive within that context.

Let me address strategy and program design first, questions 1 and 4, and communications next, questions 2 and 3. I broadly agree with the strategy outlined in the memo. I favor using a target range for the funds rate as the primary means of setting and communicating the stance of policy and using the interest rate on excess reserves as the main tool for ensuring that the funds rate remains within the FOMC's target range. I think it's going to be important in the initial stages of liftoff to show that we can raise the funds rate and hit our target range. Otherwise we risk the credibility of that range and the creation of a lot of confusion about the path of monetary policy, both to be avoided.

It's going to be important to communicate our tolerance for variation in the funds rate. Whatever we come to agree about that tolerance, at this point we don't know whether raising the IOER will be enough. So I'm reluctant to take any of the other tools off the table, including term deposits, asset sales, and the overnight reverse repurchase facility. That said, as I expressed at the last meeting, I do have concerns about the consequences of the ON RRPs for financial stability and market structure. As I see it, the goal is to address those concerns by setting up the facility so that it can serve its purpose in providing backup support for the IOER, but in a way that appropriately limits the overall footprint of the program.

Now, I know we're not expected to agree today on the numerical details, but I do want to say that I agree with the amendments to the staff proposal suggested by Governors Tarullo and Powell, and for similar reasons. Lower caps that bind from time to time even when markets are not in distress will help to limit the program and overall reliance on it by market participants and serve to underscore that the facility is meant to play only a supporting and temporary role. If it turns out we're having difficulty keeping the funds rate above the lower edge of the target range, then we're going to need to think about the tradeoffs between increased use of the reverse RPs,

and a higher IOER rate, or using term deposits, which would mean higher payments to banks—and large banks at that, and foreign banks at that. At that point, we'd also want to consider selling assets from our portfolio in a well-defined systematic path to lower the amount of excess reserves.

Given that the IOER rate and the ON RRP facility are going to be important aspects of normalization that the Committee as a whole will want to monitor, my preference would be, consistent with past practice, to ask that the Chair confer with the Committee, if feasible, before changes are made during an intermeeting period, especially an initial period in which we are all learning from experience.

Turning to communications, as I said at our last meeting, the communications surrounding the choices we make about normalization are going to be very important to how smoothly normalization will actually proceed. I'm going to refrain from making detailed comments about the directive and the illustrative time-of-liftoff FOMC statement included in the memo. More broadly, I support communicating policy in terms of the funds rate target and when a change is made, including language on the change and the related changes in the IOER and primary credit rates in the FOMC statement, and I prefer references to the ON RRPs to be in the directive to the Desk and not in the statement.

Because of the scrutiny the FOMC statement receives, major changes tend to be far and few between. The beginning of normalization will require careful communication. Accordingly, I see this as a rare opportunity to evaluate the current statement's format and language, including the forward-guidance piece, and to consider improvements that will serve the Committee well as we navigate the turning tide in normalization.

Finally, regarding the draft normalization principles, I'm very supportive of providing a set of principles to the public in September. I believe the revised principles circulated yesterday have captured many areas of agreement among participants and were responsive to many of the comments that I sent in on the earlier draft. I think the challenge is to craft a statement of principles that appropriately balances generality and specificity to be a useful communications device. I think the revisions moved us closer to that, and in hindsight, I guess I view the June 2011 exit-strategy principles as probably too tactical. The separation of principles and tactics in the second version of the revision is probably beneficial, but if we go that route, then I think we should be more explicit in the final paragraph that principles are less likely to be revised than tactics.

I would support the white paper, which is mentioned in the memo, to explain the tools. I would not be in favor of doing a consultation paper in advance.

I also want to note that in the revision in exhibit 5, there is now no mention of a target federal funds rate in the principles section. That's been moved to tactics. I guess my understanding is that I thought we had agreed that we were going to have a target federal funds rate. So if that's a subtle decision that we're not going to be targeting a funds rate, even as a range of a funds rate, I think that will be something we want to discuss more fully. My understanding is that we had agreed, sort of in principle, to have a target, notwithstanding the difficulties of hitting the target.

One remaining issue is asset sales. I think the revision does a better job of explaining our intention about asset sales. My preference would be to leave ourselves a little more room to revise our sales strategy as we go forward. We may decide that sales will be a useful tool in shrinking our balance sheet at a faster pace than currently anticipated. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I have three main comments, which I'll list here, and then I'll provide some background on my comments. First, I think the federal funds rate is overemphasized as the key policy rate in the approach to normalization outlined in the two staff memos for this meeting. I will suggest that it may be prudent to de-emphasize references to the federal funds rate as the key policy rate during this period, and in this regard I share some of the views of President Rosengren. This is just going to follow on some of the comments I made at the previous meeting. Second, I would prefer to make some changes to the restated normalization principles to bring them closer to what the Committee agreed to in 2011. I would prefer to say much less concerning the federal funds rate. I think we should handle reinvestment as we did in 2011, and like President Mester, I think we should maintain more optionality for selling assets. And third, in other areas, I'm broadly supportive of the approach to normalization and of the proposed design of the overnight reverse repurchase facility.

Let me now just walk through the questions that were asked in order. On question 1—which concerns general support for the method of conducting monetary policy during normalization as described in the staff memos and also whether the Chair should have authority to change the IOER, the overnight reverse repurchase rate, or the caps on an intermeeting basis in order to keep the effective federal funds rate within the target range—in broad terms I'm supportive of using IOER and the proposed overnight RRP facility to normalize interest rates. My main objection is that I do not think we can afford to emphasize the federal funds rate as much as it is emphasized in these memos as the primary tool of monetary policy. The federal funds market is not, at the present time, a sufficiently robust market on which to base United States monetary policy. What we are proposing is the federal funds rate on crutches. The

federal funds rate today is determined by a small number of idiosyncratic players, and movements in the effective rate can be idiosyncratic. There is also some small chance that the market would cease to exist altogether during the period of normalization. By contrast, the IOER applies to reserve holdings in the banking system and the overnight RRP facility touches on a broad range of institutions. In short, the federal funds rate is a rate that does not matter in a macroeconomic sense. It is the IOER and the ON RRP rates that matter, macroeconomically speaking. Of these two, the overnight reverse repurchase rate is probably the more important.

Let's think about the federal funds rate as dominated by noise trading. The staff analysis suggests that, should the federal funds rate trade outside of the range assigned by the FOMC, the reaction may be to change the IOER rate, the overnight RRP rate, or both, to encourage federal funds trading within the target range. I find this suggestion especially worrisome. It would mean that noise trading in the federal funds market would be a driver of U.S. monetary policy because idiosyncratic trades occurring there would induce changes in policy rates of far more import, namely the IOER and the overnight RRP rates.

That could have important macroeconomic effects, but in response to noise trades. What can be done about this? I suggest that we do not put heavy emphasis on the federal funds rate as the key policy rate. Instead, we should say that all three rates are important and that we expect the federal funds rate to trade between the IOER and the overnight RRP rates. We should then say that if the federal funds rate does not trade between the two rates because of idiosyncratic factors in that market, we may base policy solely on the IOER rate and the overnight RRP rate in the future. This modified approach might keep us from changing rates of consequence in response to vagaries in the federal funds market.

It follows from these comments that I do not support giving the Chair authority to change the IOER rate, the overnight RRP rate, or caps in order to keep the federal funds rate in a specified trading range. Instead, should the federal funds rate consistently trade outside the Committee's specified range, the Committee should convene and consider putting out a statement that the key policy rates are the IOER and the overnight RRP rates. I would keep the overnight RRP rate in this situation, as I feel it intersects with a broader set of counterparties than reliance on IOER alone. The U.S. banking system is only 20 percent of U.S. financial intermediation, and in the future we're probably going to have to do better than that in order to influence short-term interest rates. In short, if the proposed system does not work as intended, I think we will have little choice but to de-emphasize the federal funds rate as the key policy rate.

Let me now turn briefly to financial-stability issues. I have some sympathy with President Kocherlakota's call for a fuller discussion with the private sector concerning the possible implications of the overnight RRP facility for financial stability. It is certainly a fair comment that we do not, at present, have a good handle on the possible financial-stability effects of the overnight RRP facility. Still, my bottom line on this issue is that in a true financial crisis, the Committee will have to make decisions about appropriate actions to take, and that it would be difficult to script those actions sitting here today. Since this is the case, I prefer to lean against allowing financial-stability concerns to get in the way of implementing monetary policy during the period of policy normalization.

On question 2, which concerns proposed communications, I'm broadly supportive of the proposal as in the staff's suggestion.

On question 3, which concerns newly proposed normalization principles, I have the following comments. Bullet 2 of the proposed principles, along with the sub-bullets, mentions

the federal funds rate five times. Today's updated versions are not that much different. In my view, this is way overdone. I propose simply eliminating the three sub-bullets of bullet 2 in exhibit 4. The federal funds rate would then just be mentioned once in conjunction with other short-term interest rates. I think this would more correctly characterize the state of affairs, which I see as moving the three interest rates in tandem if everything goes according to plan, and I think it would better reflect that reality. As written, the bullets convey far too much technical detail, really tactics and not principles. If we do go to exhibit 5 instead, I would eliminate the tactics section altogether.

On reinvestment, I suggest simply keeping bullet 2 from the 2011 exit principles. One issue with these principles is how useful and credible they are if the Committee is willing to shift to a new set of principles as the time for implementation draws near. Bullet 2 from 2011 would restate that the Committee "will likely first cease reinvesting some or all payments of principal on the securities holdings in the SOMA." As I argued last time, I think it would be useful for the Committee to be able to cease reinvestment as an intermediate step between the ending of the QE program and the date of first liftoff in the policy rate. Also, this could be done in a more managed way by partially ceasing reinvestment or by reinvesting in shorter-term Treasury securities and partially undoing our twist operation that we did earlier in the period of unconventional monetary policy. I do not think that the macroeconomic impact would be large, but I do think it would help the credibility of the Committee by beginning to shrink the balance sheet, even if it were in a passive way. I think it would also signal that the Committee felt comfortable enough with the state of the economy that the time of policy rate liftoff was drawing near.

I would also remove the second sub-bullet in the proposed normalization principles concerning the sales of MBS. In this area, I agree with some of the comments of President Lockhart. I see no reason to commit to this in these principles. I prefer to keep options on the table. The situation might change as we go down the road and we decide what we want to do. I also agreed with President Fisher's suggestion that we could add a clause, at a minimum, to the MBS feature in this statement. The clause was, as I recall it, to say that if the housing market was quite robust, then possibly we would consider selling MBS. I think we could have something like that included.

In general, in very broad terms I would actually prefer to keep the 2011 exit principles as opposed to moving to the 2014 set of principles. It seems to me that we will be gaining very little while possibly sowing considerable confusion with the new set of exit principles.

Question 4 concerns the broad design of the overnight reverse repurchase facility. I'm okay on most of these dimensions. I'll just mention them here: The 25 basis point spread, I'm okay with that. Circuit breaker cap is fine with me. The $500 billion limit cap is fine with me. The testing proposal is also okay with me. I'm actually fine with the broad design. Those are my comments, Madam Chair. Thank you.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. I, too, thank the staff, and I think given the range of views and discussion today, I'm going to hit my answers to the questions at a generally high level. I do support the approach to conducting monetary policy during normalization that's described in the first staff memo, using a range for the federal funds rate. If adjustments to that approach are needed to respond to substantive deviations, intermeeting calls, especially at the beginning of normalization, to consult with the Board and the Committee would seem

appropriate. However, once we have some experience, or if these adjustments are really of a technical nature, I would be comfortable providing the Chair authority to make intermeeting adjustments.

I support the revised normalization principles and the clarity they offer regarding the role of the overnight reverse repos and the long-run balance sheet size and characteristics, but I would be more comfortable if those principles allowed for asset sales under some circumstances; we might want to have that flexibility.

I'm comfortable with the broad design of the ON RRP. I view the wide spread and the use of caps as important. The proposed 25 basis point spread between the IOER and the ON RRP rates seems to be an appropriate starting point, realizing that narrowing that spread may be needed at some point to control rates.

I share the concerns that several have noted regarding market structure, financial stability, and expanding the Federal Reserve's role in financial markets, and to that end, I think the changes proposed by Governors Tarullo and Powell could be effective in addressing those concerns. Thank you.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. And like others, I'd like to thank the staff for their ongoing excellent work on a very challenging area of inquiry. As you suggested, Madam Chair, I think the most important issue facing the Committee right now is whether or not to commit to the use of the facility—as we call it, somewhat ominously, in Minnesota—in September. The memo I sent to the Committee on Saturday provides my view on that issue, so I'm going to elaborate on the key point that I made. And when I talk about committing to the use of the facility, what I am referring to is specific mention of it in the

normalization principles that we would be releasing in September, and I do support the idea of releasing normalization principles at that time.

To go back to the memo that we circulated on Saturday, we have heard from both staff and FOMC participants that the facility could have adverse effects on the industrial structure of short-term funding markets and on financial stability. Unfortunately, we have relatively little information with which to judge the magnitude of these downside risks and the effectiveness of possible mitigants of, for example, the kind that Governors Powell and Tarullo suggested.

We do have data from tests of the facility. These tests are necessarily incomplete. They cannot tell us the consequences of a larger or more permanent facility, nor how the facility would affect the economy in the event of a financial crisis—that's what I have in my notes here, but actually, the testing period has been a time of very low volatility overall in financial markets, so we actually don't even have a good test of how it would fare in what I would call a more normal period of volatility. I think we have received outstanding support, analysis, and advice from the Federal Reserve System staff. Nonetheless, I think we could benefit from receiving input from experts outside our own organization. As I indicated in the memo on Saturday, I think it would be useful for the FOMC to gather more information about the facility before committing to its use. In the memo, I recommended the Committee collect this information by issuing a public consultation paper, seeking public comment on that paper, and convening a conference of outside experts on financial stability and short-term funding markets to discuss it.

I think we do a lot of this information-gathering in a very informal way. I think the Desk in New York does a great job with their contacts. All of us, I presume, are reaching out to our contacts, some with small banks, some with large banks, and with other financial market participants. This is just a systematizing of that process and opening it up to the public for this

particular facility. This is not a discussion of the stance of monetary policy. The independence of this organization does require the kind of isolation that we impose on that process. It is, rather, a discussion of a particular tool, a particular enhancement of the tools that we have available to us. And as I say, I think it is merely making transparent and systematizing a process that we are already undergoing.

I indicated in the memo that I think there is a time frame in which all three of these steps could be accomplished by the end of October, in time for a decision at our December meeting. If you wanted to drop one of the three steps, I think convening a conference is not an essential feature here. I think the public consultation paper and the commentary on that one is the best.

Now, these three steps would give us more assurance that whatever choice we make is based on the best information and analysis available in the time that we need to make a decision. I think engaging the public in this way would enhance our reputation for transparency and would help us learn about the likely responses to our potential use of this tool. Some of them would be political, but some of them, just from market participants, about who is going to be hurt and who is going to benefit—I think we should have information about that before making judgments.

Now, I have been emphasizing our need to learn about the possible downside risks of the facility. The reason I have been doing that emphasis is because coming into this meeting, I saw the main decision before us right now as being whether to commit to the use of this tool in September. When you are making a commitment, the downside risks are the more relevant factor than the upside risks. But the information-gathering that I propose in my memo would have broader uses. And this gets to a point that I think President Lockhart was alluding to in his remarks. Actually, I am not necessarily comfortable with what we say about phasing out the facility either. I don't feel I know enough to make that judgment either.

One of the ways in which my staff helped me prepare for this meeting is by actually having a debate about whether or not we should have the overnight reverse repo facility. One of my staff was able to fulfill a lifelong dream and play Bill Dudley in real life. [Laughter] It was a career highlight.

And what became clear was there are some very good arguments on both sides that would be useful to gather more information about. Even if we decide to use the facility as we go through liftoff, we are going to face some key choices about how to use it. Right now, we are very nervous and scared because we don't have enough information, and so we are trying to scale back and commit ourselves to scaling it back. So we are going to commit to use it and commit not to use very much of it. I think if we go through the information-gathering steps, we might well learn information that would help us become more confident with using the facility, as well as information that might help us learn about mitigation of downside risks.

So my suggested approach, I think, leads to fairly short answers to the questions posed to us by staff. I am not supportive of the draft normalization principles as written, because I believe it is premature to be mentioning the overnight facility at this time. I would prefer just to make reference to supplementary tools. And I think that, in our current state of knowledge, not only would it be premature, but also there is a possibility of going through a process to acquire more learning. It's not just not mentioning for the sake of not mentioning it. I have sketched a process whereby we could gather more information. And, Madam Chair, you said we don't need to nail down details of the facility at this time, and I would concur with that. The time between today and liftoff is certainly compressing, but I think we still have time to work on that.

I like exhibit 5 better than exhibit 4. I agree with the amendment that President Mester suggested there, to make it clear that principles are more likely to be with us than tactics, which are more likely to change in response to the evolution of economic conditions.

We were asked about delegating certain intermeeting adjustments to the rate on the overnight reverse repo facility to the Chair. I just don't see the need for such delegation, given our ability to meet very quickly with today's technology.

Let me make three quick comments here. If we do commit to a phaseout of the kind that is envisioned in the principles that were circulated yesterday, I would recommend making it more than verbal. I think it would be nice to try to structure some automaticity into the phaseout, talking about maybe having the spread get larger as the rate of interest on excess reserves gets higher. Presumably, we might not be insisting on a 25 basis point spread once interest rates are back up to 400 basis points. We might be willing to live with a larger spread. So maybe there is some way to build that into the description of the facility—but that is just one idea. I think it's good to have structural features of the facility translate directly into its becoming less useful as we go through time.

I would delay the expansion of counterparties until after the normalization principles are released. And President Rosengren's little experiment of raising the IOER in a technical way—of course, that's the whole art—how do you tell people it's technical? But I think that's a very clever idea, that could be very informative to us. The way I would try to make it technical as opposed to a true tightening is to do it for a two- to three-week period. We raise IOER for 10 basis points for two to three weeks, and then bring it back down and see what we can learn from that. Maybe we don't learn much, but I am optimistic that it would be informative about the impact on short-term rates. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you. I am generally comfortable with the approach outlined in the staff memos. I do want to compliment the staff on the quality of the work. It is no easy task to take the musings of 17 different FOMC participants, try to boil that down to a coherent proposal that we could all agree to. I'm going to try to address the major substantive issues, so where I'm silent you can assume that I am in agreement with the staff proposal.

The first major point concerns the use of the overnight RRP facility. As I see it, the point of the facility is to help ensure that we have adequate monetary policy control. That is, we are able to control the constellation of money market rates sufficiently well so that we can affect financial conditions in a way consistent with the Committee's dual mandate goals. I agree with others that we should rely on the overnight RRP facility only as much as needed to ensure adequate monetary policy control. If we could have sufficient control with the overnight RRP, with a relatively wide spread and small take-up, that would be a good outcome. And if we could ultimately move to just having the IOER do all the lifting, that would probably be even a better outcome.

My own view is that the staff proposal, starting with 25 basis point spread, is a reasonable starting point. It seems likely to generate sufficient monetary policy control while keeping the footprint of the overnight RRP facility quite small. But I think we have to view this as just a starting point, because we are making a guess about what the optimal tradeoff is between monetary control and the size and footprint of the facility. I could imagine we could find that we have excellent control at a 25 basis point spread, and if we did that, we might consider widening the spread to further reduce the size of the footprint of the facility. Conversely, if we find that

our monetary control is less than anticipated and the take-up of the facility isn't very large, you might consider that narrowing the spread and accepting a somewhat larger take-up through the overnight RRP facility is appropriate.

Now, there is a legitimate question of how to arrive at this optimal tradeoff between control and footprint. And around the table people have said, "Well, we could conceivably start by just raising the IOER and leaving the overnight RRP rate unchanged at 5 basis points, and see if that was sufficient for monetary policy control." But to me, I think that raises the risk of a messy liftoff. It seems to me it would be better to start with something like the staff proposal, the 25 basis point spread, and then evaluate whether the spread could be widened, and sufficient monetary policy control achieved, by leaning more heavily on the IOER. Initially, I have two goals—minimize the risk on liftoff with respect to monetary policy control, and have the opportunity to gain more information about the tradeoff between spread size and monetary policy control. And then we use that to decide our subsequent adjustments.

With respect to the long-term use of the overnight RRP facility, I very much see this as a supplemental and temporary tool of monetary policy. And to ensure it stays that way, I think we have to be explicit about that in our principles. So I am very happy with the revised principles. I also think it is important to recognize that it is highly likely that the need for an overnight RRP facility should lessen as the balance sheet starts to normalize because reserves will become scarcer and arbitrage should work better when that occurs. I think we should understand that the overnight RRP facility is really most important when the balance sheet is at its biggest point, where we are today.

With respect to the caps, I thought that the staff made a very compelling case for both an aggregate cap and a circuit breaker limit on daily movement and activity. But if we really are

going to set the facility so the aggregate use isn't that large, I think the incremental benefit of having a circuit breaker is pretty small. If we end up with a facility that has a cap of $300 billion or $400 billion and usage of $150 billion to $200 billion, that $150 billion of headroom—you just don't gain that much by having that circuit breaker cap if you only have $150 billion of headroom to play with. So I don't think that incremental benefit is very large.

Now, with respect to the issue of the size of the facility, I think it is really too soon to be clear about what that aggregate cap should be. When we introduce this, we really want to make sure that we have sufficient headroom so that when the facility is introduced you are not running into the cap frequently. If you are running into the cap frequently, then you are actually going to lose monetary policy control. So to go back to the Powell-Tarullo memo, if we had a $300 billion cap and the take-up of the facility was $150 billion, I think that would work very well, because you would have $150 billion of headroom. But if you were in the less fortunate circumstance of April, or maybe the take-up of the facility was $250 billion and the cap was $300 billion, that is not a lot of headroom. You'd be sacrificing a lot of potential monetary policy control.

I think that we should continue to run the experiment over the next six to nine months, and we will learn a lot more about what the expected size of the facility is likely to be. We should try to do that in a form that is closest to how we think the facility will actually work when it is implemented, not in a testing phase but in the liftoff phase. And I think as we do that, then we can sort of decide what is an appropriate cap at the time of liftoff to make sure that there is sufficient headroom so you don't hit the cap a lot inadvertently and undermine monetary policy control, but not have a cap that is so high, way higher than necessary, that then would send the

wrong message to market participants about how important this facility is supposed to be over the longer term.

The third point I would make with respect to the revised exit principles is that I think we should be explicit that we do plan to let the balance sheet normalize primarily by securities maturing and running off. I'm happy to entertain language that gives us a little bit more flexibility than what we have right now, but I think that if we really think that the balance sheet is going to be set mostly on autopilot, if we really think that's the most likely scenario, then I think we should be clear to people that that's how we are going to behave. I completely agree that the world can change and we could decide that we want to use the balance sheet in a more active way. But if most of us really think that it's going to be on autopilot, I think it is better to communicate that as an expectation to markets, because otherwise it is just going to be an open issue and people are going to be musing about it and asking questions of the Chair at every press conference. I think it would better to tamp that down a bit.

The fourth point I'd make is about making the federal funds rate more robust. We have essentially deferred the discussion about what to do with the federal funds rate to a future meeting, but it's pretty important. I mean, if the overnight RRP counterparty list ultimately is going to expand further, the arbitrage from the GSEs to the banks, particularly foreign banking organizations, could lessen further, diminishing the volume of the federal funds rate transactions and making the federal funds rate even more idiosyncratic. Now, to me, the way out of this dilemma is not to move away from the federal funds rate as a target but to change the concept of what we target to an overnight borrowing rate that includes Eurodollar borrowings undertaken by U.S. banks and foreign banks operating in the United States. I don't think that is very controversial, if we were to move to that. I think it would make a much more robust instrument

in terms of what we're targeting. The trickier issue is if we do move to this new borrowing rate, what do we call it? Do we have the old effective funds rate and the old definition? Do we also then have this new rate, or do we just move to a new definition of the federal funds rate? So that's something I think we really do need to talk about at a future meeting.

This is also very relevant in terms of all of the discussion of reference rates and all of the trillions of dollars of derivatives contracts that reference the federal funds rate. It is not just a monetary policy issue; it is also an important issue with respect to reference rates.

Finally, on the issue of the timing of redemptions, I'd just reiterate what I said at the June meeting. I think ending reinvestments before raising short-term rates could conceivably delay liftoff in certain states of the world. And I think that would be unfortunate, because it seems to me that getting off the zero lower bound is completely possible, consistent with our dual mandate objectives, and is important in order to regain monetary policy flexibility. I also think that if we delay ending reinvestment until after liftoff, it will simplify our communications. There will be only one moving part, short-term interest rates, rather than two. So I very much favor ending the reinvestment after liftoff rather than before.

I think Richard Fisher has suggested "shortly after." I think that is a little too prescriptive. I can imagine a situation where we lift off, the market reacts violently, we have a repeat of the taper tantrum, and then we have redemptions ending automatically shortly thereafter. That would be, I think, not such a pleasant place to be.

Now, as far as this issue of giving discretion to the Chair, I think it is completely reasonable to give discretion to the Chair about the tactics needed to keep the federal funds rate target in its range. I think it is completely unreasonable to delegate to the Chair changes in the federal funds rate target rate. So I would discriminate between giving discretion to the Chair to

move the target range around from making tactical choices in terms of IOER or the spread between overnight RRP and IOER to keep the funds rate in its range. It seems to me like that does not require a videoconference for that sort of tactical change. The Desk periodically makes decisions. I mean, back when we were running a corridor system, we had to make decisions every day about what intervention was appropriate to keep the federal funds rate at its target. And we did not have a videoconference every day to address, "Should we do a system of overnight RRP? Should we do customer RP?" I think the kind of things that we are talking about delegating to the Chair are the things of that nature—how we used to run a corridor system. So I think delegating to the Chair the tactics of how you keep the federal funds rate in its range is completely reasonable, in my opinion.

CHAIR YELLEN. President Fisher.

MR. FISHER. If I may, Madam Chair, Vice Chairman Dudley, I'm not quite sure I understand why, if we are to reduce or taper reinvestments, it forestalls our raising rates. Could you walk me through that, please?

VICE CHAIRMAN DUDLEY. Well, the question is, what is the market going to take as the timing of the first move to tightening? If we were to end reinvestment before the tightening of short-term rates—

MR. FISHER. Not end, but begin to taper. But either point.

VICE CHAIRMAN DUDLEY. The market is going to say, "Okay. Now they are about to lift off." There could be a significant tightening of financial conditions. We just don't know how big the reaction is going to be to that decision. And if it was a very large reaction like we had last summer, we might not actually feel comfortable, then, actually raising short-term rates. And so I think it is cleaner just to raise short-term rates first, and then leave the redemption

decision for later, having the ability to judge what the market reaction is to that initial lift. I mean, in theory, if everything went very smoothly and the market fully anticipated our actions, and there was no market mispositioning, when we lift off it should be a very trivial event and there is not going to be much change in financial conditions. But, as we saw last summer, even non-moves toward monetary policy tightening can lead to pretty significant moves in financial conditions. So I think we just want to be cautious as we go through that transition.

MR. FISHER. We have a difference of opinion, though, because I think it really is a function of communication, what we signal ahead of time.

On the second point, if I may, Madam Chair, still, "at some point" is a very broad hole you can drive a truck through. One possibility, just drop that and say "after it begins increasing." I just want to consider that. It may not be "shortly," but when we say "at some point" it's indefinite.

VICE CHAIRMAN DUDLEY. I understand that "at some point" is—

MR. FISHER. You might—I would just ask that you give some thought to that, and I apologize for interrupting.

VICE CHAIRMAN DUDLEY. I think we can look for language that was a little bit in between the indefiniteness of "some time" and not quite as automatic as "shortly after." There is probably some language in between.

MR. FISHER. Thank you.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. There have been two tensions driving this discussion. One is the need to demonstrate or to have the ability to run monetary policy, by which I mean being able to hit our interest rate, and I'll explain why I think that matters in a

moment, versus concerns about are we inventing a Frankenstein monster called ON RRP, or whatever set of initials we want to use for this thing. That's one of the tensions. The other is a tension over how much to try to predetermine future choices.

Let me start with the need to demonstrate the ability to run monetary policy. This institution could have been, if it had not handled this crisis well—and I mean the crisis after September 2008—in very bad shape today and thought of as incompetent. It wasn't incompetent. It wasn't impotent. It reestablished its reputation—I am speaking as somebody who didn't know he was ever going to be part of this institution—and as a result of showing really remarkable technical competence in running an extremely complicated set of programs without error, or at least without error that anybody on the outside was able to identify. [Laughter] Sorry if you are losing your lunches.

And I don't think we should be in a position in which, with our 22,000 employees, we have to go out and look for crowd justification for the measures we take. This organization is very good at what it does. It has to be a leader, not a follower of what a crowd of outside experts, and who knows who they'll be, will tell us. I just think we ought to make the decision and get on and make it, and that the thing we have to do is to be sure.

I want to answer the question of "with what probability," and I want to be as sure as we can be that we can hit the targets we set out to hit. And I believe that something which sounded really appealing to me at the beginning—well, first, we move up IOER, don't move the ON RRP rate, and see how it works and then adjust it—is a sign that we really wouldn't know what we are doing. And as President Williams said, there are a lot of people out there who say the Fed doesn't have the capacity to control monetary policy. If it doesn't, well, I don't know what

central banks are supposed to have the capacity to do, but controlling monetary policy seems to be high on the list. And I think we just need to assure ourselves that we can do it.

So when it comes down to the choice between using the overnight reverse repo facility and having more certainty about our capacity to effect the target which we have chosen to continue to use, despite some concerns that were expressed—I think validly—around this table about whether this market will survive, I think we have to come down on the side of going with the overnight reverse repo facility and the 25 basis point range that has been suggested. If we were a private group working something out, there could be attractions in the "let's try this and let's go ahead and gradually improve it" approach. We have got to really hit it hard from the beginning and show that we are in charge, because if we're not in charge we are going to have a mess in the markets. It is hard to describe exactly what it will be, but it will be a mess if the markets lose confidence in our ability to achieve the goals that we set out for ourselves.

The other tension is over how much to determine future choices. And this one is always hard. As I listened carefully—I hope nobody recognizes themselves. I recognize myself. Everybody wanted great flexibility on the things they thought they wanted to control, and they wanted to be certain about all of the other things, which other people might want to be controlling. And so my sense is that there are future choices we don't have to make now, and that flexibility would be quite desirable. And in that regard, let me just mention that there was some hankering after the June 2011 principles. Well, there are two of them which we have changed, and there is another one which looks as if we have changed it.

So three of those principles that we want to go back to, by agreement of this Committee, are no longer relevant. And so I like the principles that are set out by the staff in the proposed note, which is a considerable feat of draftsmanship, because as each new e-mail came in I said,

"Wow, how are they going to deal with this one?" And I think we got something which is pretty close to a consensus document and one—not only that, you know, getting a consensus about something that wouldn't work is not great. We have a consensus document about something that I think is going to actually be successful.

The question is, if we go for this facility, we have two questions. People really don't want it to become permanent, and I can understand that. The only way we can do that is by trying to find some way of tying our hands. Well, we can't do that legally. I don't think we can precommit a future Committee unless we involve the Congress, and I have a feeling we don't want to involve the Congress. We have to make it expensive for us not to go through with getting rid of this facility, and that is why we need the commitments in our current documents to phase it out—I don't know if the word should be "as soon as possible," but soon, as soon as we can do so, because I understand the concern. The concern is we are going to develop a whole industry around the overnight reverse repos and hedge funds and mutual funds, and God knows what will grow up, based on a facility which "the Fed had to invent in order to get out of the hole it had dug by buying these $4 trillion of securities." Well, we don't have to do that, and we should find a way of making sure that we don't do that.

Just a few other comments. I do wonder whether we shouldn't have some more discussion, either among ourselves or possibly in writing, of what are the alternatives. Suppose this scheme doesn't work. Do we know? Well, clearly, we can start selling assets if that's—

CHAIR YELLEN. We can.

MR. FISCHER. If that's what we have to do, and if we wanted to do that, we would have to make sure that that was done in a way which didn't frighten the heck out of everybody. And that would be why we wouldn't start right there at the moment.

I understand the argument that's made about why we shouldn't hang on to the MBS, but there are two problems there. Number one is—and here we are really into politics. Number one is, we'd better not be in a situation in which we have to use this creative accounting to explain how we are actually returning remittances to the Treasury when we are having difficulty doing that. And we'd be in much better shape if we could actually be making remittances to the Treasury throughout.

The second is, everybody gets used to everything. We are very used to good, old-fashioned neutral monetary policy. Well, it isn't neutral. When you raise the interest rate, you hit housing, you hit investment, and it is not neutral. It is just something we got used to and talk about it as if it's neutral, but it isn't. We face that problem all the time. Fortunately, it is accepted that that's the way we do business, but we have to make that choice all the time. And so I think there is some logic to the "let's keep the MBS until we don't need them any longer for revenue purposes, and let's hope that the housing market comes back sooner" approach.

Just to go through the questions—number 1, yes, I support the approach to conducting monetary policy during normalization. I would support giving the Chair the authority to make intermeeting—I had written down a series of adjectives and somebody came up with almost the identical set. I said small, technical changes, and we will have to define what is small and technical. First of all, I trust the judgment of the Chair, and the issue should be if we have to make a change that is "substantive"—I don't know how you would define that—but where we feel or you feel, the members of the Committee, that we are doing more than just a technical change. Then, we need to have a meeting to discuss that. I would ask the staff, who have been terrific in generating the statements of principles, to think about whether we can find a way of describing that.

The draft directive and postmeeting statement, fine. The draft statement of normalization principles, also fine. Now, there are things here—I'm sure we've done it in the Fed—that a lot of banks do, and institutions do, FAQs, frequently asked questions. And there are a lot of things around this facility which invite a set of answers to questions that people would ask—many of which questions have arisen around this table, incidentally. You could go through today's transcript and find out what people want to know. So that might be useful.

On the overnight RRP facility, 25 basis points, yes. Circuit breaker, I agree with those people who say it sounds too complicated and too finicky. Propose $500 billion, I guess I would prefer $400 billion, but somewhere around there. I do not think we should go on testing. Too much testing and we'll get more confused. I mean, everyone will be confused and we will each be all confused. I support going with the system we have now, and those are my answers. And like everyone else, I really do want to thank the staff. This is a very difficult set of issues, and it has been distilled to something we have been able to discuss in a very constructive way. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I support both the overall approach to normalization as set forth in the staff memo and also specifically the principles and strategy. Coming into the meeting, I thought that I would have supported either format, although I think Loretta makes a good point that trying to separate principles from tactics in a precise way may actually put too much emphasis on one or too little emphasis on the other and lead to questions as to how seriously committed we are to the so-called tactics. So I guess I would slightly lean in the direction of the first, more integrated articulation.

I also want to endorse the wise suggestion by the Chair, which I think a lot of you agree with, that we defer a decision on the specific features of an ON RRP facility until we have gathered more information, both by way of testing and—to elaborate on a point that I think Jeff made earlier—that the markets may do a bunch of work for us between now and the time we get to a decision on liftoff, which might make the necessary but limited parameters easier to zero in on. I'm not sure if Governor Powell said it in this meeting, but he said to me yesterday—he actually thinks a decision will be easier to reach closer to the time of liftoff than it is further in advance.

Having had the luxury of listening to almost all of you, to this point, I was struck by the consistency in my reaction to things that all of you said, both in agreement and disagreement. And that consistency sort of fell under the theme of what I would term the "bias of first impressions." And it kind of captures the tension, I think, that Governor Fischer was talking about a moment ago.

I think, as you all know from my June remarks and from the memo that Jay and I sent around, I have been very concerned with the financial stability, financial structure implications of the ON RRP facility. And many of the suggestions which we made in that memo—some of which might well be, as a technical matter, redundant—were designed to fashion the first impression that people have of the facility, and that is to say, a facility which was bound by a number of constraints and so was highly unlikely to develop into a key ongoing part of financial markets and was highly unlikely to serve as the basis for a business model of a particular kind of money market fund.

But alongside that first impression is the first impression of our liftoff decision. And as President Williams and Governor Fischer have, I think, very convincingly argued, there is going

to be enormous attention and focus on that first move, whether we like it or not. And we can sit here and say, "Ah, you know, we can adjust later, we don't need to quite get there right away, we know there will be some movement in rates up and down the yield curve." But I do think that, disproportionate to the arguable economic impact of falling somewhat short of the target range will be the reputational harm that is done within a few days of that first move. You know, for five and a half years I have listened to many of you talk about the importance of credibility of the central bank in a variety of ways. And this credibility—the credibility of competence, as Governor Fischer was expressing it, I think is really quite important.

That leads me to disagree with some who said that their instinct was to give no discretion to the Chair initially, but potentially to give more discretion over time. I think, like Governor Fischer, my default position would be giving discretion to the Chair, but I think it's particularly important that she have some discretion in that first, or perhaps first and second meetings, where we do attempt to raise rates, because as I said a moment ago, that's where all of the attention is going to be focused. If the first or first and second meetings are executed in a more or less smooth fashion, there will have been an enormous amount of credibility gained. And at that point, sort of missing a little bit or taking a little bit more time to get there will not have the repercussions that it will in that first impression.

Let me just offer for staff consideration, as they do more work between now and September, a possible compromise. Notwithstanding my own inclination, a possible compromise, as I think Bill was suggesting, might be to say on the ON RRP and IOER rates, we ought to give discretion, but maybe not on caps, or something of the sort.

I would say, though—and I can't remember who made this observation, but I thought it was a trenchant one—it is probably important to communicate in the Chair's September press

conference and in other arenas our expectation that some measure of fine-tuning may be required as we are lifting off, even in that first meeting. That is, we are not trying to promise a point-specific, or even a point-within-a-range-specific, outcome with enormous precision. And I think there would actually, with that kind of advance discussion, be some understanding and acceptance of the proposition that this is a different kind of removal of accommodation than existed pre-crisis. Not so much that it seems as though we are being fuzzy about what we are going to try to achieve, but at least enough to give us a bit of an insurance policy in advance and also to communicate the fact that this is a different kind of exercise.

The next point is that I think President Rosengren and others have raised an interesting issue about the simplicity of a single cap versus the complexity of having multiple caps. I am somewhat—somewhat—sympathetic to the argument that, again, in actual terms—that is, objective terms—setting a relatively low aggregate cap of the sort Governor Powell and I suggested should limit the potential for the other things we are worried about. I think we fashioned that, as John put it, "belt-and-suspenders" approach in substantial part in order to affect the first impression that people were getting. I do think, with the addition to the policy statement that was made over the last couple of days, that there will be some help from that principle or tactic, whatever it is, in supporting the idea that this is a confined facility. And thus, we may not need all of those safeguards that Jay and I suggested.

With respect to that statement of intention, I am going to, I think, simultaneously try to give Dennis a little comfort but also suggest why I would still have some discomfort with relying only on that statement of intention and not bringing the cap down. Speaking as a lawyer, I would be quite comfortable arguing the case on behalf of a future Committee that there was some need to continue to have the ON RRP because it was necessary to ensure monetary policy control,

given one's conception of what monetary policy control meant. You would need, in order to make a convincing case, to be able to point to some specific things that were happening that buttressed that case. As we sit here now, this statement will, I think, be an important signal. But it shouldn't be regarded by us as an absolute commitment, as it would be if we said we are going to phase it out at a specific point, either when the federal funds rate was at a certain point or on a certain date. That is also, though, the reason why I've thought that we still need a cap, and we need a cap that we are comfortable with because we don't—at least I don't want us to be in the position, some years from now, of being told by our staff that is trying just to be straightforward and do a good job, "Look, we have got a level of activity in this arena right now that is sufficiently large, that if you try to pull back on this facility, it could have some consequences in markets which will complicate your overall task of achieving the dual mandate."

I will end with just the point on testing. I think one of Governor Fischer's many important points was that we probably don't want to mess around too much with too many tests in too many contexts, because, as he said, that will confuse the markets and probably us. I do think, as many of you have suggested, some additional testing with features more like what we imagine the facility would look like at liftoff will be very useful in helping us to make that decision. I would urge that the initial testing parameters be set, at least with respect to the aggregate cap—what Governor Powell and I suggested was $300 billion—on the theory that that is the first impression that markets and others will get. And if we learn over the course of the next six or nine months that, as Vice Chairman Dudley anticipated, there is actually going to be too much hitting of the cap in that process, that allows us to think either about spreads or caps or both, or some other feature, and then to make a decision later on. But I feel it would be better

advised to go in that direction rather than to start with something that looks larger, which will impress upon markets that the FOMC intends this to be a pretty big thing.

My final comment is I do think that we are going to get the benefit of a lot of reaction, perhaps more in some forms beyond what we think is, strictly speaking, helpful. But as we include, as I would urge, the existence of an ON RRP facility in our principles, with the kind of qualifications that are included in here, and as the Chair elaborates a little bit, I presume, at her press conference in September about this, and maybe makes further reference to it in speeches or testimony, we are going to elicit a bunch of reaction and commentary. Markets, analysts are going to start masticating whatever it is that she says, whatever it is that comes out in the minutes. And I think over the course of the next 6 to 9 or 12, however many months it ends up being, we actually will learn a lot, and I think we should learn a lot. My guess is we will learn pretty much what we would have learned through some more formalized processes, and without needing to worry about whether we're setting precedents about a notice and comment approach to monetary policy. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Let me start with aggregate caps, and I commit that I will come in under a 500-word cap, given how late we are in the process. Generally speaking, I support finalizing a plan to be announced in September that addresses the key elements of a monetary policy normalization framework. I think it's really important to send a signal that careful preparations are underway for the normalization of the stance and conduct of monetary policy once the data warrant it. I put a very high premium on establishing, at the outset, the credibility of our ability to execute that plan, and everything follows from that. Due to the unprecedented

size of reserves in the system, I think it is critically important to demonstrate at the very outset that we can exert effective monetary control as we come off the zero lower bound.

I have to say, I didn't actually understand the line of reasoning being pursued earlier that it might not matter if we fail to hit the target range for the federal funds rate, and that we could simply keep trying until we did. Given that we are in completely uncharted territory, and there is substantial concern and commentary in the markets, and, more broadly, that we won't be able to achieve our stated goals, it seems to me to be of utmost importance that market participants have full confidence at the outset that we can effectively influence the path of short-term rates. I think we only have to look around the world at recent episodes in which central banks have failed to do that to see how very costly it is to regain credibility after a misstep. So I would prefer to start more cautiously and widen over time, rather than the reverse, which some have suggested, of starting a little looser, experimenting, and then thinking we can get tighter.

The critical importance of credible execution leads me to strongly support continuing with a range as opposed to a point target for the federal funds rate. In addition, I would support maintaining the federal funds rate as the focus, recognizing that this market is fairly unusual and thinly traded at the moment. Nonetheless, there are substantial benefits, I think, in maintaining a policy framework that is familiar under circumstances that are, in all other respects, not at all familiar.

Second, the critical importance of establishing credibility argues strongly for employing the overnight reverse repo facility as a floor during the launch and initial stages, while making clear this is a subsidiary tool to the IOER. The concerns that have been stated here, I think, are very real—concerns about ensuring that this instrument is designed in a way that its presence doesn't alter the market structure, and it doesn't amplify run risk. It strikes me that the proposal

on the table does the appropriate balancing between the need for effective monetary control and avoiding those two very important risks. In particular, I think the language that has been artfully crafted to establish clearly at the outset that the overnight reverse repo facility will be used only to the extent and for the duration necessary to exercise effective monetary policy control is very important. The proposal for an aggregate cap, together with the ability to widen the spread, and then the language that I just referenced, adequately addresses the financial-stability and market structure risks.

I agree with the Chair's suggestion to defer questions on the size of the cap, pending further analysis once the decision here is clear. With regard to the spread, I think the proposed initial one-for-one correspondence between the target range for the federal funds rate and the spread between the IOER and the overnight reverse repo rates has a certain appealing elegance. Nonetheless, I would at least presume that we have in mind that over time, as reserve balances diminish, that increasingly the federal funds rate is going to trade closer to the top of that range, increasingly anchored by the IOER, and that we will progressively widen the spread between IOER and the overnight reverse repo rates in order to further downplay the role of the latter rate, even as we might over time be tightening the range for the federal funds rate, so as to gradually phase out this facility altogether.

With regard to intermeeting adjustments, the proposal to delegate authority to the Chair seems to me eminently practical. The one thing that I would suggest, having listened to the intensity of this engagement for two meetings now, and to the very good questions that are being raised, is that I think it might be valuable to provide the participants, the Committee members, an opportunity to get on the phone or a videoconference to consult in advance, not for decisionmaking purposes, but so as to give members of this Committee more of a real-time sense

of how the markets are adjusting to the monetary policy framework at moments when it isn't actually performing as was anticipated or projected.

Finally, on the reinvestment, I think the language gets it just about right. I read it as preserving constructive ambiguity to have the debate about sales versus runoff at a later date. I think the real news here is to clarify that liftoff will take place before reinvestment ceases. And that too, I think, follows very straightforwardly and compellingly from the critical importance of reestablishing effective monetary control. I think that sequence is just a logical follow-on from the primacy that we are placing on monetary control. That's it.

CHAIR YELLEN. Well, thank you, everybody. I really appreciate your comments. I think we have had another productive discussion, and obviously a wide range of views have been expressed. To wrap up, I thought I might try to summarize where I think we stand. On the approach to normalization, I heard widespread support for the overall approach that staff have proposed. That includes retaining the federal funds rate as our key policy rate and continuing to target a 25 basis point range for this rate during the process of normalization. I also heard considerable support for using IOER as our main tool to raise and control rates. Initially, we would set this rate at the top of our target range for the federal funds rate, but we certainly could make adjustments over time, if necessary, to help keep the federal funds rate within the target range. On redemptions, I think the majority seems comfortable ceasing reinvestment after liftoff rather than before, but I certainly heard a few of you who think the opposite: Ceasing reinvestment first is the better approach.

Views on the use of the overnight RRP facility were passionate and mixed, but I think there is broad support for the notion that the facility should play some role—although a carefully calibrated one—in the normalization process in order to improve our control over the funds rate.

I think many of you agree, and I would concur, that the presumption should be that the overnight RRP facility will not be permanent, and that our communications need to reflect that, as in the revised normalization principles document that staff circulated. I think your concerns about the facility incline most of you to keep the overall size of the facility on the smaller end of the spectrum, but the size should be sufficient to afford some control over rates. I think where we have come out is that we have agreed that we have a bit of time before we need to set numerical parameters, and that we can benefit from further analysis and testing and come back to this, and also perhaps reconsider, especially if we end up with a somewhat lower cap, whether we actually need two caps, both an overall cap and also a dynamic cap.

With respect to the spread between IOER and the overnight RRP rates, I heard support for a relatively wide spread, as proposed by the staff, and it is something that will also serve to limit the size of the facility. Now, conceivably, as many of you pointed out, the spread can be wider, it may be possible for it to be wider than the 25 basis points proposed by the staff. Several of you suggested experimenting right at the outset with a wider spread to see if the facility is even necessary to establish a floor on the funds rate. It is conceivable that moving up IOER alone might suffice. I have to say my own preference is to avoid experimentation on day one and instead to set the overnight RRP rate at the floor of our target range. And, like a number of other speakers, I consider it very important, too, at the outset of the tightening process to ensure that the funds rate moves up rapidly into our new target range so that liftoff occurs smoothly.

I think after six years of near-zero interest rates, and as President Williams pointed out, chronic concerns among many that our balance sheet is simply too large for us to control short-term rates, I do believe we need to convincingly demonstrate that we, as we have long

emphasized, actually have the tools and the technical expertise to control short-term interest rates. And so I see making sure that the funds rate moves up into our new target range as important. So to me, experimentation in those first days after policy tightening is something that could prove immensely costly. I recognize that, conceivably, we could design our communications to explain that the initial phase of liftoff would involve experimentation and to set market expectations accordingly, not to expect a rapid move-up in the funds rate and some experimentation. But I believe it would be very challenging.

That said, I do see the potential for experimentation to determine whether or not we can diminish the role of the facility and widen the spread as the tightening process proceeds. And over time, I think we can consider allowing the spread to widen as a disincentive for the facility's use. But clearly, there are a wide range of opinions here, and I think this is an area in which more debate is probably going to be necessary before deciding what we should do.

Regarding testing, I think most of you think it's prudent to test the new features of the overnight RRP facility later this year to prepare market participants to gain experience with the auction structure and caps. I think I heard agreement that our other tools, like the term deposit facility, should be kept in reserve and perhaps referred to in our revised statement. More generally, I think we all agree on the importance of maintaining flexibility as the normalization process evolves, in case we need to make adjustments along the way.

A number of you indicated that you would be willing to delegate to me, as Chair, the authority to make circumscribed or small and technical changes to administered interest rates in order to keep the effective funds rate within the target range set by the Committee, but I certainly did hear a number of you express concerns about such a delegation. Let me be clear that if you were to delegate that decisionmaking to me, I would of course try to consult, if at all feasible,

through a call or videoconference with you before making any adjustments. And in any case, there is no doubt that we would be in close consultation during the initial stages of normalization.

Regarding communications, I think I heard general support for the revised version of the normalization principles that were circulated by staff. There were different views on this, but I did hear quite a bit of support for the revised organization proposed by President Kocherlakota. I think maybe we will come back and circle around with you to try to get a better view about which organization you think is preferable.

In light of today's discussion, we obviously have a couple of issues concerning the normalization principles still to sort out, so I will ask staff to circulate another revised version of the normalization principles very soon for you to comment on. I very much hope that we can reach agreement on them by the time we are heading into the September meeting, with the expectation that we will be releasing them to the public with the postmeeting policy statement so that I can discuss them in the press conference. The directive and postmeeting statements, I think I heard some expression that we are off to a good start on that. And of course we have time to further sort out details.

So that was the set of takeaways that I had, and I would ask, before we end this, if anyone has comments on my summary or whether or not there are further comments. President Kocherlakota.

MR. KOCHERLAKOTA. Madam Chair, I thought that was a very helpful summary of the, as you said yourself, wide range of perspectives we heard. The one question I had is the question that Simon raised during his presentation about the extension of counterparties. Not

everyone commented on that, and I was just wondering what the sense of the Committee was on that.

CHAIR YELLEN. I think my sense was that we would wait.

MR. POTTER. Yes, I think that was clear that we can wait six more weeks. It takes longer for them to be there, but just to be clear, this is a limited set of money funds and FHLBs who might want to relook at the facility. It's not an expansion to a different class of counterparties whatsoever.

MR. KOCHERLAKOTA. That's helpful. Thank you.

CHAIR YELLEN. Okay. Thank you very much. Let me just state that this concludes our Board meeting, and now we're just an FOMC meeting. That's plenty, but that's it. The next thing is, we have a little bit of the changing of the guard at the table, and we'll go to the staff now and turn to economic and financial developments. We will take a 15-minute break, and then we'll return.

[Coffee break]

CHAIR YELLEN. Okay. Let me turn things over to David Wilcox for discussion of the forecast.

> MR. WILCOX.[3] Thank you, Madam Chair. I'll be referring to the one-page exhibit labeled "Material for Forecast Summary." Social media being all the rage these days, I thought I'd demonstrate my agility by climbing aboard a mere decade or so after the fact and try my hand at composing the Twitter version of the Tealbook that we sent you last week. I think it would go something like this: "U.S. economy looks to have been running warmer than earlier thought, not cooler; we've extended that better trend into the future a bit." That's 133 characters, including spaces, even with the typical staff qualifier "a bit." I could stop there, but lest you think I'm going to let you off easy, let me dash your hopes immediately.
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> If all you knew about the U.S. economy lately was the information that we have about GDP growth in the first half of this year, you would probably be mighty confused by the Twitter version of the Tealbook. After all, as you can see from the

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

first panel of your forecast summary exhibit, the data flow since the June Tealbook points to a sizable downward revision to real GDP growth in the first half of this year, to just ¼ percent at an annual rate, 1 percentage point lower than our June projection. To make a long story short—though not quite Twitter length—we ultimately decided to treat that reading on GDP in the first half essentially as if it were driven by measurement error and on that rationale left our growth estimates for the second half and later mostly unrevised.

Dave Stockton became famous for his remark at one of these meetings in 2004 that the staff forecast he was presenting then had a half-life shorter than a jar of mayonnaise in the Mojave Desert. Our forecast this time could make Stockton's look like the Moai statues on Easter Island by comparison, because we are scheduled to be proven wrong at 8:30 tomorrow morning [laughter], when the BEA will publish its first estimate of second-quarter GDP, together with the annual revision to the national accounts three years back.

In contrast to the latest readings on GDP, the news on the labor market has, on balance, surprised us to the upside. In the establishment survey, the level of payroll employment in June was 90,000 higher than our previous Tealbook forecast. In the household survey, as shown in panel 2 of your exhibit, the unemployment rate in June came in 0.2 percentage point below our previous projection. Long-term unemployment has come down, initial claims for unemployment insurance benefits have been low, and job openings have moved up. As a result, even though the labor force participation rate held steady rather than edging up as we'd projected, we judge overall labor market conditions to have improved, and our black-box summary measure of 19 labor market indicators concurs with that view.

The labor market data were not alone in pointing to a stronger pace of expansion. For example, while the NIPA data imply a plunge in industrial-sector output in the first quarter, our own industrial production index posted a respectable gain over the same period (and the statistical evidence suggests that when such gaps have opened up in the past, the NIPA-based measure tends to correct toward the IP index rather than the other way around). With stronger IP growth than we'd expected, second-quarter manufacturing capacity utilization is now running a little tighter than we had projected. More broadly, business surveys including the national surveys of purchasing managers and your own regional surveys have generally been quite upbeat, not at all consistent with essentially flat GDP during the first half.

Based on these considerations, we concluded that slack in the economy is probably being taken up a little more quickly than we thought in June. Moreover, especially in light of the repeated downside surprises in the unemployment rate that we've experienced over the past couple of years, we penciled in a slightly faster rate of uptake for the period ahead.

With *weaker* measured GDP growth but a judgment that resource utilization was running *tighter* than anticipated, we were compelled to adjust down our estimate of potential GDP in 2014. The result is that we have potential GDP growth averaging

zero this year. We don't take this estimate terribly seriously as a gauge of how quickly the sustainable capacity of the economy is expanding, but instead see it as subsuming whatever measurement error is present in GDP, thereby achieving the larger purpose of delivering to you an estimate of the output gap that better conforms with our assessment of how much economic slack remains to be taken up.

The net result is shown in panel 3, which plots the GDP gaps from the July and June Tealbooks. As you can see, we now estimate that the GDP gap—like its unemployment-based cousin—will close about a year from now, three calendar quarters earlier than we figured in the June Tealbook.

Although the effect on medium-term GDP growth is small, I would also note that monetary policy is projected to be a little less accommodative in this forecast. While we have maintained our assumption that asset purchases will end in the fourth quarter of this year and have likewise left in place our mechanical assumption that the federal funds rate will be set in accordance with the inertial Taylor (1999) rule starting two quarters after that, the narrower output gap in this forecast and slightly higher inflation rate cause the Taylor rule to deliver a funds rate path that is roughly 25 basis points higher than before by the end of next year and roughly 50 basis points higher by the end of 2016.

Panels 4 and 5 summarize the inflation outlook. As you can see in panel 4, our near-term forecast calls for a little more headline PCE inflation than we previously thought. Some of this upward revision is attributable to a higher path for food and energy prices, but the contour of futures prices leads us to expect the bulge in consumer food and energy price inflation to be relatively short-lived. The incoming data on core PCE inflation—as shown in panel 5—have also surprised us a little to the upside. In 2015 and 2016, we nudged up our forecast for core inflation by 0.1 percentage point, in light of the narrower margin of slack in this projection. As in previous Tealbooks, we expect core PCE inflation to increase slowly over the projection period, from 1.6 percent this year to 1.8 percent in 2016. Headline PCE inflation is expected to run about ¼ percentage point below the core after 2014, mostly reflecting small projected declines in consumer energy prices.

As always, numerous risks and sources of uncertainty attend our activity and inflation projections. One characterization of this uncertainty is provided by the forecast confidence intervals that are shown in this exhibit and in the Tealbook. But I was particularly enamored of the specific risks that were sprinkled throughout the Tealbook document, both in various boxes and in our traditional alternative simulations. I've listed four of them in panel 6. In the latest installment of our "Alternative View" franchise, Eric Engen and Michael Palumbo highlight the possibility that the economy could be persistently stuck in a low-growth expectations trap, and that a dramatic change in policy regime may be required to jolt the expansion onto a more satisfactory trajectory. In the "Risks and Uncertainty" section of the Tealbook, a pair of scenarios attempts to bookend the risks around our assessment of resource utilization. In the one labeled "Stronger Activity with Higher Inflation," we posit a world in which the unemployment rate continues to decline

more in line with its recent pace rather than flattening out as we have it in the baseline, and inflation proves at the same time more sensitive to the increase in resource utilization. Alternatively, in the scenario labeled "Weaker Household Demand," we examine the possibility that the first-quarter readings on GDP and GDI turn out to be sending the truer signal about the momentum of the expansion, and that a substantially more accommodative stance of policy will be required to achieve your dual mandate. And, to illustrate the role that model uncertainty plays in our assessment of potential risks, we included a box in the Tealbook that analyzed the consequences of a disruption to credit markets using both FRB/US and a DSGE model with financial frictions. While we cannot claim that these various alternatives exhaust—or even bound—the full set of outcomes that are possible over the next few years, we do think that they provide a reasonable indication of the considerable uncertainty that we face as forecasters and that you face as policymakers. Steve Kamin will continue our presentation.

MR. KAMIN.[4] I'll be referring to the handout labeled "Material for the Foreign Outlook." From a political perspective, the world appears unusually turbulent at present. The conflict in Ukraine has deepened, with the United States and Europe imposing further sanctions on Russia even before the downing of the Malaysian airliner. The Islamist group ISIS now occupies a third of Iraq and is threatening Baghdad. And although its links to global markets are less direct, the violence in Gaza continues unabated. Even so, as Simon has described, investors have largely shrugged off these developments, with implied volatility in stock markets and risk spreads in credit markets at very low levels, while crude oil prices remain in their recent range. To be sure, our baseline forecast for the global economy is reasonably benign, as we assume none of the economic risks that could be posed by these political problems will materialize in a significant fashion. However, we are surprised that markets haven't reacted more to these concerns.

Turning to that baseline, at the time of your June meeting, we were highly focused on the first-quarter pothole in foreign growth, shown in panel 1 of your exhibit. As indicated in panel 2, the pothole was concentrated in the emerging market economies, or EMEs, as growth in China, other emerging Asian economies, and Brazil slowed sharply, while the Mexican economy continued to languish. In the absence of clear and fundamental drivers of the slowdown, we judged the soft patch to be temporary.

In the event, the data received since your previous meeting have generally borne out our forecast. Perhaps most importantly, Chinese GDP growth has picked up from 5½ percent in the first quarter to an estimated 7¾ percent in the second, even stronger than we'd projected, as the trade surplus bounced back and the economy responded to a steady stream of fiscal and monetary stimulus measures. Partly as a result, activity in most of China's emerging market neighbors also appears to have accelerated. Meanwhile, on this side of the Pacific, we estimate the Mexican economy shook off its year-long torpor and grew at 3 percent in the second quarter as U.S. manufacturing demand picked up, the effect of prior tax hikes waned, and a long-standing slump in

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

construction began to ease. All told, the rate of expansion in the EMEs bounced back to over 3½ percent in the second quarter. Assuming that the United States and other advanced economies perform as projected, EME growth should level out next year at its trend pace of slightly below 4½ percent.

As shown in panel 3, the advanced foreign economies appear to have experienced a mini-pothole of their own in the second quarter. However, this was largely an expected consequence of the April consumption tax hike in Japan, which is estimated to have lowered GDP more than 5 percent. The most recent data on consumer spending and manufacturing for Japan have been reasonably favorable, and we believe Japanese GDP will start growing again in the current quarter. With Canada having shaken off the effects of an unusually harsh winter and the U.K. economy slated to continue its solid expansion, the main question for the advanced foreign economies centers around the euro area.

Recent economic performance in the euro area has been decidedly mixed, and credit conditions remain tight. Accordingly, we continue to project rather weak, sub–2 percent growth for the region. Even so, we think it likely that the recovery will stay more or less on track. For starters, we do not anticipate the region falling into deflation, though that remains a risk. Substantial resource slack and falling retail energy prices have pushed the 12-month inflation rate down to a dismally low ½ percent, but energy prices are rising again, and as the output gap narrows, overall inflation should pick up as well. Nor do we see the troubles with Portugal's Banco Espírito Santo, described by Simon in his briefing, as threatening substantial disruptions. The bank is quite small—accounting for less than ½ percent of the total assets of euro-area banks—and its problems appear too idiosyncratic to trigger contagion to other institutions.

Outside of the euro area, the main risks to our forecast of solid but unspectacular foreign growth appear to be in the emerging market economies. Coming a little more than a year after the start of the taper tantrum, this struck us as a good time to assess whether the likelihood of one key risk—a deep and broad-based EME financial crisis—has risen or declined. All told, the results of our assessment are mixed. Panel 4 displays our index of the fundamental vulnerabilities of the 13 EMEs we track closely. This index improved only a touch between 2013 and 2014, and not at all for the so-called fragile five EMEs. Despite this lack of significant progress on fundamentals, however, EMBI credit spreads, the red line in panel 5, have now returned to their pre–taper tantrum levels. This raises the question of whether investors have again become too complacent about EME risks, increasing the likelihood of disruptive corrections down the road.

All that said, we see some reasons for judging the glass to be half full rather than half empty. To begin with, as shown by the blue line in panel 5, the share of investment-fund assets devoted to EMEs declined after May of last year and remains subdued, despite some pickup from earlier this year. As shown in panel 6, real effective exchange rates for the fragile five are now lower than they were at the start of the taper tantrum. This depreciation should bolster investor confidence by

reducing current account deficits, strengthening growth, and muting expectations that further depreciation will be needed in the future. Finally, as indicated in panel 7, central banks in the most vulnerable economies have raised their policy rates, albeit to varying extents, over the past year, which should help tamp down inflation, support currency values, and thus also instill confidence.

Nevertheless, these improvements are not enough to take off the table the risk of a widespread EME crisis. One possible trigger for such a crisis is the normalization of monetary policies in the United States and other advanced economies. It is not clear why such a highly anticipated event should disrupt global financial markets, but we cannot be certain that markets are fully pricing in the future paths of advanced-economy monetary policies. Another possible trigger would be a hard landing in China. Due to its increasing prominence as an importer of both primary commodities and intermediate manufactures, a financial crisis and resultant sharp economic slowdown in China could have severe ramifications for the emerging market economies more generally.

In the QS Assessment of Financial Stability that was distributed to the FOMC last week, we considered two China-crisis scenarios, depicted in your next exhibit. In the first scenario, a crisis and recession lower Chinese GDP growth to only 2 percent in 2015. In turn, as shown by the green line in panel 1, spillovers through normal trade and commodity price channels lead to a sharp slowing of aggregate EME growth; as shown in panel 2, this leads to a discernable but limited hit to U.S. activity. In the second scenario, depicted by the red lines in both panels, China's hard landing not only spills abroad through standard trade channels, but it also induces a surge in investor risk aversion that triggers financial crises in many EMEs and severe disruptions in the United States and other advanced-economy markets. In this scenario, which was also presented in the Tealbook, growth falls by considerably more in both the United States and the EMEs.

On this happy note, David Bowman will continue our presentation.

MR. BOWMAN.[5] Thank you. I will be providing an overview of the QS Assessment of Financial Stability. We continue to see the overall vulnerability of the financial system as moderate, given the slow growth of credit within the nonfinancial sector and the relatively strong capital positions of U.S. banks and subdued use of maturity transformation and leverage within the financial system. Nevertheless, low and declining risk premiums and loosening standards in a number of markets raise the possibility of an eventual correction in asset valuations.

The pattern of steadily declining spreads on riskier assets has continued since April. I'll begin with a review of corporate debt markets. As shown by the black line in panel 1 in the handout titled "Material for Briefing on Financial Stability Developments," spreads on high-yield corporate bonds have fallen a bit further over the past few months, despite a recent uptick. The red line, which adjusts for a staff

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

estimate of expected default, indicates that risk premiums in this market have also declined, but they still remain above their lowest levels in the late 1990s. Issuance of high-yield debt, the dark blue bars in the panel to the right, has continued to be robust, as has issuance of leveraged loans, the light blue bars. Roughly half of the recently issued high-yield bonds and institutional leveraged loans are being used for purposes other than refinancing, and underwriting standards have continued to weaken. For example, the debt multiples involved in recent leveraged buyout deals, shown in dark blue in the middle-left panel, have edged above their levels in 2005 and 2006, although as shown by the red line, the equity stake in these deals has been relatively stable. More broadly, despite the Federal Reserve's guidance, we have thus far seen no evidence that banks have in aggregate pulled back from originating riskier deals or that activity is shifting significantly to nonbank lenders.

In equity markets, prices have increased a further 6 percent since April, but while certain sectors may be overstretched, we have less concern about the equity market as a whole. As seen to the right, the staff estimate of the equity premium, in red, is still reasonably high. In contrast, the VIX index of implied volatility in the S&P 500, shown in black in the bottom-left panel, is quite low, but our concerns about this are to some extent ameliorated by the fact that realized and implied volatilities generally tend to be low during economic recoveries and that options at longer maturities indicate a still-healthy price of longer-term downside risk. For example, the red line in the panel measures the price of insuring against a 10 percent decline in stock prices over the next year and has been fairly steady near its long-term average over the past two years. Even so, the near uniformity of declines in short-term implied volatilities across markets may reflect an underpricing of risk and some complacency on the part of market participants. The black line to the right shows that a composite index of implied volatilities across global equities, rates, currencies, and commodities is at an all-time low, and it is difficult to fathom why implied volatilities for oil, the red line, should be so low when Iraq is in an internal war, tensions with Russia are elevated, and Israel and Hamas are in open conflict.

Your next exhibit discusses the factors that contribute to our assessment that, despite these apparent signs of valuation pressures in some markets, the overall vulnerability of the financial system is judged to be moderate. While leverage ratios for speculative-grade and unrated firms, the red line in the top-left panel, are above average levels, overall leverage in the nonfinancial business sector as a whole, shown in black, remains low by historical standards. In addition, net borrowing by prime and superprime households, shown in the panel to the right, has risen only modestly in recent quarters, and there has been no net borrowing by subprime households.

The banking sector is also in relatively strong shape. Reliance on wholesale funding by large bank holding companies, the black line in the middle-left panel, is substantially lower than in the mid-2000s, while Tier 1 common capital ratios (the red line) have continued to increase. In addition, leverage in other parts of the financial sector appears to be fairly stable. For example, as shown in the panel to the right, dealer responses to the most recent SCOOS indicate that the use of leverage by some of their clients—hedge funds, real estate investment trusts, mutual funds, and

exchange-traded funds—has changed little in recent months. That said, separate data from prime brokers suggest that the use of leverage by hedge funds remains elevated, and overall levels of securitization, while still moderate, have been picking up especially in CLOs and to some extent CMBS.

While we take comfort from the relatively low levels of maturity transformation and leverage, any market correction could be magnified by sales of relatively illiquid assets. As shown in the bottom-left panel, flows into mutual funds investing in less liquid assets, including corporate and emerging market debt, have continued to increase. As we have discussed before, most of those flows began during the recovery and there is a danger that investors are ill prepared to expect potential losses and that they might pull out rapidly if a downturn occurred. In addition, data from the CFTC (not shown) suggest that some institutional investors are taking long positions in interest rate derivatives, increasing their exposures to rate risk. These risks would be compounded if term premiums in Treasury bonds, shown to the right, were to rebound or if market participants were to substantially increase their expectations for the future path of short-term rates.

Your last exhibit provides a summary of our overall assessment and of current policy initiatives. As noted, although we consider the risk of a correction to have increased given the downward momentum in and comparatively low levels of risk premiums in some markets, we believe that the overall vulnerability of the financial system remains moderate given the fairly strong positions of household and corporate balance sheets and the relatively contained use of maturity transformation and leverage by the financial sector. Nonetheless, the current environment of low volatility and low risk premiums may encourage greater risk-taking and leverage , and we will remain attuned to any deterioration.

On the policy front, the staff continues to pursue initiatives related to the specific vulnerabilities that we have identified. Regarding leveraged loans, public data suggest that the terms and structures of new deals have continued to deteriorate despite the issuance of guidance and follow-up supervisory letters last year. Currently, supervisors are engaged in completing the Shared National Credit (SNC) examinations, which are heavily focused on leveraged loans and the degree to which domestic and foreign banks are complying with the guidance. The findings of the SNC exams are expected to be available in mid-August for the purposes of providing feedback to firms.

Regarding the potential effects on banks of a sharp rebound in interest rates, the staff is conducting a study of interest rate risk at six of the largest bank holding companies. Firms were asked to revalue their trading books in a number of different scenarios for interest rates, and information also was gathered on the counterparties to these risk exposures. This work should be able to both identify banks' vulnerabilities and determine whether there are any key counterparties who have built up significant interest rate risk exposures with one or more of these banks.

Regarding flows into funds and less liquid assets, we are also continuing work with the FSB and IOSCO in understanding the risks related to exchange-traded funds under stressed market conditions.

Finally, last week the SEC issued a rule to reform money market funds. The rule mandates that, within about two years, prime institutional funds float their net asset values, or NAVs. The rule also contains provisions for the discretionary imposition of gates or redemption fees by fund boards in the event that a fund faces severe liquidity pressures. The staff views the floating NAV requirement as a step forward but is concerned that discretionary fees and gates could be destabilizing. The net effect for financial stability could depend, in part, on the extent to which the more run-prone institutional investors move away from prime money funds to other cash-management strategies, and the risks that may be posed by those strategies. The Financial Stability Oversight Council currently is reviewing the proposal. That concludes our remarks.

CHAIR YELLEN. Questions for the staff? President Mester.

MS. MESTER. This is a question for David Wilcox. I notice that in the Tealbook you basically assumed that the weakness in health-care spending is going to be temporary, and then you adjusted your potential growth accordingly. We have a lot of business contacts from health care in our District, and they think there may be something more fundamental going on. Revenue growth at hospitals is way down, and one contact said there's consumerism going on and, even though there's the Affordable Care Act, people are now shopping for medical care and may be refraining from taking procedures.

So I was wondering, if you assumed in the Tealbook that it was a more permanent decline in the rate of spending on medical care, how would that show up in the forecast? Would it basically be a reduction in GDP growth? Would it affect potential? And then what does it mean for the gap, in your estimate?

MR. WILCOX. I don't have a full analysis of that, but let me give you a few pieces of it. First of all, essentially we assumed that the enormous surprise that we experienced in health-care spending in the first half is permanent in the level. So we just absorbed it into the level of consumer spending, and we absorbed it into a number of other economic variables of interest.

So, for example, that's a component of our downward revision to potential GDP growth. It also results in a much higher saving rate in this current projection because we've taken the level of PCE spending down, but for all intents and purposes, we didn't get any news about disposable personal income.

So we've assumed that it's permanent in the level. You're right, essentially, on the growth rates. We're in a state of high uncertainty. We don't know what to expect. We think the reality is that that utilization that had earlier been assumed by the BEA will eventually show up later on. We didn't have the courage to write that down right now because really the first time that could show up is when the next installment of the Quarterly Services Survey is published, and that will be, I think, a day or two after the September FOMC meeting, and we didn't want to be hanging out there between now and then, apparently being demonstrated to be wrong.

So we took a different approach and said, we're going to assume that the lackluster growth of health spending that the BEA has penciled in at the moment just continues, and then if the Quarterly Services Survey reveals that hospital revenues, doctor revenues, and other measures of medical utilization have in fact moved up, we'll just take our estimate of potential GDP back up again, and that way we'll attempt to insulate the gap in GDP from these vagaries in measurement and timing.

My best guess is that what's going on right now is that this is like a pig in the measurement python that hasn't quite shown up yet. Our fiscal colleagues have seen the increase in ACA subsidies go out the government door. We just haven't seen it show up yet in hospital revenues. We still expect that it will, but your contact may be quite right that there's something more fundamental going on. At the moment we've taken an approach that attempts to cut

through all of that and deliver to you an assessment of resource utilization that we tried to hold harmless from these kinds of buffeting factors.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. I just want to continue—oh, sorry—did you mean President Fisher?

MR. FISHER. No, you're the superior Fischer.

CHAIR YELLEN. President Fisher is next after the governor.

MR. FISCHER. This is a continuation of a question I started asking you yesterday. You say here you have sort of ignored this downward bump, or pothole. Actually, you haven't. You've shifted the whole path of future GDP down by 2.9 percent at an annual rate, so by ¾ percentage point. What would happen if you hadn't done that? Where would we see it showing up—in higher interest rates, and what else?

MR. WILCOX. Andrew Figura's briefing yesterday tried to provide a little back-of-the-envelope illustration of what would have happened if we hadn't taken potential GDP growth down. We would have shown, in that case, an unemployment rate gap that was a little narrower this time because of the 0.2 percentage point lower unemployment rate in the June Tealbook. And simultaneously, we would have shown a GDP gap that was considerably wider this time because there was about a point and a half further downward surprise in the first quarter in GDP growth relative to our June assumption and another ¾ percentage point. Dividing by four, that would have meant a GDP gap that was about ½ percentage point wider if we hadn't done anything to potential GDP.

So we would have had our two measures of resource utilization going in opposite directions, and one source of discomfort there is that most, if not all, of our monetary policy rules respond to the output gap, and so the implication would have been that, for example, in

Tealbook, Book B, in the Monetary Policy Strategies section, we would have been showing you prescriptions from the monetary policy rules calling for a considerably easier stance of monetary policy, and we just didn't think that comported with our assessment of where resource utilization stands.

MR. FISCHER. Okay. Thanks.

CHAIR YELLEN. President Fisher.

MR. FISHER. Thank you, Madam Chair. I have a couple of questions for David Wilcox, if I may. In Tealbook, Book A, there's a box on page 12. It shows the headline unemployment rate is a bit out of line with an assortment of other indicators of labor market conditions, and I was hoping you could enlighten me a little bit on the analysis.

I'm curious about a couple of things. My first question has to do with the gap that currently exists between the labor market conditions index and the index excluding the unemployment rate. I was wondering whether you had compared those two indexes over other periods of time—during other economic recovery periods, say—and if so, to what extent that gap is large, normal, or small and, whether it's large or not, to what extent it can be expected to close as the recovery continues and as the unemployment rate gets closer to estimates of the natural rate?

That's the question on that particular observation, and then I'm curious as to whether the index provides information beyond that captured by the unemployment rate or the unemployment gap, information on wage and salary growth and price inflation or future revisions to the estimated unemployment gap. This is central to some of our discussion, and I would like you to expand on that a little bit. Again, if you've studied that from a historical perspective, that would be helpful.

MR. WASCHER. We have not done that. I think that's a good suggestion. We have not gone back to earlier recoveries and compared the LMCI with and without the unemployment rate information.

As to your second question, the index does, in fact, include other measures of wages, measures of hiring, layoffs, people working part time for economic reasons, and things like that. So it is trying to capture a broader set of indicators of labor market slack than the unemployment rate alone. Some of those other indicators are what is driving that prediction for the unemployment rate in the right-hand side of that box. It would show less decline than the actual unemployment rate over the past year.

The LMCI is really meant to measure the change in the unemployment rate over time or the change of labor market conditions over time. It hasn't proven to be a very good measure of the level of labor market slack. It's difficult to interpret in that context. So what we've emphasized here is the change. And the change in labor market conditions according to this index hasn't been as strong as the decline in the unemployment rate.

MR. FISHER. Could we go back and look at the first question?

MR. WASCHER. Yes, I think we could.

MR. FISHER. And then the other thing I wanted to ask about is something I've raised before. I'm going to try to raise it more gently if I can. I'll first observe that the new Tealbook projection is very close to my previous forecast views on the path of GDP growth, the unemployment rate, and job growth over the next year or so, and also the differences of our views on inflation have narrowed considerably.

I also noted, though, that the baseline policy path eventually drives the unemployment rate ¾ percentage point below the staff's estimate of the natural rate, and a full percentage point

below the CBO's estimate of the natural rate, and thereafter the simulations show a smooth, gradual convergence to full employment under price stability. And I wonder, when is the last time that we were able to pull something like that off? Have we ever managed to achieve a 1 percentage point, or ¾ percentage point, or even ½ percentage point increase in the quarterly unemployment rate without triggering a recession? Because we go down and come back up. That's my question here—and how much confidence does the staff have that we can overshoot full employment, as we estimate it, by such a large margin and then pull it back and achieve a soft landing?

Am I missing something here? Did I overstate it? David, you and I have talked about this a little bit before. Am I misinterpreting?

MR. WILCOX. I have tremendous confidence in the ability of the Committee to pull that off. [Laughter] We do have a period of subnormal growth. As you can see on page 27 of the Tealbook, during that period when the unemployment rate is coming back up from about 4½ percent to the assumed natural rate, GDP growth is running in the neighborhood of about 1½ percent for a period of time.

If zero is a benchmark of special significance, then you're running closer to zero, and if there are fragilities associated with that—fragilities are nonlinearities that are associated with running an economy that is growing more slowly—as some statistical analysis suggests that there might be, and here I'm referring to some of the research that posits the possibility of something like a stall speed, then there could be a greater risk of falling into a recession.

By the same token, in our baseline projection, this period of overshooting is what's required to boost the inflation rate up to your target objective of 2 percent. And without that

period of overshooting, in our projection we would be showing you an inflation rate that would be continuing to run in the neighborhood of about 1¾ percent.

As you suggest, there are, no doubt, control fragilities associated with that period of the unemployment rate coming back up to the natural rate, but without it, again, in our baseline you'd have an inflation rate that was languishing a little bit below your objective.

MR. FISHER. As you know, I'm still worried about whether we can achieve it. I understand these tradeoffs, and your attempts to get at it mathematically, but I still worry about the capacity to achieve that. It was just a question—I noticed it documented more this time in the Tealbook.

Just one more comment. I'm not sure if you raised in your summary a comment about food prices, about the differences between CPI and PCE. I'm not going to mention this in my overview of what I'm hearing in my soundings from my interlocutors, but it's very interesting to notice that we have retraced on all of the proteins—if you look at wheat, for example, its price has retraced from $8 per bushel to $5 per bushel. Corn, soybeans—this is beginning to work its way through now very slowly into pork, and especially chicken, which is fastest, and very slowly into beef. There's usually a lag, as you know, into retail food and then into the restaurant end.

But it's pretty clear that a turn has taken place. We have world-record crops, and the budgeting for next year is likely to be the same, despite the drought that we had here in the United States. For what it's worth, my interlocutors at Archer Daniels and at the other big food companies are saying that we've seen almost a five-year turn. Their argument is that this was largely driven by speculative money, mainly the funds, and then also the algorithm of trading that took it from $5 to $8.

I think that's probably good news, because we heard Governor Fischer mention last time that he was seeing, in terms of his own family market basket, considerable price pressures at least on the food side and the energy side. But there seems to be, at least in the minds of those that are in the physical markets, some retracement taking place, and I just wanted to mention that. Thank you, Madam Chair.

CHAIR YELLEN. Vice Chairman Dudley.

VICE CHAIRMAN DUDLEY. I had just one observation entirely on President Fisher's comment. If I remember the data right, I think there has rarely been a rise in the three-month moving average of the unemployment rate—if it rises 0.3 percentage point or more, you always get a recession, going back a very long period of time. So it is unlikely that you would actually get an uptick in unemployment and not get some bad outcome.

The second question I have relates to the assumption that inflation expectations stay well anchored even as you go well below the so-called full employment rate. How realistic is that? At what point is it reasonable to expect that the short-run Phillips curve is still really flat because inflation expectations are anchored? Presumably you couldn't drive the unemployment rate to 2 percent. At some point it would give way, and how does that affect your thinking about the risk to the forecast?

MR. WILCOX. I think it's a risk. If somebody had asked me five years ago how realistic is it that we would have the unemployment rate so many percentage points above the natural rate and so little disinflation—we were initially pretty wrong about that. We expected much more disinflation until we adopted this assumption that inflation expectations were well anchored.

Now, that was on the downside, and it could well be, as you suggest, that different mechanisms might apply once the economy is running hotter. It could be that considerations like downward nominal wage rigidity were providing some support to inflation that wouldn't operate on the upside.

So I can't offer a whole lot of reassurance there. I would note, though, that just for our inflation projection to come true we think—without a huge amount of conviction—it's a better bet than not that we need to see some material acceleration in compensation, and if we just continue with compensation sort of trundling along in the neighborhood of 2 percent or so, that in itself won't be enough to get inflation back up. So we do need to see some acceleration in compensation. Now, whether it's going to be contained, modest like we have, obviously I can't say for sure.

VICE CHAIRMAN DUDLEY. Thank you.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. The Vice Chairman's first comment was the same as what I was going to say.

CHAIR YELLEN. Are there further comments? Yes.

MR. EVANS. This observation has come up a couple of times. The—what is it, 0.3 percentage point increase in the unemployment rate in history is always associated with a recession, and yet statistical models don't live by that rule. Do you have any guidance for us on how to think about those types of anomalies, David?

MR. WILCOX. Well, for one thing I'd note the sample is pretty darn small. In small samples you get peculiar results. There was an extremely nice illustration of this on the radio the other day, where they had the really terrific example that small states are always the ones that

have unusual health outcomes, and they pointed out that some cancer incidence was the highest in the nation in North Dakota and the lowest in the nation in South Dakota. Go figure. Well, the answer is, they're both really small samples. This was of a rare brain cancer.

Now, during the postwar period, we don't have that many observations of recessions and increases in unemployment, thank goodness. So in conducting statistical inference, I think you want to exercise some care before declaring it can't happen. That said, many of our models presume a linear structure, and there are deep uncertainties, which I think it would be presumptuous at best to pretend might not exist, about whether there could be some sort of nonlinear dynamics that could be triggering a greater fragility in those sorts of circumstances. So I think it's an interesting regularity. Whether it's more than that is really hard to say.

MR. EVANS. Thank you.

CHAIR YELLEN. Further questions for the staff? [No response] If not, we have an opportunity for those who are interested to comment on financial stability. We don't intend a full go-round, but I have a list of people who'd like to speak and anyone else can add themselves to the list. I'd like to start with President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. While it's well understood that monetary policy operates with long and variable lags, as we think about financial-stability issues and the potential substitutability or complementarity of supervisory and monetary tools, it's important to remind ourselves that long and variable lags are just as applicable to our supervisory tools, particularly given the long lags that frequently occur in instituting new rules.

For example, the draft guidance on leveraged lending was released for public comment in March 2012. Two years later a number of institutions, particularly some of the foreign institutions, are still reluctant to address the concerns raised in the guidance. Given the

importance of this market segment to the business model of some foreign banks, it's not a complete surprise they are reluctant to tighten standards in an area that generates substantial fees.

There are probably ways we can shorten the timeline in regulatory and supervisory tools and be more creative in writing rules that provide more flexibility to make changes without going through additional rounds of comments. Still, this very recent experience certainly raises the question of whether we have fully considered how promptly we can address financial-stability concerns and which tools will be most timely and effective.

In a similar vein, we should consider how we would address the problems currently facing the Bank of England and the Riksbank regarding real estate prices. Choice of homebuyers would be influenced by higher rates generated by monetary policy, higher interest rates generated by imposing higher capital charges on banks through bank regulation, or higher underwriting standards through bank supervision. While I don't expect that this is an immediate area of concern, it may be an area in which considering the tradeoffs between relying on monetary policy tools or relying on supervisory or regulatory tools would be particularly instructive.

In principle, we could use targeted monetary policy tools to address real estate excesses, such as selling long-term mortgages, MBS, or Treasury securities to directly raise mortgage and other long-term rates. Our ability to use such tools will be influenced by our decisions about how long-run balance sheet size and composition are decided. But such decisions should also be informed by how confident we are that supervisory or regulatory tools will be effective in addressing some of the issues already being confronted elsewhere. Thank you.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. As usual, I found the financial stability report to be very useful. I'd like to especially thank the staff for the incorporation of financial-stability risks into the analysis of macroeconomic risks, and here I'm thinking of the discussions of low equity volatility, on page 46 of Tealbook, Book A; credit market turbulence, on page 58 of Tealbook, Book A; and the China crisis memo.

I really like the dashboard in the QS report. This was on page 2. I think it could be enhanced even further by reducing the number of words in it and just having colors—simplifying it further for policymakers. You know, it could be highlighted even more. I don't think it was brought forward in the presentation today, and I think it's a great way to frame the assessment of financial-stability risks.

Madam Chair, I have three comments about three financial-stability issues. The first is about bank legal risk. The second is about a way to incorporate more information into the financial-stability briefing. And the third is about the overnight reverse repo facility. The last two are very brief.

In terms of legal risk, the QS report noted the potential for legal risk, which is exemplified by recent misconduct findings against very large banks, to shock the financial system. This legal risk kind of shock could raise concerns about counterparty risk, which in turn could lead to liquidity shortages. I think we've made good steps to bolster the financial system against these kinds of episodes, but such liquidity threats have to be seen as remaining very serious in the context of resolution regimes that still are in need of substantial enhancements.

Now, I think this legal risk is a nice example of how possible financial instability need not imply that we should keep monetary policy less accommodative than otherwise. After all, there is no sense in which you can reduce legal risk by raising interest rates or reducing the size

of our balance sheet. In fact, the presence of this risk could actually be seen as arguing for more accommodation, not less. Here's what I mean by that. A negative systemic shock caused by the realization of legal risk that occurs after liftoff could lead us back to the zero lower bound, and at that point, definitionally, we would be unable to provide as much stimulus as we would like in order to offset the shock.

How should monetary policy respond to the risk of hitting the zero lower bound in the future? Well, the basic conclusion of the macro literature is that risk of insufficient stimulus in the future implies that it's optimal to preemptively provide additional current stimulus. So potential instability due to legal risk is actually a reason to keep interest rates lower than otherwise, not a reason to keep monetary policy tighter than otherwise.

In terms of additional information, again, here I'm going to be brief. The QS financial stability report is based only on public information. I think the stability analysis coming to the FOMC could benefit from more direct incorporation of assessments based on supervisory evaluations. Now, these assessments are based on information that's private to the Fed, and I'm sure that the public pretty much expects the FOMC to be able to use this private information to inform our assessments of financial-stability risks.

To be clear, if we so desired, this analysis based on supervisory information could be entirely separate from the current QS analysis, and it could, if so desired, remain at the aggregate level to avoid discussions of specific firms. I think it could be very helpful to have this kind of information brought in at an aggregate level. There's no reason necessarily to be discussing specific firms. So that's the additional information piece.

In terms of the overnight reverse repo facility, what I took away from the thrust of the dialogue we heard earlier today is that the overnight facility will end up being used during the

course of liftoff. At the same time, I think both the staff and participants have pointed to potential financial-stability risks associated with the usage of that facility. It would be useful, I think, to begin the process of incorporating those kinds of risks into the financial stability report that the Committee receives. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. The comments that I had prepared really were in substance along the lines of what President Rosengren already raised, and so I will forgo those, except to say to Nellie and the staff that I did think the heat map was a helpful way to think about that. When I thought about the comparison with 2004, when I was head of bank supervision, it reminded me that even though you may have seen the risk, the timing, speed, and ultimate consequence were far less clear.

So the questions that President Rosengren raised were ones that, as we evolve this process, thinking about the interplay of monetary policy versus whatever we decide our macroprudential tools will be and the role of bank supervision and how successful it is in the guidance that it's trying to accomplish will make this process even better. Thank you.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. I agree with President George. This is developed so well. I think it is much more helpful and gives us greater insight. I just want to turn to the report on China very quickly, which I thought was superb, and I'm going to counter what my respected colleague, President Kocherlakota, just argued. I'll use that as an example, because a couple of things leapt out at me from that report.

One is residential investment as a percentage of GDP going from 3 to 10 percent. That's comparable with what happened in Ireland, by the way, even though it's a tinier country, and we

know what the consequences were. But it also strikes me that the overall increase in credit in China over the period of 2007 to 2013 is actually larger than what happened in Korea prior to the 1997 crisis, in Mexico prior to the crisis of 1994, and in Thailand prior to the crisis in 1997. Here we have a much more integrated relationship with China, a deeper relationship between China and two of the countries that I just mentioned and the rest of that part of the world.

Now, this just makes me pray that we will have lessened the amount of accommodation we have. We will have tightened, however slightly, toward a more hawkish direction, whatever tiny bit, so that perhaps, if this were to lead to the kind of reaction that is illustrated by the graph that you presented in this summary this afternoon, we'd have a few bullets to shoot, because we are at risk here, having become as integrated as we have.

So I want to thank you especially for the report on China. That was thoroughly done. It does raise the risk of globalization. If anything, it makes me want to push even further on tightening the screws a little bit so we have something in reserve, just in case things fall apart. It doesn't lead me to conclude we should be more accommodative. It leads me to conclude that we should be better prepared. That's the point, and I wanted to thank you for that report. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman Dudley.

VICE CHAIRMAN DUDLEY. Thank you. I thought the staff memo was terrific. The QS report was terrific, and I liked the heat maps a lot, and I liked the fact that the staff reached firm conclusions—it's hard to decide whether it's green, yellow, orange, or red, but I really appreciate it.

One risk that the QS report doesn't focus on, because it's a pretty narrow risk, is the situation in Puerto Rico, and since that sits in our District I thought I would comment on it.

Unfortunately, the island economy has been essentially in recession for years, and during this period there's been a rapid buildup in the debt burden of the island, particularly among the public corporations that are there. As a result, the island is losing market access. There was a large general obligation issuance this spring that was funded mainly by hedge funds at around an 8 percent yield. So that sort of tells you the degree of extremis.

Recently the government attempted to differentiate between the obligations of the commonwealth and the obligations of the public corporations by passing bankruptcy legislation that would apply only to the public corporations. This did not work in achieving the desired differentiation. The rating agencies downgraded both the government and the public corporate obligations. Also, utilizing this new law and putting a public corporation into bankruptcy doesn't seem to be viable in fact, because there's legal uncertainty about how such a bankruptcy filing would work, given the absence of legal precedents.

We also have a situation of liquidity being drained. They made this big bond issuance, but the liquidity is getting exhausted relatively quickly, both seasonally—because tax receipts in Puerto Rico are back-loaded in the fiscal year, and the fiscal year starts July 1—and by the fact that energy suppliers to the island's public utility are demanding much tougher trade terms. So what's happening is the government is trying to negotiate a restructuring of the public utility company's obligations, and if that were to succeed, it would provide some additional liquid resources and buy some time.

Also, it will be very important to see if the government could actually issue tax anticipation notes, which it typically does this time of year. If it can't do this and it can't do the public utility restructuring, then the cushion of liquid resources may not be adequate to meet its obligations for very much longer.

So the bottom line is, the outlook is pretty grim. If things go well, so that they get the public utility restructuring and the government issues tax anticipation notes, that will probably get them into next year, but if those efforts fail, then Puerto Rico might be either unable or unwilling to meet its obligations much sooner.

There are over $70 billion of tax-exempt securities outstanding from Puerto Rico—both the government and the public corporations. So if this thing sped up, this would be a pretty significant shock to the U.S. tax-exempt market. That said, I do think even if this worst case were to occur, the systemic effect probably would be pretty modest in the sense that the Puerto Rico situation does appear to be quite unique. It's not like there are a lot of other Puerto Ricos lurking around, and the fact is the prices for much of the island's obligations already are depressed. So it's not like the elevated level of risk in terms of the island is not known. But this is something that could happen potentially very soon—even as early as next week. I just want to flag that.

The second issue I'd like to discuss is whether the Fed should flag incipient bubbles in those asset classes that are sufficiently small in size that they're unlikely to pose systemic risk. I was struck by the reaction of market analysts and others to the *Monetary Policy Report*'s observation that valuations were "substantially stretched" for small biotechnology and small media stocks. Many analysts argued that it was inappropriate for the Fed to offer up its opinion as this was interfering with the market pricing of such obligations.

I have to respectfully disagree with this argument. It strikes me that there's a pretty important asymmetry in markets. Many more market participants favor rising stock prices than the opposite. [Laughter] And that really does create an impetus for bubbles, and I think it's

appropriate for someone without a dog in that fight to comment when valuations appear to be excessive.

Also, I think it's useful to opine on such issues of valuation on a regular basis because I think this is an aspect of keeping a watchful eye on financial-stability issues. This is a space in which we need to be credible. Silence does not build credibility. I think we have to condition market participants that it's completely appropriate for us to offer up our views, especially when pricing becomes substantially stretched in our eyes.

CHAIR YELLEN. Thank you for that.

VICE CHAIRMAN DUDLEY. So hang in there.

CHAIR YELLEN. You should see some of the e-mails that I got. [Laughter] Yes, Governor Fischer.

MR. FISCHER. Opening your mouth is a good idea if you're right, and I don't know exactly how good we are at spotting bubbles and saying which stocks are overvalued.

VICE CHAIRMAN DUDLEY. The valuations are pretty extreme in those two areas.

MR. FISCHER. But that area is one that's habitually had extreme values for even small and medium-sized firms.

CHAIR YELLEN. They're high relative to their own history.

MR. FISCHER. Yes, but we've got zero interest rates now, and when you divide the future stream of profits by zero, you get a large number.

CHAIR YELLEN. Other comments on financial stability?

VICE CHAIRMAN DUDLEY. This is something for us to potentially debate. I think it's an important issue that was raised by those comments.

CHAIR YELLEN. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. As difficult as it is to evaluate geopolitical risk, we have in Governor Fischer someone who can give some perspective on risk associated with the Middle East, and I think we would be interested in your views on how this could develop into something that we have to be concerned about here.

MR. FISCHER. Well, I used to explain in Israel that they brought me because I knew economics, not because I knew strategy. It's a very complex situation. It's far more complex than it has been in a long time because the Arab world is changing completely and is in its own battle. This is a side battle that is deeply related to what's going on between the Sunnis and the Shias, with Hamas being supported by Turkey and Qatar, and Egypt being on Israel's side in its dealings with Hamas.

It's clear that Israel did not know about the extent of these tunnels—they knew about tunnels, as there has been previous incidents where people came out of tunnels from Gaza, but they didn't know about the extent of these tunnels, and that changed the story completely.

I haven't spoken to anybody in the Israeli government. I don't know what their plans are. They're in a period in which they're trying to make it clear to Hamas that they'd better stop.

The war with Hezbollah in Lebanon in 2006 was thought to be a failure, but Hezbollah has not come out of its bunkers since 2006. So there is a deterrent power in these very tough and ugly battles.

But how is that going to affect the global oil markets? Well, there's a lot going on in the Arab world that will. I doubt that this is one of the things. It's now very localized. It wouldn't have been four years ago or three years ago, but it is now.

But I really don't want to go into this because I just don't know any more than a well-informed reader of the *New York Times*. I do read some Israeli papers, but I don't know more

than that. It's clear that this prime minister has decided he's going to go after Hamas in a big way, having not wanted to go in, in the first place. And one of the things that surprises people about Netanyahu is that actually he's fought relatively few wars for his period in office. He doesn't jump into them. He didn't want to get into this one. But once he was in it, he decided he might as well try and do something with it.

The underlying Israeli view is, we cannot live forever with the southern one-third of the country under rocket attack whenever our neighbor decides that that's what they want to do. Hamas has been firing rockets. A few have come over. They're well protected. You don't usually have many casualties. But I've spoken enough, so I'm going to stop.

CHAIR YELLEN. Thanks. Any further comments on financial stability? [No response] David.

MR. WILCOX. If there are no further comments on financial stability, I wanted to come back just briefly to the unemployment rate increase question that Vice Chairman Dudley raised.

I had mentioned that the sample of relevant events was small. Bill Wascher makes the smart observation that it's probably a lot smaller than I suggested, since several of the postwar episodes that were increases in unemployment were deliberately engineered for the express purpose of bringing inflation down. So you probably don't want to think about those as proving the case that having a soft landing is impossible, and you probably also want to throw out the most recent episode, given the historically unprecedented dynamics that were associated with the financial crisis.

So I think when you come down to it, the sample of actually relevant episodes is extremely small, and we just don't have the empirical basis for determining that a soft landing is

not possible to be engineered. I think the fairest summary is, we don't know. In a simple linear model, it's doable, but in the real world, no doubt it's hazardous.

MR. EVANS. Could I?

CHAIR YELLEN. President Evans.

MR. EVANS. That's a good point because it reminds me that I think the intuition in the question is, if we had a single increase of 0.3 percentage point on unemployment, it's always led to a recession, but it's almost always the case that you get the 0.3 percentage point on the way to a point and a half.

VICE CHAIRMAN DUDLEY. Yes, it doesn't stop.

MR. EVANS. Or something like that.

VICE CHAIRMAN DUDLEY. There's a huge gap.

MR. WILCOX. The point we were making is, it was the point and a half that, at least in some cases, might very well have been the intended result.

MR. EVANS. Yes, yes. That's very helpful to me. Thank you.

CHAIR YELLEN. President Fisher.

MR. FISHER. Just for the point, so that we're all on the same wavelength, in terms of our estimated natural rate, where does it fall in the historical range?

MR. WASCHER. Well, it's clearly lower than it was in the '70s and for most of the '80s. I'd guess it's not as low as it was in the '50s and '60s, so maybe in the middle, but certainly low by comparison with the '70s and '80s—and then it came down over the '90s. Between the early '80s and 2000, it came down quite a bit, and we think it leveled off after that at around 5¼ percent. That's our estimate. It has a wide confidence band around it.

MR. FISHER. Yes, sir.

CHAIR YELLEN. Okay. Why don't we begin our economic round and go, I guess, until six and then go to dinner. And maybe we'll finish or, alternatively, I think we'll have a chance to finish tomorrow morning if not now. So let's start off with President Lacker.

MR. LACKER. Thank you, Madam Chair. And thank you, President Fisher, for your fulsome expression of manly affection. While it goes without saying that the feeling is, of course, mutual, I suggest we take further discussion of this topic offline.

On balance, recent reports on economic activity in the Fifth District have been fairly positive. Business sentiment seems to have improved, as can be seen in our diffusion indexes of economic activity. Our composite manufacturing index rose slightly in July to a plus 7 reading, and our service sector revenue index rose to plus 12. A typical comment comes from a bank CEO, who recently stated that his bank has been experiencing organic loan growth this year for the first time in five years.

There are significant headwinds, though, attributable to recent austerity measures at the federal level. Portions of Virginia and Maryland along with the District of Columbia have seen weakening activity in commercial real estate and significant retrenchment among federal contractors. One vivid indicator of the fallout is that over the past 12 months, employment in professional and business services fell by 2.0 percent in Virginia, with the decline concentrated in northern Virginia, and that's in sharp contrast to a 3.5 percent increase in that category nationally. Contacts in the Hampton Roads area of southeast Virginia and elsewhere are also concerned about prospective defense cuts that could have a large effect locally.

Turning to the national outlook, the staff has lowered its forecast for consumer spending significantly for 2014 and trimmed a bit off of 2015 and 2016, as we've heard. Still, the Tealbook has consumer spending growth at well above 3 percent for six consecutive quarters,

beginning with the current quarter. Note that real consumer spending rose only 2.3 percent last year and 2.0 percent in each of the previous two years, and it has been even softer over the past two quarters. Real income gains have been modest recently, with growth in average hourly earnings, or the ECI, only slightly above inflation over the past 12 months. I remain a bit skeptical that the long-awaited acceleration in consumer spending is upon us.

Residential investment is also a critical part of the forecast, and I'd like to compliment the staff for the memo on housing. I, too, have been thinking about some of the fundamentals underlying housing demand. Looking at factors such as headship rates, housing vacancies, and depletions gives one an appreciation of the significant uncertainty surrounding some of the key determinants of future housing activity. On top of that, the combination of rising prices and disappointing volumes suggests that it might be worth understanding supply constraints in a bit more detail. Anecdotal reports certainly point in that direction as well.

It seems plausible to me that the puzzling weakness of the housing market over the past year is due to restraining factors that will turn out to be persistent. So I'm a little bit worried about the notion that residential investment will return soon to double-digit growth. Taking everything together, I still expect lower GDP growth than is shown in the Tealbook.

Turning to inflation, recent readings have been unexpectedly firm, and the question is how much of that additional firmness to carry forward into the forecast. The staff has pumped up its forecast a bit but not by a lot, and I think there could be some upside risk there.

Two meetings ago I talked about the labor market, since we were about to drop our forward guidance referring to numerical thresholds for the unemployment rate. For this meeting, we are considering a statement that shifts the emphasis away from the standard unemployment rate and toward other labor market indicators. This is consistent with our general practice of

considering the broadest possible range of data, as well as our continuing struggle to assess labor market conditions in the wake of the Great Recession.

We've been worried about the unusually large increase in long-term unemployment, the declining labor force participation rate, and the relatively high numbers of people working part time for economic reasons. At the previous meeting I argued that despite these unusual developments, the unemployment rate still seems to be a good summary statistic for the current state of the labor market. At this meeting I want to describe briefly a little bit of additional research on this question.

One simple way to approach this is to look at the joint behavior of an extended unemployment measure such as U-6, which includes both marginally attached workers and people working part time for economic reasons, with the standard unemployment rate, U-3. The U-6 measure is greater than U-3, obviously, but if you look at a scatter plot with U-6 on the vertical axis and U-3 on the horizontal axis, you see a very tight linear relationship for unemployment rates below 7 percent. Since the Great Recession, however, there's been an apparent upward shift in that relationship. Any given value of the standard unemployment rate has been associated with a higher value of U-6 than in the past, and right now the gap is about 1.6 percentage points. And this fact supports the view that there is now more labor market underutilization than is typically associated with an unemployment rate of 6.1 percent.

I want to make a couple of observations. First, this apparent gap does not seem to be related to marginally attached workers, since for U-5 the current values lie along the relationship that was displayed before the Great Recession. Second, part-time workers are by definition working more than zero hours per week. In fact, from the CPS, it looks like the average is about

23 hours per week. As a result, a measure like U-6, in which a part-time worker counts the same as an unemployed worker, is biased upward as a measure of labor market underutilization.

Part-time workers who would like to work full time are underutilized only to the extent that their hours worked would increase if they had the job they desired. This suggests that in a good measure of labor market utilization, the proper weight for people working part time for economic reasons would be less than one. In the CPS, the average weekly hours of part-time workers are about half the average weekly hours of full-time workers. So the number of people working part time for economic reasons should get a weight of one-half, and if you adjust U-6 this way, you significantly reduce the extent to which it's unusually high now. In fact, you cut it almost in half.

In April, I discussed research on this topic by Richmond Fed economists. What they did is take this reasoning to its logical conclusion. They constructed a comprehensive index of labor market underutilization that includes all nonemployed adults. The phrase "unemployment index" was already taken, so they call it the "nonemployment index." Different groups are weighted by their likelihood of transitioning from their group to employment relative to the transition rate observed for the short-term unemployed. So the long-term unemployed have about half the transition rate of the short-term unemployed. Those who are marginally attached are actually about the same as the long-term unemployed, with about half the transition rate of the short-term unemployed.

This seems like one of the most straightforward ways you could think of to construct a quantitative measure of labor market utilization that takes into account people out of the labor market who might transition back into the workforce as demand picks up. It weights them by the historical odds of them making that kind of transition.

This nonemployment index turns out to be right in line with what's usually associated with the current level of the standard unemployment rate. In other words, it's close to equal to the level of the index displayed in the past, before this recession, at times at which U-3 was 6.1 percent. So this, to me, suggests that we ought to be a bit cautious about shifting the emphasis from the unemployment rate to some other labor market indicators, since they all seem to be pointing in about the same direction regarding the improvement in labor market outcomes. Thank you.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. The recent employment report was quite encouraging. I was once again surprised by how much the unemployment rate has declined and pleasantly surprised by the number of jobs created. Has this changed my view of the degree of labor market slack in the economy? The short answer is yes, somewhat, but I still view labor markets as having substantial slack.

The U-3 measure of unemployment, at 6.1 percent, is well above my measure of full employment at 5¼ percent. In addition, I think the U-3 measure of unemployment is not a sufficient statistic for labor market slack. The combination of a significant number working part time for economic reasons, elevated long-term unemployment, and still-limited compensation pressures makes me comfortable pushing U-3 a bit lower than my estimate of full employment until these other factors are normalized as well.

For example, while New Hampshire and Vermont have unemployment rates well below 5 percent and Maine and Massachusetts are at 5½ percent, I'm not hearing any concerns of large wage pressures from employers. Consistent with this, I would note that in all four states the

percentage of workers in the labor force who are working part time for economic reasons is roughly double the rate it was in 2005.

Turning to my real GDP forecast, like the Tealbook I'm anticipating that growth will pick up during the second half of this year. However, given that I and others have been overpredicting real GDP growth for some time, I will need to see signs that the pickup is really happening this time before I can have much confidence in that outlook.

I would note that the models we run in Boston have been expecting stronger residential investment and consumption than has occurred. Both equations have a desired, or target, level in their econometric specification. With actual spending significantly below these target levels, the equations imply an acceleration of growth in the forecast as residential investment and consumption catch up to their target levels.

However, there's an alternative explanation that is becoming more difficult to dismiss. Consumers and homebuyers may have become more risk-averse as a result of the financial crisis, or they may have significantly revised down their perceptions of lifetime resources. In this scenario, the desired or target levels of consumption and residential investment, whose estimates cannot yet adequately capture this structural change, may be too optimistic. For this reason, I still see some important downside risks to my modal forecast of a pickup in real GDP growth during the second half of this year.

My forecast for inflation is for a very slow return to our 2 percent goal. I expect core PCE inflation to remain below 2 percent into 2016, roughly in line with the Tealbook forecast. If inflation continues to come in as expected—below target, as it has been for the past five years—we should have the latitude to be sure we get maximum employment before we fully normalize interest rates. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Plosser.

MR. PLOSSER. Thank you, Madam Chair. Economic activity in the Third District continues to grow moderately, and business contacts are becoming increasingly optimistic. Over the three months ending in June, employment grew at a 2.2 percent rate, and the unemployment rate fell to 6 percent, pretty much in line with the nation as a whole.

Our Business Outlook Survey's current activity index strengthened to 23.9 in July and is well above its nonrecession average of 9.9, as is the current employment index. The future general activity index rose to 58.1, just a touch below its highest reading in this recovery. It is also well above its nonrecession average, which is only 29.

Additionally, nearly 74 percent of the respondents to a special question anticipate increasing production over the second half of this year, with the majority anticipating increases of more than 4 percent. When asked this same question a year ago, respondents were basically evenly divided between those expecting to and not expecting to increase production. Those attitudes among manufacturing firms in our District are markedly more upbeat than they were a year ago and, actually, more upbeat than they were earlier in the year.

Residential construction remains at low levels in our District and is recovering at a disappointingly slow pace. Unlike the rest of the nation, much of the growth we have seen has been driven by the multifamily-sector market. I talked a little bit about this last time and the nature of the shift between single-family and multifamily construction. Permits for multifamily housing have risen sharply in the region year to year, led by very fast growth in Pennsylvania and New Jersey. Nonresidential construction has also been somewhat slow, although, as I previously reported, Comcast just broke ground for a new 50-story-high office building in Philadelphia, and two more of those are about to break ground later this summer.

Regarding the slow nationwide recovery in housing, part of the sluggishness appears to be due to the significant declines in the homeownership rate among 25- to 39-year-olds. This was indicated in the 2011 American Housing Survey, when compared with other surveys. For example, there was a drop in homeownership of 10 percentage points between what one observed in the early 2000s and what one observed after 2011. Further, it appears this demographic group is increasingly relying on renting single-family homes. This substitution may hint at difficulties in obtaining mortgages or perhaps at more-uncertain income prospects for this group, making homeownership less attractive. It might also reflect attractive rental terms on distressed properties bought by investors. This substitution could be contributing to the weakness in starts for new homes, as more rentals may originate from this pool of distressed home sales, thus lessening the need for new construction. This trend may continue to weaken new single-family starts but still support multifamily dwellings.

No doubt this is only a partial explanation of the weakness in residential construction, but I generally think this topic of demographic and other shifts deserves a lot of investigation, and I welcome the staff's memo on this topic. It was quite good.

Another puzzle, from my point of view—and this has been expressed around this table by a number of people—is the disparate behavior of employment and output. Over the first six months of the year, the economy has added approximately 1.4 million jobs and some additional capital, and yet it is producing roughly the same amount of output as it did in the fourth quarter of 2013. Now, as negative as one might be, it is hard to believe that total factor productivity has really taken such a dive as that. One might be tempted to haul out the old labor-hoarding story, but when I talk to businesspeople in my District, they are searching hard for workers, especially

those with skills, something they would not be doing if they had armies of idle employees sitting around on their factory floors.

Another measure of output that I have started to look at is what we call GDP-plus, which we now post on our real-time data website in Philadelphia. This measure results from optimally filtering GDP and GDI, or gross domestic income. They measure different things. They are supposed to be equal, but they are not. And there is a lot of measurement error that goes into explaining why one may differ from the other. We do this filtering in order to extract an underlying measure of output, and what this indicates is that the dramatic drop and first-quarter weakness in GDP was not as severe as the optimally filtered version would suggest. So this sort of calculation actually tends to support the staff's view that there is probably a lot of noise in the GDP numbers, and the weakness may be transitory in some sense.

Now, all of these puzzles aside, my medium-term outlook for the national economy remains fairly upbeat and pretty much in agreement with the staff's overall assessment of GDP growth. Actually, mine is a little below theirs, but not much. The incoming data, for me, appear consistent with growth of about 3 percent over the remainder of this year and next. I expect inflation will gradually approach the Committee's objective, actually, by the end of this year.

Thus, my views on the economy indicate that sometime late in the fall, we should stop reinvesting at least some portion of our principal payments and begin the process of normalizing the balance sheet. I also suspect that it will be appropriate to start raising the federal funds rate sooner than is implied by our current statement language, and that the forward guidance in our statement has outlived its usefulness. And I will discuss those views in more detail tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. As President Plosser just mentioned and as others have remarked, the extent of the first-quarter contraction in real GDP is deeply puzzling in light of the wide array of data that point to solid gains in economic activity. So my staff actually went to see how big this disconnect was between the GDP number—the decline of nearly 3 percent at an annual rate in the first quarter—and what we saw in the other data. For this purpose they used a statistical FAVAR model that takes 121 individual economic indicators and looks for the common trend in those. And this FAVAR model that doesn't use GDP would have predicted real GDP growth of 2¾ percent in the first quarter—almost exactly what was reported, except for the sign. [Laughter]

So it is a striking statistical way to see that what we are saying, and what I think the Board staff said in the Tealbook, is really supported by the data. Pretty much everything that we threw in the hopper was telling us that we were continuing with moderate growth. Now, I wouldn't declare the entire shortfall in first-quarter growth to be a measurement error, but I do agree with the Tealbook and many others that it does appear that the first-quarter GDP number is an anomaly. We shouldn't take much signal from it in terms of the underlying pace of expansion. And overall, the broad set of incoming data is consistent with moderate growth for the rest of the year, as well as gradual progress toward our inflation goal. My forecast for the next few years is very similar to the Tealbook's. The only difference, which has been there for some time, is that I expect inflation to come back toward our 2 percent goal slightly faster than the Tealbook does.

One area that continues to surprise on the upside is the labor market. Again, I think we have seen a wide range of indicators in the labor market showing improvement as good as or better than we were expecting. Notably, payroll and household employment have been showing

solid gains. Many of us have already referred to this good news concerning the labor market, but the one striking exception is the tepid pace of compensation growth, which, despite the improvement in the labor market, continues to run around 2 percent or so. And this is obviously an important issue, because we look at wage growth both as a sign of the state of the labor market in terms of slack—in terms of our maximum employment mandate—and also as a signal of its effects on inflationary pressures, in terms of our inflation mandate.

A couple of meetings ago I talked about some of the research at the San Francisco Fed about the effects of downward nominal wage rigidities that may be influencing the pattern of compensation growth and holding it back over the past couple of years. But still, there is a deeper puzzle about what has been happening with wages for several years, and I am going to focus the rest of my comments on some of the longer-term structural changes in the labor market, specifically concerning labor's share of income, which obviously affects compensation growth and also inflationary pressures. It's good to remember that in many economic models, including FRB/US and most DSGE models, labor share is a key driver of marginal cost and inflationary pressures.

Over the past few years, labor share in the nonfarm business sector has averaged about 57 percent, which is well below its long-run historical average of around 62 percent. If you take it at face value, which most models would do, this metric—this very low labor share—would suggest very low cost pressures for inflation. It suggests also that wage growth should be quite strong in the period ahead. However, my message is one of caution against relying on where the labor share is relative to some historical measure of its normal value in gauging either labor market slack or inflationary pressures.

One of the things that many of us were taught is that the labor share in the United States is relatively constant. And that was true for several decades. But in fact, when you do a deeper dive, looking underneath the fact that labor share is relatively constant for the first four decades after World War II, there were actually a lot of things happening. In certain sectors it was going up, and in others it was going down. So in a way it was pure coincidence that it happened to seem so flat. Actually, since the late 1980s, we have seen a substantial downward trend in labor share. And the fact that it has been going on for so long—it's not related to the current recession or recovery—suggests that there really are structural, rather than cyclical, factors driving this, or at least most of this.

There is quite a bit of literature on this now, talking about what could be causing labor share to decline. Maybe it's information technology capital replacing routine labor, the effects of globalization, or the reduced bargaining power of workers. Due to the timing of the decline, one of the prime suspects has been the increasing rate at which IT capital is replacing labor. If robots replace workers on the auto assembly line, a greater share of the price of a car may go to capital rather than labor. Another explanation involves globalization: If the labor-intensive jobs, such as those at call centers, are offshored, the income share of the U.S. economy going to domestic workers is reduced.

Of course, these explanations for a lower labor share are likely complementary and reinforcing, and I am not going to take a stand on the question, is it IT, is it labor bargaining power, or is it globalization. But the key theme that comes out of this literature is that these are long-running structural changes in our labor market. So in our own thinking about where the economy is going, we shouldn't be expecting labor share to go back to some normal historical level. In fact, looking forward, it is really hard to know which way labor share should go.

Should it stay at its very low level of around 57 percent? Should it rise somewhat as the economy improves? Or maybe this downward trend will actually continue into the future.

So I view labor share, which used to be viewed as one of these cosmological constants—these great stylized facts of macroeconomics, like potential output growth, like the natural rate of interest, and a lot of things that we took for granted were constant, probably never really were, and clearly aren't today. And so in thinking about the implications of that, I think what it means is that we shouldn't be expecting labor share to be moving back. We should be more realistic about our ability to measure the equilibrium value of wages, or real wages, relative to productivity.

Looking forward, if we thought the labor share would return to its earlier postwar benchmark, we would be expecting strong compensation growth relative to productivity growth. But my reading of this literature is that a large part of this decline is really driven by structural factors, and a full recovery in the labor market may have real wages growing at no more than the pace of potential productivity growth, and perhaps actually below that, because if you have a declining labor share, you would actually expect real wages to be growing slightly slower than productivity growth.

So I think it's one of the factors that can help us understand why wage growth hasn't been as strong as we might have thought. I still think there is a significant cyclical aspect of this. I'm not downplaying that. But we have been going through all of the factors that might explain why wage growth has been well below what we thought. And I think we just have to keep this in mind when we think about what the new normal for the economy is. Pretty much every variable seems to have a new normal, and we need to adjust this in our models and our thinking. Thank you.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. Thank you, Madam Chair. I am going to briefly mention my District, and then talk about my soundings with my interlocutors, and then just make a comment or two about the national economy. And I'm going to refrain from signaling my views on policy until tomorrow.

First of all, with regard to my District, I think it was General Sheridan who said that if he had a choice, he would live in hell and rent out Texas, and I am trying to figure out why, because I think if he had rented out Texas, he would have made a hell of a lot of money. [Laugher] He probably wouldn't have enjoyed it as much being in hell. But just to give you some statistics, again, we continue to be an aberration. Our employment grew at a rate of 4.3 percent in the second quarter. Our output was 3.7 percent last year—that's twice the national pace of 1.8 percent. So on both fronts we continue to barrel along. And I use the term "barrel." Of course, energy is a helpful underwriter of what we are doing. We've got a highly diversified economy.

The real median sales price of homes in my District, which is 96 to 97 percent Texas, rose 0.7 percent last month. And leasing activity for office and industrial space is strong. Rents are rising. Construction is robust. And it's not Philadelphia, but we actually have a 50-story building being built in Midland, Texas, which is in the middle of nowhere. I am seeing that in every city—San Francisco, as we talked about earlier, President Williams, and all across the country, and it's certainly true in our case.

We released our Texas manufacturing survey on Monday. From the standpoint of new orders, capacity utilization, and shipments, the July readings for these indexes were more than twice their 10-year averages. And today we released the service numbers and the retail sales

numbers, and we are seeing a similar type of pattern. So my District continues to barrel along, and nothing has changed from that standpoint.

In terms of interlocutors and my CEO contacts, as you know, I like to look first at what moves things—the ships, the rails, the express companies, or the airlines. You have to set ships aside to a great degree because of the Chinese builds that have come. They are now only second to Korea. They have surpassed Japan. There is enormous capacity in the market. It's very hard to look at the leasing rates in terms of the large ships, and particularly the bulk shippers, and really ascertain any pattern other than the fact that China continues to stockpile iron ore in bulk.

But I was very strongly impressed by the reports of the airlines. Advance bookings are up 5 to 6 percent, year over year, depending on who you speak to. From the standpoint of the express companies, if you look at the volume of packages that they are processing, through last week, when I had my last conversation, it was up 7 percent year over year. There's been quite a change in composition, by the way—if you're looking at the standard stuff that one would ship, the numbers are in single digits. But if you look at what is processed through e-commerce, the rates are running 14 percent year over year. These are substantial. And they are beginning to take price, both the airlines and the shippers, and the way they are doing it in the express shippers is really by what they call dimensional pricing, but it's just a change in format. The net, bottom-line effect is a price increase of about 2½ to 3 percent.

From the standpoint of the issue of wage/price pressure, there are certain areas where you see it, certainly in an area of robust economic growth like we have, or like you have in San Francisco and the Bay Area. But the constant theme that I am hearing from my contacts is more related to the quits ratio. That is, whether it is a very large telecom company or one of the smaller companies, they are seeing an ability of their workforce with middle-level compensation

to take the risk to go somewhere else, and they are finding jobs. That is one manifestation. It might be a leading indicator—we'll just have to monitor that. The other is the rapidity with which they can replace an employee that leaves. And that has been stretched out, according to my interlocutors. So I think this is just something worth observing.

And, last, I would observe, as far as the U.S. economy, that all of the indexes that we have seen, at least the regional ones that have come out recently—I hasten to remind you that ours is the most timely because it runs through last week—they are all positive. I was impressed by the Chicago Fed's national activity index, which showed above-normal growth in June, and also by the jobless claims report, which may be a little bit variable. But if I read the four-week moving averages correctly, the last time we had this kind of movement was in May 2007.

The best description I received in all of my CEO calls—and I completed 30 for this meeting, not just in my District but all across the country, all sizes and shapes, public and private—was that the economy is proceeding in a "methodical, protracted, sustainable growth mode." Among people who operate businesses, the fear that we are going to slide into deflation or into a Japanese stasis, or reverse gears, has become a miniscule—in their word—tail risk. We may not be growing at a robust pace, but there is much more confidence in the private sector, and it increases with each sounding that I take for these meetings. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. Following President Fisher reminds me of a quick story about the Foreign Minister of Saudi Arabia speaking in Houston a few years ago. He started his speech by saying, "I feel that the Kingdom of Saudi Arabia and the State of Texas have much in common. We both like close relations with the United States." [Laughter]

Let me start with a summary of views from District contacts in recent weeks. Sentiment about the course of the economy has clearly improved since the previous FOMC meeting. The outlook and confidence level of our business contacts, while not over-the-top exuberant, are about as positive as we have heard over the recovery. Retail industry contacts recounted a nice bounceback in consumer spending from the first quarter. Consumer auto purchases, which are dominated by the new car segment that they call the light truck category, and that includes SUVs and crossover vehicles, continue to be quite strong and are expected to continue so.

Commercial real estate investment seems to be picking up. We heard references to some amount of speculative building in commercial real estate. Business capital investment continues to strengthen. Notably, we heard reports of a pickup in capital investment plans on the part of smaller businesses. Most medium and larger companies indicated that credit is readily available.

It's been our practice every cycle to ask contacts about their hiring activity and hiring plans. Despite the evident pickup in the national data, labor demand on the part of our contacts is still couched in cautious terms. Many companies continue to report postponing decisions to add employees. From those who are hiring, we continue to hear reports of difficulty finding qualified workers. This is not a new story, but the challenge of filling positions appears to be both intensifying and broadening out across the skill and occupation spectrum. Where companies are actively hiring and finding a shortage of qualified applicants, we heard reports of upward pressure on offer wages. This is something of a new development.

More generally, we are getting some signals that we associate with tightening labor markets. We heard accounts, for example, of firms lowering hiring standards. We also heard accounts of firms expanding training programs for both new hires and staff they hope to retain.

Most companies still report merit increases of 2 to 3 percent, but we heard more mention of higher increases either planned or already implemented.

Finally, we continue to ask about pricing power. We are beginning to hear claims of successes in pushing through price increases. Several companies said they are intending to increase prices over the remainder of the year and are confident the price increases will stick.

Because the estimation of labor resource slack is so central to policy questions, my staff did further work over the intermeeting period trying to more completely understand the total part-time worker phenomenon. Based on data in the Census Bureau's Current Population Survey, the total part-time share of employment rose about 3 percentage points to 19.7 percent during the recession, and it is currently about 2 percentage points higher than before the recession, at 18.3 percent.

Almost all of the increase in the part-time employment share is accounted for by the rise in involuntary part-time workers. The rise in PTER is broad based and can be seen in almost every industry and occupational group. The greatest increases in PTER occurred in industries that typically have a large part-time workforce—retail sales, food services, personal care, health-care support, and construction. But to repeat, PTER increased across a wide spectrum of industries and occupations.

My staff looked into whether feedback from operating businesses in our District lines up with the thesis that the elevated level of people working part time reflects primarily cyclical as opposed to structural forces. Additionally, my staff examined whether the weakness we have seen in hourly wage growth is consistent or uniform across both full-time and part-time workers.

To get at the first question, we conducted a survey involving a good spread of about 400 midsize to large firms in our District and asked them to compare their utilization of part-time

workers today versus before the recession. We also asked them to cite the main reason for any change in their mix of full-time and part-time workers. We found that 25 percent of firms have a higher share of part-time workers. Those citing weak business conditions as the reason for greater use of part-time workers were about equal with those citing the increasing hourly compensation costs of full-time workers associated with the Affordable Care Act, for example.

Our survey results suggest that there is a combination of cyclical and structural explanations for the rise in part-time workers. On the wage growth question, we found from data in the CPS that the growth rate of median hourly wages for people who are working part time for economic reasons has been flat since 2007, while wages have increased about 5 percent over this period for voluntary part-time workers and 14½ percent for full-time workers. Our tentative conclusion is the weakness in aggregate hourly wage growth seems to have been influenced by relatively stagnant wages of part-time workers in general, but especially PTER workers.

Turning to my outlook, my current thinking is very similar to that outlined in the Tealbook. I expect the second-quarter bounceback to be less impressive than earlier expected, but I am holding to the view that the growth run rate is accelerating to around 3 percent. Looking at indicators of GDP growth, I see the data on payroll employment, industrial production and manufacturing, and business capital investment, as indicated by capital goods shipments, all supporting the assumption of something near a 3 percent run rate. The consumer spending trend is less affirming of a 3 percent assumption. So I take that as a reason for reserving judgment on the true strength and momentum of the economy pending more validation by incoming data.

As regards the balance of risks, I continue to see the risks to the growth and inflation outlooks as broadly balanced. And, like most others, I’ve consistently misread the path of the

unemployment rate as it has fallen more rapidly than I projected. My year-end unemployment projection is just a couple of tenths below the current rate of 6.1 percent, but I wouldn't be surprised if I am on the high side once again. Since I am in the camp of putting substantial weight on other labor market indicators, the risks around U-3 *per se* influence my thinking on appropriate policy less than growth risks and inflation risks. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. Growth in the Seventh District was relatively strong in the second quarter. The auto sector was a source of strength for the District, as well as industries supplying the aerospace and energy sectors. Activity also is picking up in the steel and heavy equipment sectors, although the latter is still being held back by weakness in global mining.

Business contacts reported that capital expenditures and plans for future expansions continued to increase. Most expenditures remain concentrated on equipment for industrial and IT uses. But our sources also noted modest capacity expansions, especially by auto suppliers.

As President Lacker reported, our banking directors reported stronger loan demand, and that's a good sign if it continues. By the way, one of my bankers went down to Texas and reported back that things are really booming, before I could stop him to say I already get a report on that [laughter]. It seems to be confirmation of that.

Hiring in the Seventh District picked up, particularly in the service industries. One of the big staffing firms noted that its clients have been experiencing higher turnover in skilled positions. In addition, the firms are pushing to fill empty positions faster.

The continued improvement in the tone of my business contacts' commentary strongly suggests that second-quarter growth was quite robust. Most CEOs I talk with note their

improved economic performance, but they don't readily see their improvement translating into an economy with national growth above 3 percent. Perhaps an abundance of caution is continuing to weigh on CEOs and prevent them from articulating stronger growth scenarios.

After all, one such storyline could be in housing. We have been expecting housing to improve more, but as the special Board staff memo discussed, housing has yet to gain much traction. Indeed, our housing finance contacts are not optimistic that the pool of potential first-time homebuyers will be able to gain adequate access to mortgage credit over the near term.

And, as one of my banker directors noted, when commenting on the stability of his deposit base, households still have a relatively high propensity to save. Without a stronger consumer, there is no reason for business investment to ramp up. I think businesses still have concerns about the strength of future consumption. I hope this is just hand-wringing, but I still think we should avoid getting overconfident about our growth forecast.

Meanwhile, I still don't see a lot going on with regard to inflation. My contacts did report some initial signs of upward wage pressures. Most were small, and many were for skilled labor. Nonwage labor costs were little changed, although energy costs remained elevated. However, my contacts say prices at the wholesale level have changed little, and that competition is putting downward pressure on retail prices, compressing margins.

To be sure, we have seen some higher inflation numbers this spring, and the Tealbook quite reasonably has revised up its inflation projection. But we need to keep in mind that the Tealbook forecast is still below target beyond 2016. My own inflation forecast is a bit below the Tealbook. Most of our Chicago Fed statistical models are projecting inflation lower than the Tealbook forecast. Notably, our model that extracts inflation forecasts from the term structure of interest rates is looking for core PCE prices to increase only 1.3 percent in 2016. My inflation

outlook is higher than 1.3 percent for 2016, but these inflation indicator forecasts should remind us that we are not yet clearly on a sustained path toward our 2 percent target. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. Economic conditions in the Fourth District have improved over the intermeeting period. Since our previous meeting, I have traveled to our Branches in Pittsburgh and Cincinnati, as well as to Columbus, Ohio, meeting with business leaders and bankers in all three cities. There seems to be a sense of optimism that the expansion is sustainable and is picking up momentum.

Now, I don't believe all of the renewed confidence is attributable to Cleveland's winning the hosting duties for the Republican National Convention. However, it may be because LeBron James is returning home. [Laughter] Only time is going to tell.

District payroll employment has increased at nearly a 1 percent annual pace so far this year, very similar to the nation and strong enough to have driven the Fourth District's unemployment rate down to 5.9 percent, slightly below the national average. Over the longer run, District employment growth has tended to be less than the U.S. average, and unemployment has tended to be higher, so I read the labor market trends in the District as being favorable. Anecdotal reports continue to suggest that more employment gains are likely in the future, with a large proportion of contacts reporting planned increases in staffing levels, although at a modest pace.

In addition, in light of improving conditions, about half of the contacts we surveyed for this meeting indicated they intend to increase capital expenditures in coming months. This is a significantly higher fraction than at the end of last year. An increasing number of District

businesses also noted it was easier to obtain financing from banks than had been the case in some time. While residential building activity appears to have changed little in recent months, nonresidential building activity is picking up. So far, there are few signs of price pressures either building or diminishing among firms in the District. So the bottom line is that the Fourth District's economy is making steady progress and the outlook is for that to continue.

At the national level, like the Tealbook, I attribute most of the first-quarter weakness to transitory factors, especially the bad weather. I take more signal about the underlying strength of the economy from the improvement in labor market conditions, which has exceeded the expectations of many economists. The unemployment rate has fallen to 6.1 percent. That's nearly 1 percentage point lower than last July's Tealbook was projecting it to be at this point. While long-term unemployment remains elevated, the declines over the past year in a broad set of unemployment rate measures are some of the largest we have seen in many years. Payroll employment growth has also strengthened and is running above expectations.

On the inflation front, the data continue to be consistent with inflation gradually picking up to our 2 percent goal over time. The Cleveland Fed's median and trimmed mean CPI measures decelerated last month, as did the overall CPI. Yet even with the most recent readings, by a number of measures including the CPI, core CPI, and the Cleveland Fed's median CPI and trimmed mean CPI, year-over-year inflation has increased since the start of the year. My staff's VAR model forecasts inflation to be on a positive trajectory over the forecast horizon. Rising inflation is consistent with a pickup in economic growth and inflation expectations well anchored at our target. And I note that the Cleveland Fed's 10-year inflation expectations measure has remained essentially stable near 2 percent.

One question is whether this is a reasonable inflation forecast, as we haven't seen much acceleration in wages yet. So I asked my staff to investigate the lead-lag structure of wage and price inflation. Their analysis included several measures of wages and broader compensation and concluded that it has been difficult to find a lead-lag relationship between wages and prices. The strongest correlations are contemporaneous ones, especially since the mid-1980s.

More-formal Granger causality tests are also quite mixed and, if anything, lean toward suggesting that price inflation Granger-causes wage inflation. Moreover, my staff finds no evidence that wages and compensation help to predict price inflation out of sample. Similar to a finding reported in the Tealbook, my staff found there hasn't been a stable Phillips-curve relationship between unemployment gaps and price inflation since the 1980s, but there does seem to be a more stable relationship for wage inflation.

Taken together, these results suggest that we should continue to include wage developments as an indicator when assessing tightness in labor markets, but that current subdued wage growth is not inconsistent with our forecasts of rising price inflation. We should expect wages to rise with prices, not necessarily to lead prices. In addition, we cannot simply wait for wages to accelerate before assessing the implications of future price inflation for the stance of monetary policy.

So I continue to forecast that inflation will move back toward target over time. Similarly, I have made little change in my growth and employment forecast since last time. I project that growth will be about 3 percent in the second half of this year through 2016, and that the unemployment rate will continue to decline. I see the risks around my forecast, including international developments, as broadly balanced. At this point, financial-stability risk is low, but leveraged lending is something that we need to continue to monitor carefully.

Now, my projections incorporate continued reductions in the pace of purchases, with the program ending in October. With continued steady progress in labor markets toward the Committee's longer-run goal of maximum employment, I tie liftoff from the zero lower bound to when inflation between one and two years ahead reaches the Committee's goal of 2 percent. After liftoff, my funds rate path follows the path suggested by a Taylor rule with inertia.

In my projection, liftoff occurs in the first quarter of 2015. Using my liftoff criterion, this is sooner than would have been projected at the start of this year, reflecting better-than-expected realized and projected progress toward our dual-mandate goals. We have been consistently underestimating the economic progress being made. The Tealbook sees the output gap as 1½ percentage points narrower than last July's Tealbook was estimating it to be at this point. The current Tealbook now sees the output gap being eliminated by next summer. This is three quarters earlier than in the June Tealbook. I think it is prudent to plan for the possibility of liftoff sooner than market participants are currently anticipating. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. The Eighth District economy continues to expand at a modest pace. Retail activity in the District has expanded, especially in the restaurant sector. Activity in residential real estate markets has been tepid, but commercial real estate markets have shown improvement.

Labor market conditions in the District are improving but continue to lag the nation. Recent reports on hiring plans in manufacturing and services have been positive on balance. One example is Big River Steel, which plans to open a $1.1 billion steel mill in northeastern Arkansas with approximately 500 employees and an average salary of $75,000 per year. Another example

is an Amazon expansion. They are building a new distribution center in Shepherdsville, Kentucky, with 500 new full-time employees, in order to meet increasing demand.

Turning to the national economy, I continue to believe that we are in a wait-and-see mode, especially with respect to economic growth. We need confirmation that the underlying strength that seems to be apparent in anecdotal reports on the economy as well as in labor market data is actually showing through in GDP performance. But I largely agree with the Tealbook's baseline interpretation that growth will be relatively strong in the second, third, and fourth quarters of 2014 and into 2016. In conjunction with this scenario, I see unemployment continuing to fall, other labor market indicators continuing to show improvement, and inflation continuing to rise to eventually exceed our 2 percent inflation target in 2015.

I want to pause and acknowledge the box on multiple equilibriums in the Tealbook. I'm an advocate of multiple-equilibrium stories, and I appreciated the appearance of this in the Tealbook. I think the Tealbook gave a fair characterization that this continues to be a risk to any scenario—mine in particular, but anybody's scenario about the U.S. economy.

I have become more concerned that something of a mismatch is developing between the distance of macroeconomic outcomes from Committee goals, on the one hand, and the distance of policy tools from normal settings, on the other. In short, we are quite close in terms of macroeconomic goals, but as distanced as we have been in the postwar era from normal in terms of policy tool settings.

In terms of macroeconomic goals, inflation is just a few ticks from target, and unemployment, at 6.1 percent, is only somewhat higher than many of the estimates of the long-run rate put forward by members of this Committee. If one puts these numbers into a loss function based on squared deviations from long-run values with equal weight on unemployment

and inflation—the type of loss function often used in staff assessments of optimal policy—one finds that current goal variables are quite close to target compared with historical experience since 1960. In fact, we are closer to goals today than we have been most of the time historically. Of all of the months since 1960, we're doing better today by this criterion than we have approximately 80 percent of the time.

Policy tool settings, in contrast, are nowhere near normal. The policy rate, at near zero, is 350 to 400 basis points below normal. The size of the balance sheet was on the order of 5 to 6 percent of GDP before the crisis but today is on the order of 25 percent of GDP. If one puts numbers like this into a similar quadratic objective based on squared deviations of the policy rate from normal and the balance sheet from normal with equal weight on the two dimensions, one finds that the current values are as far from normal as we have ever been in the postwar era since 1960.

These simple calculations indicate a growing mismatch between what monetary policy is doing and the reality on the ground for the U.S. economy. If the economy confirms the relatively strong growth expectations that I have and that are contained in the Tealbook in the months and quarters ahead, this mismatch between policy settings and actual macroeconomic outcomes will become a more pressing issue for this Committee. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. The Tenth District economy expanded modestly since the previous meeting, with unemployment rates falling near or below historical averages in most District states. Our contacts reported labor shortages and wage pressures for certain positions in trucking, construction, high tech, and high-skilled areas, although actual wage increases have been modest in most industries.

Current high oil prices continue to support strong oil-drilling activity in the District, and production activity has started to create positive spillovers. Rail activity has been particularly strong this year. A large railroad headquartered in the District plans to add some 1,000 jobs and to significantly boost capital spending. A senior executive at this firm noted that it was the first significant midyear spending increase he has seen during his lengthy tenure with the company. At a national level, of course, employment in the rail industry has hit its highest level in over two decades.

Crop prices continue to fall alongside favorable growing conditions this summer, which have reduced profit margins for producers. The profitability of livestock operations, however, continues to improve. Cattle and hog prices both set new records amid persistently low inventories and relatively strong demand.

Turning to the national economy, I share the Tealbook's view that the feeble growth readings during the first half of the year largely reflect influences that should not persist in the second half. Although forecast misses and data surprises have been the norm over the past few years, I do see something different this year in the labor market data that gives me growing confidence in the economy's ability to sustain growth.

Not only has job growth been strong over the past six months, but average payroll growth this year has exceeded the average of the top 10 most optimistic forecasts from this past January's Blue Chip survey. Job openings have surged and are back to their post-crisis peak, while the private quits rate has moved higher.

I wanted to highlight three aspects of the labor market that I think corroborate the current level of the unemployment rate and point to less slack. The first is that the labor market seems to be better allocating labor in terms of matching high-skilled workers with high-skilled jobs. My

staff has done analysis showing job growth has been strong this year for workers with a college education entering high-skilled occupations, which has occurred alongside their declining employment in middle-skill occupations. This rotation has coincided with a sharp rise in employment for high school graduates into these middle-skill jobs. This suggests to me that labor markets are functioning much better, as we are now seeing signs of workers moving up the job ladder.

Second, I'm encouraged by the flow rates of the unemployed back into jobs. While the probability of reemployment of the short-term unemployed is back to normal levels, the reemployment probability for the longer-term unemployed also has moved higher. For example, the probability of reemployment of those unemployed longer than 52 weeks is near its pre-crisis average. While the data can be volatile and subject to revision, I still view this as a positive development. Along these same lines, the U-6 measure of unemployment has fallen at its fastest pace compared with any other time in the past two decades.

My third point is my staff's labor market index, which considers 24 labor market indicators, shows slack continues to diminish. Of these 24 indicators, 19 are currently making a positive contribution to the headline index over the past six months, indicating broad-based improvement. In addition, the momentum indicator they pull from this data remains near its highest levels over the past two decades.

While the improvements in the labor market are encouraging, there is still the question of wage growth, but even here, growth in average hourly earnings for production and nonsupervisory workers has moved higher since late 2012, and the number of firms reporting few or no qualified applicants for job openings in the NFIB survey is back to pre-crisis levels.

So while we still wait to see firmer data indicating rising wages, these indicators and the general improvement in the labor market suggest to me stronger wage growth could be in the pipeline.

Turning to inflation, longer-term inflation expectations, of course, appear to remain well anchored. A five-year, five-year-ahead tradable measure of inflation has fluctuated tightly in a range that can be viewed as consistent with our 2 percent goal. Nearer-term measures of inflation expectations, such as one-year, one-year-ahead implied inflation from CPI swaps, have moved higher over the past few months. These financial market indicators, along with firmer inflation data and strengthening labor markets, suggest inflation is likely to continue moving toward target and downside risks have diminished.

With the economy approaching full employment within the next year and inflation nearing the Committee's target, both factors raise issues for the current stance of monetary policy, which I'll comment on tomorrow. Thank you.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. The news for the Ninth District has generally been good. Our business contacts generally expect moderate growth in the second half of the year, although we continue to hear reports of a sense of suppressed confidence about the medium and longer run.

The unemployment rate in the District has fallen below 4½ percent. However, outside North Dakota, there is evidence of continued underutilization of human resources in the District. For example, in Minnesota, which has over half the population of the District, the latest measures of U-6 remain well above what they were seven or eight years ago.

In earlier meetings I've reported on work that my staff has done documenting that the fraction of the labor force that is working part time for economic reasons helps explain the

behavior of inflation across MSAs. Consistent with that analysis, wage pressures remain muted in much of the District, and this echoes President Rosengren's observations from his own District.

I'll turn next to the national economy. In terms of quantities, my outlook for the national economy has changed a lot since the beginning of the year. My outlook for growth is considerably lower, around 1½ percent over 2014 as opposed to around 3 percent. And here I'll pick up a point that Governor Fischer made. A lot of participants around the table and members of the staff have commented that we're downweighting the observations from the first quarter in terms of GDP, but in fact, that lower realization of GDP is being carried forward all the way through, so that, at least for myself, my estimate for GDP at the end of 2014 is now 1½ percent lower than it was at the beginning of 2014. That's largely being driven by what happened in the first quarter, and I don't have any reversal of that in the last three quarters of the year.

Now, on the other hand, if you go to the labor markets, my outlook for unemployment is considerably lower than it was at the beginning of the year and now is down to around 5.8 percent by the fourth quarter of 2014, slightly lower than President Lockhart's. But certainly I've been surprised before by the rapid decline in unemployment.

In terms of prices, my outlook has changed little since the beginning of the year. I expect PCE inflation and core PCE inflation to be around 1.6 percent over the course of 2014. I'll spend a little more time on my inflation outlook because it is central to what I'm going to be saying tomorrow about policy.

To be clear, like the Tealbook, I do expect PCE inflation to rise back to 2 percent, which echoes what many of you have already said around the table, but that rate of return, as in the Tealbook, is only slow. It gets back to target by around 2018. Unlike the Tealbook, I don't have

inflation overshooting in the latter part of the decade, and in part this is because I would assign more of the weak real GDP number in the first quarter to higher slack as opposed to lower potential.

Now, I would say—as is true of any forecast, and David Wilcox's pictures illustrate this very clearly—there are uncertainties around any forecast, and so there is a risk that under the Tealbook's assumed policy stance, inflation could run above 2 percent. What matters for policy is that I do see these uncertainties as broadly balanced around my modal outlook. So what this means is that under the Tealbook's policy assumption, I see inflation as considerably more likely to be below 2 percent over the medium term than over 2 percent. You could see this in David Wilcox's pictures from the forecast summary, that the likelihood of inflation being under 2 percent over the medium term is considerably higher than being over 2 percent.

Such an inflation outlook does not seem to me to be consistent with the balanced approach that we articulated in the fifth paragraph of our long-run goals statement. Thus, as you will hear in the next go-round, my inflation outlook leads me to believe that policy should be more accommodative than the Tealbook assumes. We've heard very passionate discussions of credibility of this organization. One aspect of credibility that matters a lot, I think, is the credibility of our inflation target and our ability to hit that, and that will be influencing what I say about policy tomorrow, Madam Chair. Thank you.

CHAIR YELLEN. Thank you. Vice Chair.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. My views about the economic outlook haven't changed much since the previous meeting. Like everybody else, I strongly discount the first-quarter GDP decline and anticipate the underlying growth rate will be about 3 percent on a going-forward basis. It strikes me that if you exclude the GDP data and you

exclude the payroll data, everything else is pretty close to what we were anticipating, and so it doesn't feel like there's really a big change in the going-forward outlook.

With respect to the disparity between growth in the first half of the year and the degree of tightening in the labor market, obviously, I put more weight on the labor market developments, but I don't want to completely rule out the possibility that payroll growth could slow again. We've been disappointed a number of times over the past few years. We've seen these little spurts in payroll employment, and then they've died out.

That said, I do think the time has come when we have to acknowledge that the labor market has continued to tighten more rapidly than we anticipated. I think the way we acknowledge that in the monetary policy statement tomorrow seems about right for this meeting, and if we get two more strong employment reports between now and the next meeting, then I think we'd have to take another step to even further underscore that development.

With respect to inflation, I was never that worried about inflation being too low, and I'm not particularly concerned that inflation is moving somewhat more quickly back to 2 percent than we've anticipated. I think there isn't much signal in the upturn, especially given the fact that the underlying compensation trends don't seem to have changed much. Most indicators suggest that compensation is still increasing at only about a 2 percent annual rate. Assuming that productivity growth improves from the dismal first-half performance, I think we need to see a considerable rise in labor compensation from here to really get worried about inflation.

I want to turn to housing. I thought the staff memo on housing was really good, and I thought it was very germane. Why has the housing recovery been so disappointing? My own view is that the weakness is mainly on the demand side and doesn't stem from the perceived core fundamentals of owning a home, but instead reflects the difficulty of obtaining financing.

In a recent New York Fed survey, we asked renters why they would not purchase a home if they were to move within the next three years, and the three most common reasons that they cited were 1) do not have enough money saved or too much debt, 2) do not make enough money, and 3) my credit is not good enough. About two-thirds of the renters thought it would be either somewhat difficult or very difficult to obtain a mortgage. In contrast, when asked about the attractiveness of buying a home—so, "Would you like to buy a home?"—60 percent said it was a somewhat good or very good investment, and half the respondents said that buying property in their Zip code today is a better investment idea now than it will be a year from now, compared with 7 percent who think it would be better to wait for a year before thinking about it.

In contrast, for owners, buying a new home and qualifying for a new mortgage doesn't seem to be that difficult. Only about 10 percent of owners have FICO scores below 680, and most, but not all, have considerable equity in their current homes.

With respect to student loan debt, there is evidence that this is important. Prior to the financial crisis, for people who were aged 27 to 30, those with student debt were more likely to have debt secured by a home. If you had a student loan, you were more educated, so you were making more income, and you were more likely to be a homeowner. In contrast, currently, those without student loan debt now have a greater likelihood of having home-secured debt. That's a pretty significant shift. The fact that the proportion of younger adults with student loan debt is rising and the amount of this debt is also increasing suggests that student loan debt is an issue impeding the first-time homebuyer. Thank you.

CHAIR YELLEN. Thanks. I am going to suggest that we, after having a long day, call it quits at this point, go have some dinner, and resume tomorrow morning. We'll finish off the go-

round tomorrow with the Board, I will do a little bit of summing up, and then we'll start the policy go-round.

[Meeting recessed]

July 30 Session

CHAIR YELLEN. Good morning, everybody. I'd like to turn first to David Wilcox for a discussion of the statistics from this morning.

MR. WILCOX.[6] Thank you, Madam Chair. As I hope you can appreciate, we haven't had an enormous amount of time to engage in a deep excavation of the GDP data that were released this morning, but what we know at this point is that there was a little more GDP growth than we'd been expecting over the first half of this year. The first-half growth figure now averages about 1 percent at an annual rate rather than the ¼ percent that we'd been projecting in the Tealbook. Before there's any sense of satisfaction or celebration about that, it still is, obviously, an anomalously low rate of growth of GDP, given all of the other indicators that we have. So, what I'm going to tell you this morning is, the picture hasn't changed much. One percent is still a very weak GDP figure, given what else we know. The upward revision to GDP growth of eight-tenths of 1 percentage point that you see reflected in the next-to-rightmost column does not reflect any reconsideration of medical care spending in the first quarter. Instead, it's in inventory investment.

As you can see, in the next block down, real GDI growth was also revised up in the first quarter, quite substantially—by nearly 2 percentage points. Again, here there's no resolution of any of the puzzle that we had been seeing before. The upward revision was in real DPI. The place where we'd been puzzled was in the plunge in corporate profits. The figure that the BEA wrote down for second-quarter growth of real DPI was weaker than we had expected. So, on net over the first half of the year, there's not much positive news about personal income, either.

Taking a quick look at the annual revisions, at first glance, they appear to be of little consequence for our outlook. If you integrate across the italicized rows, you get something very close to zero. So there's not much change in the level of either GDP or GDI or in the relationship between the two. They're not going to help resolve any of the tensions that we had earlier detected between labor market and output data in recent years. On net, I don't expect this information to have any positive implication for our GDP growth outlook in the second half of this year. In fact, it may be a small negative, as we'll be entering the second quarter on these estimates with a larger stock of inventories.

On inflation, just very briefly, as you can see, the four italicized zeros are not typographical errors. We happened to get very close on those. So there's no news here to speak of on the inflation front that we've been able to unearth yet. Thank you.

CHAIR YELLEN. Questions for David? President Bullard.

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

MR. BULLARD. I just want to be clear—President Fisher and I were talking here. The 2014:Q2 real GDP has a revision here of 0.4. That's because it was a benchmark.

MR. WILCOX. No—sorry. The 0.4 upward revision is relative to our Tealbook estimate. This is the first estimate of 2014:Q2.

MR. PLOSSER. So these other changes are benchmark revisions, though?

MR. WILCOX. Well, I'm not sure what the technical meaning of "benchmark" is. It's an annual revision, and that's why earlier quarters were susceptible to revision. So some years, the annual revision shifts around the pattern on the chessboard quite a lot. Thus far, it doesn't look as though that happened this time around.

CHAIR YELLEN. Okay. Seeing no further questions, let's go back to our economic go-round. Our next speaker is Governor Fischer.

MR. FISCHER. Thanks very much, Madam Chair. I would like to start by saying that, as I read the Tealbook, I thought I really understood a heck of a lot more on my second go-round than on my first go-round, but then I discovered that this is the simplified Tealbook [laughter], which apparently is produced every two meetings. But I did ask the people who write it, and you know the old line "I didn't have enough time to write it short." They said that, actually, it took less time to write. And it sure is a lot clearer. So could we, at some point, take a poll on whether people prefer this version, which I certainly did on this occasion?

MR. WILCOX. We could do that right now before anybody loses the thought [laughter].

CHAIR YELLEN. If you'd actually like to do that, why don't we just spend one second, if you don't mind being interrupted?

MR. WILCOX. Could I make a quick comment? This was the fifth time we'd done the so-called short form of DEDO. All of the other sections in the Tealbook were in the same format as usual. It's the red-tabbed section in the beginning of the book that is condensed.

When I went to Chairman Bernanke a year ago and requested permission to try a short-form DEDO, I made several pledges to him. First, I pledged that we would do it on an experimental basis, and, if it was judged a failure, we'd go back to the long form every time. Second, I pledged that we would invest the same amount of analytical effort every time regardless of whether the exposition was condensed or full length. And, third, I pledged that, if circumstances warranted and something came up that seemed to call for a full reset in long-form, and perhaps more confusing, format, we'd stand prepared to do that. We couldn't do that overnight, but we could do it on pretty short notice.

That was the premise under which this was taken. We find it, frankly, more conducive to investing in some of the special analytical material that I tried to highlight in some of my comments yesterday. And I have wondered, indeed, whether it didn't present the material in a manner that was easier for you to digest as well and therefore might be a value-improving proposition.

CHAIR YELLEN. Do you want to ask for a quick show of hands of how many people prefer this shortened version to the—or do you want to come back and—

MR. WILCOX. We could do that, or we could do both. And if participants wanted to send me a comment or—what's the proper procedure?—send the Secretariat—

MR. ENGLISH. That would be fine.

MR. WILCOX. Send the Secretariat—maybe, why don't we do that?

CHAIR YELLEN. Okay. We can do that. Good suggestion.

MR. FISCHER. And we'll take nonvotes as—which way?

MR. WILCOX. Well, I'll need to confer with the Chair, but I certainly would love to interpret silence as indicating approval of the short-form DEDO.

CHAIR YELLEN. Maybe we'll send something around and ask everybody for a reaction one way or another.

MR. WILCOX. That sounds good. Thank you.

MR. FISCHER. Okay. Well, thanks, Madam Chair. On the state of the economy, I thought it would be useful just to step back a little bit and think about where this Committee was a year ago and where we are now. I'll be relying on the Tealbook forecast, which, I gather, isn't going to change very much as a result of today's data.

Unemployment is lower than we expected at the last meeting and much lower than was expected a year ago. We expect to be at the natural rate by around a year from now and to be heading for 4¾ percent by the end of 2016, which is below most estimates of the natural rate, although there is a tendency for estimates of the natural rate to follow the actual rate. So, by the time we get to 4¾, the 5.2 percent lower bound will have slipped down. I think that's rational, by the way. We don't know a heck of a lot about the natural rate. If we're somewhere and there's no inflationary pressure—which is, by assumption, roughly where we'll be—we might change our view on the natural rate, and that may be the right thing to do. Payroll employment is significantly above the level projected a year ago, so that's positive.

Going to growth, it's still slower than was projected a year ago. We still have the puzzle of the first quarter, and, as we were told yesterday, we still have that puzzle because a major element in that was the reported reduction in medical spending in consumption, which nobody quite believes. We're only going to get a better estimate of that in September.

I'm not sure how to think about potential output. In the Tealbook, the assumption was that potential output was cut in order to be consistent with unemployment via Okun's law, which meant productivity was low. And that meant we're gradually becoming British, which, economically, didn't used to be so good and may be becoming better these days, but we'll see how long that lasts. We have positive factory output results. So we still have that puzzle of the relationship between growth and the unemployment rate, and we have to put considerable faith in the unemployment data.

Inflation was revised up a bit. It's 2.3 percent this quarter but is expected to be 1.8 percent in 2016. So it's going down and then coming up. How sure can we be about that? Not very. When you're at 1.6, 1.7, or 1.8 percent, you're very close to 2 percent. Just recalling changes in the prediction, we were very worried that we weren't going to be at 2 percent in 2016. It seems to me that 1.8 is pretty close to being at the natural rate. How much faith should we take in all of that? Well, we've got an incredibly flat Phillips curve, and we must be getting close to the point at which the wage Phillips curve would be becoming steeper in terms of the relationship between unemployment and the rate of change of wages. So we'll put that with a question mark.

The policy that's in the forecast assumes that the federal funds rate lifts off in the second quarter of 2015 and is followed by the use of the 1999 version of the Taylor rule, which takes us to a federal funds rate of 2.8 percent at the end of 2016 and 4 percent at the end of 2018. And we've had an upward revision in the 10-year rate in this forecast. So some of the things that got a lot of attention, like the decline in the equilibrium federal funds rate, have actually been modified in this forecast.

Well, what do we make of all that? I think the critical point, as was mentioned by several people yesterday, was that, according to this forecast, we're moving the point at which the natural rate is reached three quarters earlier, and that's a lot. It seems to mean that we're going to lift off ourselves probably somewhat sooner.

Then we face the question of, what do we do about that belief, which I share? Yesterday I had a discussion with a few people—they weren't Governors, so it was legal—about, how much does it matter if the market faces surprises, and should we care if we surprise them? Well, I think we should care, because we've said a lot about how long we're going to wait until we raise the rate, and a lot of people have built strategies—I'm not sure they've built their futures, their future savings and all of that, on that particular result. For the long run, it doesn't much matter. But it will lead to a view that the FOMC has got things wrong again and didn't send the market a warning until it was much too late. So I think we should be moving a little bit earlier in changing the message we're sending. Now, we're only going to discuss that in the next round, but I think it's clear what that will say about what we should be doing. But I'll discuss that in more detail later, and I'm sure everyone else will.

There are other things that are a problem in the forecast. First of all, the weakness in housing is puzzling. But I would like to add one thing. We're all very concerned about financial instability, and we should be. But if you look at what has been a problem in financial instability globally, it's almost always housing. And we are so far from having overvalued housing that, on the main element of financial instability, admitting all of the things about the computer-related media company and so forth, we should think that, on the big issue, which is having another housing bust—we hope we won't have another one, because if we do, it's starting from such a low level that it's going to be pretty terrible. But the concerns about that financial instability

story seem to me slightly exaggerated at present. We should never allow ourselves complacency. The IMF, when it goes to a country and things are going well, always says, having nothing else to say, "Complacency must be avoided." Well, we should avoid complacency on this one, but, as of now, it's not a major issue.

There's a paragraph in the Tealbook on reaching for yield, which I thought wasn't incredibly persuasive, although Nellie persuaded me that, in certain regards, there is clearly reaching for yield, which is when there are companies that have promised yields that they can't get except by taking far more risk than they normally do.

We also have the investment issue. I remember something that I thought was probably right and clever but which a lot of people think is irrelevant—the weight of GDP, which came out of this institution. The weight of GDP has gone down a lot because it's not all steel production. China's weight of GDP has undoubtedly gone up a heck of a lot, but ours has almost certainly gone down. I think the same must be true about the weight of investment. So much of it is intellectual, without a whole host of investment in steel machines stamping out auto body parts and so forth, that I wonder how correctly we're measuring investment right now.

What's the bottom line? We're well ahead of where we expected to be at this stage. The labor market is doing well. Inflation is very close to the inflation target, although we expect it to decline a bit in the coming years and then to go back up. But—and this is a serious "but"—if we had had a bad data point this morning, this would have sounded very different. So I think we're only one or two bad data points away from concluding that this is still a fragile recovery. The balance of the weight has moved in favor of its being less fragile, but we could be knocked off that very well. And when we get around to announcing the first move as getting closer, we'll not be able to go back. We'll say it's data-driven and all of that, but once we've got that in people's

heads, we're not going to be able to retreat from that. So we need to be perhaps a little surer than usual before we send a totally unambiguous signal. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I'm going to address labor market issues predominantly. But, first, I'll start by echoing something Governor Fischer said about some continued uncertainty about why that first quarter was as weak as it was and by expressing my own feeling that, until we feel more comfortable with an explanation for that or until we're far enough away from it with enough good data points in between, it still remains a little bit of a nagging worry, at least to me.

Second, as I think I've said at the past couple of meetings, I continue to regard external—that is to say, geopolitical—risks as the biggest downside risks to the economy. But, as I've also said, I just don't know that there's much that we can do with that, other than to acknowledge they were there.

Yesterday, when Steve was showing the charts—I can't remember whether it was yesterday or at the Board meeting—of the relative reaction of international markets, particularly commodity markets, to various problems internationally over the past couple of quarters, one looked and said, "Well, markets are largely untroubled." And I was reminded of the fact that, in the two weeks following Franz Ferdinand's assassination in 1914, markets were completely untroubled. It was only after the Austro-Hungarian ultimatum to Serbia that things actually started to get very tense.

Turning to labor market conditions, there's obviously been improvement across a broad range of labor market indicators, beyond the headline unemployment and jobs numbers that have been improving for some time and into some of the areas that many of us have regarded as

reflecting continued labor market slack. The average duration of unemployment has been declining. Hours worked have been increasing. There's been a pickup in the return of the long-term unemployed to work—I'll return to that in a moment. And, though still elevated by historical standards, the numbers of part-time unemployed for economic reasons have been edging down. Although, as we're continually reminded, we don't want to put too much weight on a few monthly readings, which are themselves subject to revision, the labor force participation rate has firmed a bit, and the employment-to-population ratio has actually been increasing. Information reflected in surveys of business intentions to hire in the coming quarters, while not hard data, is still somewhat encouraging as well. All of this, though, still leaves us with the questions of how much more slack remains and what all of this might mean for the future path of inflation.

With respect to the question of slack, in theory, obviously, this should be pretty straightforward. We just look for evidence of general, as opposed to sectoral or regional, wage inflation, and we'll know that there's a decreasing amount of, and maybe very little, slack left in labor markets. But, in practice, as we all know, that's hard to do because compensation data don't seem as reliable or as uniform as other labor market indicators. There are different measures, which may not track one another too closely, particularly in the short-to-medium term. Having said that, I note that it still does not seem as though there's any evidence of generalized wage increases, as several of you commented yesterday. Hourly earnings for production and nonsupervisory workers are up. Some have pointed to the household survey on earnings. But if the issue is whether labor markets are tightening, pushing up costs that employers have to pay for workers, it seems as though we should be looking most at broader-based gauges of what those employers are reporting that they're paying. I think that's why the ECI and the hourly

compensation component of the Productivity and Costs survey are most relied on by the staff for purposes of evaluating trends in wages. And, with respect to those two, neither, at least to date, shows signs of any pickup.

But it's true that staff forecasts have been expecting that pickup for some time, and we do have more anecdotes and surveys suggesting a wider range of employers intending to raise wages as well as to do some more hiring. So I think we're still left with looking at some of these other indexes of labor market slack, the ones I referred to earlier. As has been the case for a while, some of them can be interpreted either way, probably depending on one's conceptual and policy priors. The increase in job openings is the current example of that. You can explain it either as a growing mismatch between skills and job availability or as the next step in a stronger labor market that will be followed by larger gross hiring numbers. We just don't know yet which of those will play out and reveal itself to be the correct explanation.

But there are the data streams that seem pretty good evidence of continued slack. One such piece of evidence is the decline, I think, in the long-term unemployment rate in the first half of this year and, particularly, what that reveals about a movement of people into and out of the labor force and into work when one looks behind the numbers. Since February, the absolute number of the long-term unemployed has declined from 3.8 million to 3 million. The share of the long-term unemployed in total unemployment is now down to under 33 percent from the high that was in the mid-40s immediately following the recession. This is encouraging because, as I noted earlier, this has happened in the context of the labor force participation rate stabilizing and the EPOP moving up.

The transition rate from long-term unemployment to employment has been moving up in the past several months, but it's also true that the transition rate from long-term unemployment to

being out of the labor force has moved up in the past couple of months. So that fact reminds us that, based on monthly transition rates out of long-term unemployment to either jobs or nonparticipation over the past several years, the number of the long-term unemployed should be much smaller than it actually is.

Some research that was recently posted on the Board's website by Tomaz Cajner and David Ratner of the Board's staff suggests what the answer to that puzzle may be and, in the process of doing so, makes, again, some case for the continuation of a nontrivial amount of labor market slack. They've hypothesized that some of the long-term unemployed may be moving from that status to nonparticipation—not actively looking for work—several times before they end up either employed or more or less permanently out of the workforce. To develop that hypothesis, they also looked at annual, rather than monthly, data on longitudinally matched individuals and found that individuals who were classified as long-term unemployed a year ago have a 38 percent likelihood of being employed today. That's the highest level since 2008. In fact, individuals classified as long-term unemployed a year ago are more likely to be employed today than they are to be out of the workforce. So Tomaz and David suggested that a deeper dive into the data yielded a fairly encouraging picture consistent with the hypothesis that the long-term unemployed in this still-unprecedented postwar economic episode are, to a significant though not complete degree, relevant for thinking about labor market slack and thus for the impact of the long-term unemployed on wages in particular.

As to the question of what all of this means for inflation, I think, first, it suggests that we've got at least some distance to go before the labor market is truly tight, suggesting in turn the possibility that increases in wages may be more gradual than sudden as they do begin to occur. Second, it's also worth remembering that levels of real wage and compensation increases

over the past few years have been running below even the modestly recorded productivity gains that we have. And, third and most important, the relationship between wage inflation and overall inflation is harder to pin down than we might think—I believe President Mester alluded to this yesterday—and that's related to, as Governor Fischer mentioned, the flat Phillips curve over a fairly long period of time and the work that the Board's staff did a couple of years ago suggesting that the pass-through of labor cost to core inflation has become progressively more attenuated in the quarter-century beginning in 1985.

It's obviously possible that curves that have flattened, or relationships that have attenuated, over some period of time could revert to their previous state. But it seems to me that we shouldn't take as an article of faith that wage increases will translate fairly quickly into significant inflation increases. It would be useful, at least to me, to understand why those holding this view think that enough has changed from that pattern of the past couple of decades to have the kind of phenomenon that I think people associate with big run-ups in inflation 30, 35, or 40 years ago.

If all of that is true, it leaves us in the somewhat uncomfortable position of perhaps not having an early indicator of where inflation may be going, as would be the case if wage inflation were a pretty good foreshadowing of what was going to happen with inflation overall. But that's just the situation in which we may find ourselves for the coming couple of quarters. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I would agree that the reduction in the estimated output gap in the Tealbook baseline forecast is particularly important and, potentially,

quite significant. It seems to me, therefore, that this is an important time to update prior views and consider the implications for policy.

I'll start with inflation. Since I joined the Committee in May 2012, the risk has really been on the downside. Regarding inflation for 2013, four-quarter changes were right around 1.2 percent for core and 1 percent for headline. As the Committee knows, in the first half of this year, headline PCE inflation has come up to about 1.8 percent, and core is about 1.6 percent. And congratulations on your forecast.

In my view, the threat of inflation to remain persistently low has clearly diminished. And there seems to be no threat of a breakout to the upside, given the apparent stability of long-run inflation expectations and the margins of slack that are likely to exist. Although the most recent readings for the second quarter are higher, a significant portion of movements in inflation from quarter to quarter, or even year to year, tends to be idiosyncratic and unrelated to fundamentals. Indeed, that's one reason why the confidence intervals that David Wilcox addressed yesterday are as wide as they are.

Also, looking at history and bearing in mind that the Committee does not do price-level targeting, it's worth noting that the PCE price index level is about 3 percent lower than it would have been if inflation had been 2 percent since the end of 2007, and it's 1½ percent lower than it would have been if inflation had run at 2 percent since the end of the recession in 2009. So my bottom line, really, is that the evolution of inflation readings has been about what the Committee should want, and it doesn't seem to me that inflation is currently sending a signal that policy is either too loose or too tight. It actually seems to be about right.

With regard to labor markets, my view has been that significant slack remains. Payroll and employment data and other data for the first half of this year are sending a strong signal

about improving health in the labor market. The level of slack in the labor market, in my view, has diminished by a substantial degree more than predicted by most forecasts, including even very recent forecasts. Still, the difference between headline unemployment and the estimated natural rate is something like ½ percent to 1 percentage point, according to the central tendency of the last SEP in June. Of course, the natural rate of unemployment is famously uncertain and subject to material revision, even years after the fact.

But there are other dimensions in which the labor market can adjust to a further strengthening in the economy. In particular, the better-supported view, to me, is that the level of those working part time for economic reasons is materially higher than it should be, given the level of headline unemployment. And even if most of the decline in the labor force participation rate is driven by demographics, there's still almost certainly a cyclical component in that large decline since 2007. So there are many outside the labor force who may come back in better conditions. Also, productivity has been low, and a tighter economy could produce higher productivity growth. Real wage growth has been well below what it should be, and a tighter economy could remedy that and pull even more back into the labor force. My updated view is that, while slack is clearly diminishing, the labor market is not fully healed and significant slack remains. Now, if the July and August labor market readings validate or amplify this sense of the initial report for June, then I am prepared to revisit the pace of that healing and the desirable pace of removing monetary accommodation.

I have one final point on the baseline forecast. I am not at all comfortable with the path described in the outyears, whereby the inertial Taylor (1999) rule is mechanically applied to drive output well above potential for several years in order to get inflation to go from 1¾ percent to 2 percent. I wouldn't do that, for two reasons: first, the concern about leaning too hard on

inflation expectations and, second, the concern about courting extreme financial market conditions with three or four more years of policy that is more accommodative than almost all of the standard policy rules. As for implications for the current policy, there are none at this meeting, but I have to think about that. These are more implications for the outyears than they are for today.

Finally, in an effort to keep it interesting, I looked into a noteworthy development in the financial markets, which is that merger-and-acquisition activity has suddenly and significantly increased this year in the United States, Western Europe, and, to a lesser degree, Asia. There are lots of different estimates, but a representative one suggests that, by dollar volume, announced M&A activity is up 70 percent this year in the Americas and 53 percent globally. The level of announced deals is on track to perhaps break the all-time record and beat the levels of 2006 and 2007.

M&A is often said to be a leading indicator of the "animal spirits" of business leaders, and I looked into it with a view to whether there are any implications for financial stability and the economy. First, the character of the activity is very different from that in the pre-crisis era. These are not the highly leveraged private equity transactions that were common in those years. Rather, these are transactions between large corporations heavily in telecom, media, technology, and health care. Some of these are the so-called tax-inversion mergers, which may have fiscal implications, but they wouldn't be of a scope or level that would have macroeconomic implications, at least in the near term.

Practitioners say that there's a big wave of transactions coming in other industries as well. The prices that are being paid by strategic acquirers are substantially higher than private equity can pay or should pay, and that is the natural order of things. And the fact that, before the

crisis, private equity was winning auctions against corporates was a real sign of the pre-crisis leveraged-finance bubble. But the memories of private-equity firms and debt investors of the big, bad deals of those years have apparently not faded yet.

Practitioners also say that it is the extremely low cost of financing for investment-grade corporates, using either debt or highly valued stock, that generates unusually attractive returns for buyers, even at very high valuation levels. One long-time basic stylized fact about M&A is that the buyer's stock always declines on the announcement. But in the first half of this year, in almost three-fourths of the cases, the buyer's stock has gone up on the announcement. This is unheard of, in my experience, and along the lines of seeing a snow leopard on Park Avenue in July. [Laughter]

The market is looking at these transactions as strategically well founded and adding value for shareholders, despite the high prices being paid. The interesting question, of course, is, what are the financial-stability and economic implications? In my view, there really are no implications for financial stability. The investment-grade corporate sector is long on cash and low on leverage, so this is just very different from the pre-crisis years.

The economic implications of this merger wave seem to me to be mixed. The corporate model since the crisis has been to cut costs—margins are now and have been at all-time historic levels—and use the free cash flow to pay dividends and buy back stock, not to invest in facilities or hire employees. So this sudden desire to merge is a new feature of the model. I guess the positive slant would be to say that companies are willing to take risks again—the return of corporate animal spirits—and that could be a good thing. It could lead to more hiring and more investment. But in the near term, these transactions are not about investment, and they're not about hiring. They're really about using the very low cost of capital to buy existing assets and

about getting cost savings by reducing jobs, not about investment or hiring. So I would say there's a mixed picture on that. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. Governor Brainard.

MS. BRAINARD. Thank you. After this very puzzling and seemingly anomalous first quarter, we are seeing data that provide a more consistent pattern pointing toward an acceleration of the pace at which slack is being eliminated. Many labor market indicators, as many around the table have indicated, are finally improving at a faster pace than had been anticipated, and I'm particularly heartened by the increase in job openings, the reduction in long-term unemployment, and the more robust rate of quits. But I'm still troubled by the very low participation rate and very high level of workers working part time who would like a full-time job.

While the wage data remain very soft, a few business surveys provide some hope that wages might start to accelerate, which would be very important for a healthier consumer. The flip side of that story is continued disappointment on GDP and GDI growth, and the large contraction in first-quarter GDP does not easily square, as has been pointed out, with other economic indicators. The stark anomaly suggests that either potential is much weaker than we have hoped or the labor market data are substantially overstating the take-up in slack. This distinction matters critically for monetary policy. We'll have data later this week and next month that should help us distinguish between those possible explanations, but we won't have much more insight into the plunge in first-quarter GDP until revisions to the QSS following the September FOMC meeting. The staff's decision to take more signal from the labor market data and revise down potential GDP seems sensible, although it's important to remember that this was a judgment call, and that decision is very consequential for monetary policy.

On the other side of the mandate, we see signs of healthier inflation approaching the 2 percent target. Recent data provide comfort that we will get to that target, and the prospect of long-lasting underperformance on inflation is somewhat less likely. By the same token, it's very hard to see any signs of acceleration that would be alarming on the other side of the target. The considerably brighter picture on credit provision from the SLOOS also provides some reason to expect improvement in activity. However, the indicators on residential investment are weighing on the outlook, and the disappointment here looks to be at least somewhat structural in nature rather than predominantly driven by interest rates. And, again, I would highlight the staff memo as being particularly helpful in disentangling those two sets of drivers.

On business investment, we see it continuing to bump along—I think that's the technical term—at a pace that probably can be explained by a cautious consumer and disappointment on income growth. But it is, nonetheless, failing to provide the kind of engine for the recovery that one would hope.

With regard to financial-stability risks, I think the presentations yesterday suggest a landscape in which there are some warning signals in a number of markets, but these remain reasonably well contained, certainly not at a level or breadth that should materially affect our monetary policy discussion.

Taking all of these developments together gives us some reason to hope that the labor market is improving at an accelerating pace in a context closer to the targeted level of inflation. But against this cautious optimism remain an array of possible risks, including the geopolitical risks that Governor Tarullo alluded to, that could once again derail progress, as well as this puzzling underperformance on the income front. In light of the considerable uncertainty around this set of factors and the reality that this recovery has experienced many false dawns—and

because once we commit to an alteration in the course of policy, it will be very difficult to moderate or to reverse it—I think it is wise to see some more evidence going in the same direction before making a commitment, a theme that, of course, we'll return to in the monetary policy discussion. But if labor market data continue to move in the same direction, I would expect the alteration in course to come sooner than, certainly, the market expects and than we had previously discussed.

CHAIR YELLEN. Thank you very much, and thanks to everyone for a very interesting set of observations on the economic outlook. I'll try once again to summarize some main themes in your comments that relate to the key questions that underpin our policy decisions.

With our wind-down of asset purchases now all but baked in the cake, our key decisions as we go forward pertain to the timing of liftoff and the pace at which the federal funds target range will rise thereafter. Our forward guidance specifies that these decisions should be data dependent, based, in particular, on realized progress, and the expected pace of future progress, toward the attainment of our maximum-employment and 2 percent inflation objectives. So I'll focus on the following questions: To what extent have we made progress in closing the employment and inflation gaps? And have our expectations about the likely pace of ongoing progress in closing the remaining gaps changed during the intermeeting period?

Starting with the labor market, I heard general agreement around the table that the labor market is improving by virtually any metric one could look at. In addition, I think it's uncontroversial to say that slack has been diminishing more rapidly than we had expected. In particular, payroll gains in June came in well above expectations, with the three-month averages of both total and private payroll gains now standing north of 250,000 per month, and U-3 continued its recent decline and, at 6.1 percent, now stands close to where most of us in June

projected it would be at year-end. The labor force participation rate, as you noted, seemed to have leveled off, on balance, since last fall rather than continuing to decline, and that suggests some progress in reducing the cyclical shortfall in participation. Long-term unemployment and the mean duration of unemployment, as you noted, have also declined quite sharply, and research that Governor Tarullo discussed by two of our labor economists suggests that this decline in long-term unemployment, on balance, reflects movement into employment rather than the long-term unemployed just dropping out of the labor force.

You mentioned a number of other labor market indicators that also suggest improvement. For example, job openings have risen sharply. The rates of hiring and quits are gradually moving up, although they're still below normal levels. The prevalence of hard-to-fill jobs is rising, and household surveys suggest some improvement in confidence in the labor market.

Although we've come closer to our goal of maximum employment by almost any measure, there remains the question of how far we still have to go. To return to my cross-country road trip analogy that some of you may remember from past meetings, the question is whether, on our journey to Manhattan, we're now in Cleveland or the outskirts of Weehawken. [Laughter] Basing that assessment on U-3 alone, the unemployment rate, at 6.1 percent, still remains significantly above our central tendency estimates of the longer-run normal level. But confidence intervals around estimates of the natural rate of unemployment, as many of you noted, are very wide, and, conceivably, the unemployment gap may already have closed.

We continue to debate whether U-3 is a sufficient statistic for labor market slack. A number of you commented that the decline we've seen in U-3 overstates the decline in overall labor market slack, reflecting an unusually large fraction of the workforce that's involuntarily unemployed and an unusually depressed labor force participation rate. In other words, shadow

unemployment may be disproportionately high relative to U-3, but several of you also expressed skepticism about this argument.

I did hear some anecdotes of strong wage increases, but they mainly seemed to remain confined to a few occupations, regions, and sectors. In general, I think most of you see wage increases as remaining subdued and certainly below the benchmark of inflation plus productivity growth that would keep the labor share of income stable. However, President Williams described research suggesting that the decline in the share of labor income is likely at least partly structural rather than cyclical. So we should probably not expect it to move back toward historical norms.

On the issue of the likely pace of future labor market gains, the Tealbook has edged up its projection of the pace of payroll employment growth, suggesting that the progress toward our goal may be quickening. Of course, it's been surprising to see job creation running at such a fast pace in the face of such slow growth in output, but most of you seem to agree with the Tealbook's assessment that the sharp decline in GDP in the first quarter was not reflective of the underlying strength of the expansion, even during the first quarter. It appears to contain a large noise component, and today's second-quarter GDP report and a range of indicators on spending, production, and business confidence, as well as the labor market data, support the expectation of stronger growth in the second half. However, a number of you cautioned that we should be careful about projecting a strong pickup in growth. A pickup in growth to 3 percent or more does remain a forecast rather than a reality at this point, and many of you noted that we still have a fragile recovery. Some of you pointed to the continued sluggishness of housing, pointing out that this is a sector that may not be poised to have a quick revival.

Turning to inflation, most of you noted that, as expected, inflation has moved higher but is still running below our 2 percent objective. With respect to inflation risks, some of you are concerned that the closing of resource gaps at a faster-than-expected pace with a still highly accommodative monetary policy poses upside risks to our forecasts that we will see wage and price increases strengthen. However, I didn't hear many anecdotal reports of strong price pressures at this point, and, as a number of you commented, the relationship between wages and prices has not been very tight in recent years.

With respect to downside risks to inflation, I think most of you would agree that the stronger tone of recent labor market and production data has reduced the downside risks you attach to the inflation outlook. I would note, too, that the Tealbook's estimate of the probability that PCE inflation will fall below 1 percent has declined quite sharply in recent months.

Let me stop there for a second. Would anybody like to comment on the summary? [No response] If not, maybe I could add a couple of brief comments of my own.

I agree with the sentiment expressed by many of you around the table that the most recent employment report and some other data on real activity have been encouraging. On balance, labor market conditions do seem to be improving somewhat more rapidly than I had expected, and, if faster-than-expected progress continues, I think this does point to an earlier liftoff.

Especially in light of the gap between the market's and the Committee's views concerning the likely funds rate path—and that's a divergence that certainly concerns me—I consider it important that we convey to the public our assessment of labor market developments as well as the data-dependence policy. I did try to take a step in that direction in my recent Humphrey-Hawkins testimony, and I think that the FOMC statement we'll be discussing also

takes a step in the same direction. It will not surprise you to learn, however, that, in my view, the preponderance of evidence still points to significant underutilization of labor resources.

Like a number of you, I see the decline in U-3 as overstating the overall improvement in labor market conditions. The Tealbook box, to my mind, nicely illustrates the point that U-3 has declined more than other, broader measures of labor market conditions. I recently noted a similar exercise undertaken by economists at Goldman Sachs. In their exercise, there's an attempt to estimate the degree of labor market slack from a broader set of labor market indicators and then, similarly, there's a comparison to readings based on U-3 alone. Their dashboard estimate of slack shows a much weaker labor market than U-3. Scaled to U-3, they estimate overall labor market slack at 1.9 percent, versus the roughly 75 basis point gap that we now have between a 6.1 percent U-3 and our central tendency estimate of the natural rate.

Now, President Williams mentioned work at the San Francisco Fed pertaining to labor's share of GDP. I hope you won't mind my mentioning another piece of San Francisco Fed research that I found interesting. It pertains to the salaries of recent college graduates. In particular, it examines median weekly earnings of recent college graduates compared with those of all full-time workers. Going back to the early 1990s, there is a clear pattern of recent college graduates' earnings lagging those of all full-time workers in the aftermath of recessions. Strikingly, this same pattern has now persisted for six straight years, suggesting yet another dimension of the labor market that suggests the recovery remains far from complete.

Turning to price inflation, taking in all of the recent data, Tealbook projects both total and core PCE inflation to run only slightly above 1½ percent for 2014 as a whole. These data and projections accord closely with those in the June SEP. So I see inflation as largely on track with our recent projections. But with real activity resuming its expansion and slack being taken

up at a somewhat faster pace, I do think it's appropriate to acknowledge that the downside risks to the outlook of a gradual return of inflation to 2 percent have diminished somewhat.

To summarize, I think the data flow since our last meeting has been encouraging, and we're making good progress in achieving our goals. I again want to emphasize the importance of signaling to the public that we're taking note of the overall positive tone of the data. If we continue to be surprised by the strength of the labor market and production data and, of course, if inflation moves up by more than we anticipate, then we will need to discuss whether those changes in the outlook are substantial enough to warrant a change in our forward guidance, although at this point, I view such a change as premature. Let me stop there and call on Bill to start us off on the policy round.

MR. ENGLISH.[7] Thank you, Madam Chair. I'll be referring to the exhibits labeled "Material for Briefing on Monetary Policy Alternatives" that were distributed earlier.

As shown in the top panels of your first exhibit, nearly all of the policy rule simulations in the Tealbook (the colored lines to the left), as well as the optimal control policy rate path (the red line to the right), prescribe liftoff in the current quarter—considerably earlier than in the staff baseline projections (the black solid lines).

However, as outlined in the Tealbook and noted in the middle-left panel, there are a number of reasons why you may not want to follow these prescriptions. First, with regard to the rules, you may anticipate that headwinds from the financial crisis and subsequent recession will persist, with the neutral real federal funds rate returning only slowly to its longer-run normal level, calling for a highly accommodative path for policy in order to achieve and maintain the Committee's objectives in the medium term. Second, you may not be confident in the outlook yet, and, in particular, you may be concerned that the risks to the outlook are asymmetric, as a consequence of the effective lower bound on interest rates. As a result, you may see the current policy trajectory as best balancing the risks to achieving your objectives. Third, while the unemployment rate has declined unexpectedly rapidly over the past year or so, you may judge that the full range of labor market indicators suggests significantly less progress on the employment leg of your mandate and still-substantial slack in labor markets. For example, the share of employed persons working part time, shown in the middle-right panel, is still quite elevated, labor force participation is low, and

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

labor compensation is still rising only modestly. Finally, like the staff, you may see the Phillips curve as relatively flat and inflation expectations as well anchored and so anticipate that inflation will likely run below 2 percent for some time. Consequently, you may think that some overshoot of the longer-run normal rate of unemployment may be appropriate to speed the return of inflation to your objective. As shown in the bottom two panels, the staff's baseline path for the federal funds rate results in lower unemployment than the optimal control policy rate path, the left panel, but that serves only to move inflation back to 2 percent somewhat more rapidly with minimal overshooting, as shown to the right. You may well prefer these economic outcomes, particularly if you think that the low unemployment rate could help undo some of the labor market damage caused by the recent recession.

Turning to the alternatives for this meeting, you may view the information received during the intermeeting period as largely in line with your expectations for a rebound in economic growth in the second quarter and for inflation to remain below 2 percent. Thus, you may prefer the language in alternative B, on page 6, which continues on the policy rate path laid out in past Committee communications.

The first paragraph of alternative B updates the Committee's summary of recent economic developments, noting that economic activity "rebounded in the second quarter" and that labor market conditions "improved, with the unemployment rate declining further." The statement replaces the reference to an elevated unemployment rate with a statement that "a range of labor market indicators suggests that there remains significant underutilization of labor resources." You might see this language as a clearer statement of your reading of labor market conditions as well as consistent with your recent forward guidance that the Committee takes into account "a wide range of information" in assessing progress toward its mandated objectives. The statement also acknowledges that inflation has moved "somewhat closer to the Committee's longer-run objective." The second paragraph expresses less concern about persistently low inflation than the June statement, indicating that labor market indicators and inflation are expected to move toward levels consistent with the Committee's dual mandate, and that "the likelihood of inflation running persistently below 2 percent has diminished somewhat." Another measured reduction in the pace of asset purchases is noted in paragraph 3.

Market participants appear to anticipate the policy decisions incorporated in alternative B. However, while some respondents to the dealer survey expected the Committee to recognize the improvement in labor market conditions and the recent pickup in inflation in the statement, they generally anticipated more modest changes to the description of economic developments and the outlook. Thus, while the response in financial markets to this statement is likely to be small, there's more uncertainty than usual about that response.

Alternative C, on page 8, may appeal to those of you who see the economy on a stronger trajectory than expected in June and think inflation may continue to move up fairly quickly. Moreover, some of you may be concerned that continuing asset purchases into the fall and keeping the federal funds rate at its effective lower bound

well into next year could pose risks to financial stability. These views may lead you to want to taper asset purchases more rapidly and adjust the forward guidance to suggest that liftoff is likely to occur earlier than financial markets now expect.

The first and second paragraphs of alternative C are similar to those in alternative B but point to somewhat less slack in labor markets and a greater reduction in the risk of persistently below-target inflation. The third paragraph announces a larger reduction in the pace of asset purchases, and the fourth indicates that purchases may be wound down at the September meeting. The fifth paragraph replaces the “considerable time” wording introduced in March with the statement that the current target range for the federal funds rate will likely remain in place for “some time” after the asset purchase program ends—thereby signaling that liftoff may occur sooner than had been anticipated.

A statement along the lines of alternative C would surprise investors, would likely cause them to pull forward the expected timing of the first rate hike, and might lead them to anticipate a steeper subsequent path of the funds rate. Longer-term interest rates probably would rise, equity prices fall, and the dollar appreciate. The shift in policy expectations would likely be accompanied by a rise in measures of interest rate volatility, as the timing and pace of normalization would loom larger as considerations for investors.

Finally, alternative A, on page 4, may appeal to policymakers who remain concerned that the significant drop in first-quarter GDP was not fully attributable to transitory factors and measurement error, especially given the coincident drop in first-quarter gross domestic income, and who are worried that inflation, after a temporary bump, could run below 2 percent for some time without additional monetary accommodation. Such policymakers may want to continue asset purchases at their current pace for now and await additional information clarifying the trajectory of the economy. They may also want to strengthen the forward guidance in order to limit the risk of persistently low inflation.

The first and second paragraphs of alternative A give a more guarded assessment of the recent economic news and the outlook for inflation than their counterparts in alternatives B and C. The third paragraph refers to unexpected weakness in the first half of the year as increasing uncertainty about the economic outlook and maintains the current pace of purchases. The fifth paragraph strengthens the forward guidance for the federal funds rate by adding an inflation floor.

An announcement along the lines of alternative A would come as a considerable surprise to market participants, likely leading them to mark up their expectations for total asset purchases and push back their anticipated timing of liftoff. Interest rates would fall, and the dollar could depreciate. Equity prices could rise or fall, depending on the size of the negative signal that investors took from the statement about the economic outlook.

Draft directives for these alternatives are presented on pages 11 through 13 of your handout. Thank you, Madam Chair. That completes my prepared remarks.

CHAIR YELLEN. Thank you. Are there questions for Bill? President Bullard.

MR. BULLARD. Thank you, Madam Chair. I'm looking at "Optimal Control: PCE Inflation," which is in the exhibit on policy issues. This seems like an unusual path for inflation that would come out of a simulation of this nature. You've got it rising in 2015 and falling, and then you've got it rising gradually in 2016, with another fall and then another rise. What's going on here?

MR. ENGLISH. I think that this is consistent with the staff view that there's some temporary factors pushing inflation higher in the near term that will unwind. As for the wiggle in the end of 2016 and into 2017, I don't know exactly why that isn't smoother, but the computer is doing the best it can to minimize the loss function and that's where it came out [laughter]. So, presumably, there are things going on.

MR. BULLARD. Well, I don't see similar movements in the panel to the left on unemployment. So why would inflation be moving around? I would expect a smoother path if we're going to do an exercise like this.

MR. ENGLISH. Well, but if you have a very flat Phillips curve and you have shocks that are moving around inflation, I'm not sure that you necessarily want to move the policy rate around and the unemployment rate around in order to smooth out what's a pretty small bump in inflation. Remember that the loss function imposes a loss related to the change in the funds rate. It's trying to give you a smooth funds rate, and I think the result may be not an entirely smooth path for inflation.

MR. BULLARD. Okay. As I understand the simulation, then—because we also have the upper-right panel up here—it's going to put a premium on a smooth funds rate and a premium on a smooth unemployment rate, and residual variation has to occur in inflation.

MR. ENGLISH. No, I don't think so. It puts a premium on a smooth funds rate, and it aims to minimize deviations of unemployment from the natural rate of unemployment and to minimize deviations of inflation from 2 percent.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Yes—thank you. I'm going to ask a question that I think might be hard to answer, but I'm going to try to ask it anyway. It's certainly going to be hard to ask. I don't know how hard it is to answer.

The Tealbook baseline and the optimal control pictures under "Policy Issues" both have the same feature of having unemployment run for some time below the staff's estimate of the natural rate. And, as I understand the Tealbook outlook, in both Book A and Book B, this is essential in actually getting inflation back up to 2 percent—that you have to have this feature in order to get back to 2 percent. At the same time, we've heard a level of discomfort from President Fisher and, to a certain extent, from Vice Chairman Dudley and Governor Powell with this feature of the outlook. So I would be interested in the staff following up on these concerns from Committee participants. Suppose you forced the Committee to follow something that did not have unemployment going below the natural rate for any period of time or a much shorter period of time. What would happen then in terms of inflation? Where would we end up in terms of inflation?

MR. WILCOX. Inflation on our baseline analysis would settle in at about 1.75 percent.

MR. KOCHERLAKOTA. Yes—okay. So I understood the staff's work correctly—that this undershooting of the natural rate is an essential part of our getting back to 2 percent.

MR. WILCOX. That's right. Last meeting, we sent the Committee a memo by Deb Lindner that presented estimates of where inflation would settle out if resource utilization gaps were closed quickly and longer-term inflation expectations remained at their current levels. There was a two-pronged message in that memo. One is that we think that estimate is centered a little below 2 percent. There were a range of model-based estimates that we presented. The number we chose for purposes of putting together the staff forecast, quite frankly, was probably a little at the higher end of the model-based estimates. We had a fistful of model-based estimates. We chose to place that resting point for inflation within the envelope of that fistful of model-based estimates, but it was a little toward the upper end of that range. The other prong of the message was that the confidence intervals around that resting point are very wide, so what we did was not only to give you our best shot at the center of the probability distribution, but also to communicate that we see the probability distribution as being very dispersed.

MR. KOCHERLAKOTA. But there is a risk that you could be right.

MR. WILCOX. There's a risk that we could be right, and I would also note that the probability distribution is two sided. So we could be wrong. We will surely be wrong, but the chances are as likely that we could be wrong to the downside as they are that we could be wrong to the upside.

MR. KOCHERLAKOTA. Thank you.

CHAIR YELLEN. Yes—question?

MR. FISCHER. What is the essential mechanism in the model that produces the overshooting? Let me guess, and then you'll tell me I'm wrong so that I can join you in being

wrong with certainty. I assume that it may have something to do with the fact that you've got to get the real wage up in order to get to full employment. So, somewhere along the path, you're having a rise in wages. And then there may be a differential response of prices to wages and to aggregate demand that produces this as an essential feature of the model. I don't know. That's a guess. Is that what it is?

MR. WILCOX. I'm not sure what you're asking.

MR. FISCHER. There's something in the model that makes this happen. What is it?

MR. WILCOX. Yes. At the risk of having a *Pogo* comic strip moment, it's you.

MR. FISCHER. If I may say so, the warranty on students ends at 25 years. [Laughter]

MR. WILCOX. Degree retracted? I lost my train of thought. [Laughter] Oh—we posit a deliberately mechanical monetary policy, which we believe conforms to the broad contours of what we understand the Committee to have communicated to the public. That monetary policy succeeds in stabilizing both dimensions of the dual mandate around your objectives eventually. It is not sufficiently restrictive over the next couple of years to prevent unemployment from undershooting its natural rate. There's nothing particularly optimal, of course, about that simple policy rule. It does have the property, though, that, in the much longer run, it delivers an inflation rate that matches your 2 percent objective, because, given the resting point of inflation—that we place it a little bit below your 2 percent objective—a modest overshoot on the unemployment rate objective is what's required to boost inflation expectations up so that the resting point of inflation can rise to reach your 2 percent objective.

MR. FISCHER. Okay. Thanks.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Yes. I'll try to summarize in my own words what you just said, David, which is, in order to get inflation expectations to rise above 1.75 percent, you actually have to have realizations of inflation above 1.75 percent. And the way to get that is to have unemployment undershoot.

MR. WILCOX. That's right. It is what's built into our analytics. It is also built into our analytics with a great deal of humility because we don't have a fantastic model, for example, of how inflation expectations are formed and that sort of thing.

MR. KOCHERLAKOTA. I absolutely agree with that.

MR. WILCOX. So we put it forward as a reasonable hypothesis, but with no greater assertiveness than that.

CHAIR YELLEN. Vice Chairman—a two-hander?

VICE CHAIRMAN DUDLEY. Thanks. Yes, I want to build on what President Kocherlakota was discussing. It seems to me that this is very sensitive to your view about how inflation expectations are formed. I guess, as a member of the Committee, I would be interested in the following: If you had different assumptions about the inflation expectations process, how sensitive would the results be to that? For example, one can imagine a situation in which, if the unemployment rate is running below the natural rate, inflation expectations among some portion of the population might go up pretty rapidly, because people in the economy have different estimates of the full employment rate and some people would probably get pretty nervous as you were driving the unemployment rate down to 4.7 percent. A question would be, how sensitive, then, are the results to how you characterize that inflation expectations process? The way I understand the model, you're assuming that inflation expectations really do stay essentially anchored. My understanding of your model is, as inflation is above 1.75 percent, it pulls

inflation expectations up, but they never get above 2 percent. I think the reality is that, if you were running the labor market really hot, you could imagine that inflation expectations could go up more rapidly. The question is, how would that feed back into it—

MR. WILCOX. Broadly speaking, that's right, and I'll let Thomas Laubach fill in the details. I would say it's completely sensitive to the assumption about inflation expectations. At the simplest level, it rests on, among other things, a premise that words alone from the Committee will not be enough, and that some demonstration of action will be required. Again, recognizing—I want to say it on every intervention that I make—that the confidence intervals are very wide, it rests on a judgment that some element of action will be required.

Now, I do also want to clarify one more element of the picture before I turn it over to Thomas. The largest contributor to the variance of inflation—and I'm going to put this in very clinical terms—is what we antiseptically refer to as the idiosyncratic component, a physician would say "the idiopathic component." That is the part we can't trace to any specific cause. So random variation matters overwhelmingly for the determination of inflation. As one of you pointed out yesterday, that's an important piece of why the confidence intervals around inflation are so large. The component that we discuss in future inflation determination that you have any leverage over, which is the degree of utilization of resources, explains really quite a small portion of the variance of future inflation. So I want to be clear that there's a lot of stuff that will push inflation around that we can't foresee and over which you have quite little control. That is why there's a very good probability that we will, in fact, attain the 2 percent objective without having to overheat the economy. But, symmetrically, there's also a very good probability that we could run substantially below the 2 percent objective. What we're trying to do, our design

objective in putting together the forecast, is to give you a probabilistically evenly weighted outlook, and we try to center that on the baseline projection that we've put forward.

VICE CHAIRMAN DUDLEY. My concern is somewhat different. My concern is that, by having these very strong assumptions about inflation expectations, you're minimizing the cost of potentially pushing the unemployment rate too low for an extended period of time. So if you were to modify that assumption, how would that change the payoff function of pushing the unemployment rate too low? I'm worried that you're getting the answer by the particular assumption you're using. And I'd love to see how sensitive the results are to that assumption. That's all.

MR. WILCOX. Generically, your point is completely well taken—that a great deal rests on the mechanism that drives inflation expectations. But there's not a strong empirical foundation for basing that judgment on something other than what we have. If there were, we would have adopted it—and now I will turn it over to Thomas.

VICE CHAIRMAN DUDLEY. But you say yourself that your basis for the assumption that you're making isn't very strong. So it would be useful just to see what the alternatives were and how the results might vary. That's all.

MR. WILCOX. Yes, and what I've stated is that—everything. So if we posited something else, we'd get quite different results. For example, if we posited that words were enough, we could get you to 2 percent immediately. Thomas.

MR. LAUBACH. All of this is exactly right. It is indeed our lack of knowledge about how these long-term expectations are formed. But, effectively, we have two data points—there was the big run-up in inflation in the 1970s, and then inflation and inflation expectations kept coming down. That's all of the observational material we have to go by. Now, it's a bit sad that,

in this Tealbook, we didn't include the "Low Inflation" alternative scenario, because that was exactly one of these scenarios that took as the starting point that there's been much more learning about some perception of long-run inflation expectations than we have assumed.

In this case, it works in the opposite direction—namely, that from the past observations of lower inflation, people have taken more signal. But it's entirely right that, in future, we could see the opposite. I'm sure that we can try to explore a little bit more the sensitivity to various assumptions but should always remind ourselves that these are really just assumptions, because we don't have any firm basis.

VICE CHAIRMAN DUDLEY. Yes. That's my point. You're not that attached to this particular assumption, so wouldn't it make sense to explore a range of assumptions just to see what happens?

MR. WILCOX. We can explore that sort of thing. We've thought about this really carefully. We think that, among a range of possible assumptions, this is quite a reasonable one. Among the lot of assumptions for which there's not a great deal of empirical support, this is the one that strikes us as probably the best choice. But we agree completely that our likelihood function here is pretty darn flat. If I could find a 9th or 10th way to say that, I would. This is an element of great uncertainty for us. You're right to highlight the sensitivity, and perhaps we can do some exploration in future editions of the alternatives simulations section of the Tealbook, for example, about different mechanisms for inflation expectations. I think I've just given Thomas an assignment.

CHAIR YELLEN. Okay. I had two-handers—first from President Bullard and then from President Fisher.

MR. BULLARD. Thank you, Madam Chair. I complained last time about this memo that said that long-term inflation expectations are centered at 1.75 percent instead of at 2 percent. I don't really think that that's right. At least, you should present results for the person who thinks inflation expectations are still centered at 2. Then what would the optimal policy rate path look like? That would be helpful. Or, if you think medium- or longer-term inflation expectations have drifted up, then what would the optimal policy rate path look like here? That would be a variant on what Vice Chairman Dudley said regarding changing assumptions—but I think of changing assumptions in a somewhat different way than what he was describing and exploring.

Also, I have to say, to come into a policy meeting and present this kind of stuff right before we're looking at the alternatives—I think it would be more helpful to do something that would say, "If you choose alternative C, here's what you'll get. If you choose alternative A, here's what you'll get. And if you choose alternative B"—that would be more appropriate at this point in the meeting than coming with a simulation that stimulates a long debate here. Thank you.

MR. WILCOX. President Bullard, we'll be happy to take a look at that. It would, I think, really help advance the dialogue if you'd like to put forward evidence that supports your presumption that 2 percent is a better estimate. We took our best shot in the memo in June at putting forward our evidence, and it would be really constructive to have some dialogue about that. So I'd very much welcome an alternative statement of empirical judgment. I recognize that different model specifications will generate different answers, so there's room for lots of disagreement. But I think the way to advance the conversation would be to have that.

MR. BULLARD. Well, the Committee has specifically and repeatedly said in public statements that longer-term inflation expectations are stable. What you're saying is that they're drifting down, and, because they're drifting down, we have to take policy action. That's what these things are saying. That's why I'm passionate about this. It's conflicting with what the Committee has said publicly. If you think the Committee should say something else, then give that as policy advice.

MR. WILCOX. I'm not absolutely certain what you're referring to, but the Michigan reading for longer-term inflation expectations in July did move downward. We noted that. We also noted that it's based on a phone survey of 350 households, and we're certainly on alert to the possibility that that could signal a larger downward move in longer-term inflation expectations. But I would also point to other measures of longer-term inflation expectations, like the Survey of Professional Forecasters, that are rock steady at their previous readings.

MR. BULLARD. I'm referring to paragraph 1 of the FOMC statement, the last sentence: "Longer-term inflation expectations have remained stable." This is what the Committee has repeatedly said.

MR. WILCOX. Oh. That's true, and that's not at variance with the observation that we've been making. We've been taking as given that longer-term inflation expectations may be steady, but there's no reason that they're necessarily pegged at 2 percent. We're taking that as a parameter to be estimated.

MR. BULLARD. But this is not what I meant, at least, by supporting what's in the statement here.

CHAIR YELLEN. President Fisher, do you have a two-hander?

MR. FISHER. First, I want to thank you for the humility with which you've presented it and for the heat with which you've just expressed the contrast between the two. I do want to go back to the interchange I had with Mr. Wascher yesterday. We went back and did a little research. This is just to take a snippet of what Vice Chairman Dudley started out with. I was born in 1949. It so happens that the CBO's statistics on the natural rate go back to 1949—just so we are on the same factual basis. And, very importantly, as the only former market operator in this room, I note that these are the kinds of things you look at for context—the natural rate has never been below 5 percent. This is with all of the benefit of hindsight that we have from the CBO, going back to 1949. It did bump along at that level in the first decade of this century. Its high, of course—in 1978, when things were pretty awful, it was 6.27 percent. It was 5¼ percent or greater in the 1950s and 1960s. In fact, it was 5.86 percent in 1969.

Now, the Tealbook baseline calls for an unemployment rate falling to 4½ percent. It's a reasonable hypothesis, and we can also talk about the confidence bands and so on. But, as a market operator, if I were to see that against the background of the history, it might certainly affect my expectations or raise the question "Are they going too far?" And that might be reflected in the financial instruments that we look at, which, we admit, are imperfect in terms of understanding inflationary expectations.

You pointed to the survey data. That's one thing. I noticed yesterday that Esther pointed to the short-term numbers. But, again, the way market operators think—and this is the beginning, I think, of Bill's statement, even though that's not where he came out—it looks a little out of context. That's my point. I don't know the degree to which we can test this, but this has been my concern: If we push too far beyond the norm—with a history in which we've never been, in at least my lifetime of 65 years, below 5 percent—then that may begin to affect the

market expectation or it may raise some eyebrows. That's all I'm saying, and that's why I've raised it two meetings in a row. I wish there was a way to test that. I don't know if we can. But I'm not comfortable—again, it was a humble statement, but whether we say "idiopathic" or "idiosyncratic," we're just saying we don't know. It's an important variable, but we can't really figure out why. Is that correct?

MR. WILCOX. Uncertainty, President Fisher, is pervasive in the monetary policy climate. It is a fact.

MR. FISHER. It's what we live with. That's true in the investment community, too, and in the business community. So I wanted to satisfy our little conversation yesterday, because I think it's an important consideration.

MR. WILCOX. In some sense—again, premised all on the baseline outlook—running the unemployment rate below the natural rate is precisely, in this analysis, what's required to get the attention of market operators, business owners, homeowners, households, et cetera, so that they say, "Gee, our inflation expectations"—you know what? Most people don't have a clue about what inflation is, but we hypothesize that they think they have a longer-term inflation expectation, which we estimate, as a parameter, to be in the neighborhood of 1¾ percent. And, in our baseline analysis, in order to get their attention—"Hmm, the FOMC must not be satisfied with 1¾ percent. How do I know that? I know that because they are conducting a policy that is consistent with allowing the economy to operate in a slightly overheated state for a temporary period of time. It must be that their objective is a little higher than I previously thought, and, therefore, I'm going to nudge it up." Eventually, through this iterative process, they arrive at 2 percent.

MR. FISHER. I understand that. You also understand that I worry about the risks of operating in that manner. I know you do as well.

MR. WILCOX. I can assure you, President Fisher—every night, when I go to bed, and every morning, when I wake up, I worry about the risks as well.

CHAIR YELLEN. President Kocherlakota.

MR. WILCOX. And I worry about the risks in between those two periods. [Laughter]

MR. FISHER. You're a very worried man.

MR. WILCOX. I am, indeed. When you're in my business, it's all downside. [Laughter]

CHAIR YELLEN. President Kocherlakota—a two-hander.

MR. KOCHERLAKOTA. Madam Chair, I'll be brief with my two-handed intervention because I am worried about leaving you enough time to prepare for your press conference in September. [Laughter]

CHAIR YELLEN. I thought I might have enough time.

MR. KOCHERLAKOTA. If you're going to follow up on President Bullard's suggestion of having 2 percent be the point at which inflation expectations are centered, I'd encourage you to also follow up with analysis in which you center those expectations at 1.5 percent, which I actually think would be consistent with empirical evidence that was presented in that very memo. Thank you.

CHAIR YELLEN. I have President Evans as having a question, a one-hander.

MR. EVANS. I did. It could have been a two-hander, I guess.

CHAIR YELLEN. At any rate, go on.

MR. EVANS. At any rate, the discussion on the inflation forecast is an important one and interesting. I would remind everybody that the Board's staff circulated a memo several meetings ago in which they went into some depth as to how the inflation forecasting relationship behaved. That memo is at the heart of the discomfort here because it's more natural in a theoretical sense and all of our intuition to have short-term inflation expectations in there, at least over the medium term. But, in fact, it's hard to fit that. It just doesn't work so well. So the Board staff has quite reasonably adopted the specification in which it's long-term inflation expectations, and those are anchored. It's hard to move those. And all of our intuition is that, well, the short term might be moving around. So it may be that a little more discussion of that at the relevant time would be good for this.

On uncertainty, we've raised uncertainty many times. I believe, David, that every time you made a probabilistic statement, I agreed with the way that you characterized that. But I want to be very careful. In response to the chart that was displayed yesterday, "Forecast Summary," with inflation in the big error bands, one attitude is to say uncertainty is big and throw up your hands. But, in fact, you can make more-disciplined probabilistic statements. According to this, unless I'm reading it wrong, it is still the case that the probability that inflation will come in below 2 percent is higher than the probability that it will be above 2 percent. So there is discipline that needs to be imposed on our probabilistic statements in that regard.

CHAIR YELLEN. Okay. Thank you, all, for your comments and questions.

MR. FISHER. It was illuminating.

CHAIR YELLEN. Let's go into our policy go-round, starting with President Plosser.

MR. PLOSSER. Thank you, Madam Chair. I was going to make a comment about the last 10 minutes, but maybe I'll let it go.

MR. WILCOX. I'm dying to hear it. [Laughter]

MR. PLOSSER. No, you're not. All right. Over the past several meetings, I've supported the consensus statement, but, as I indicated at the last meeting, my discomfort has been growing. That discomfort has reached the point where I can no longer support the language in alternative B or C.

The economy appears to be bouncing back from a weak first quarter and is poised to grow at a pace somewhat above trend. Inflation appears to be firming, and I believe it will approach the Committee's target by year-end. Given those views, I think that maintaining a near-zero federal funds rate well into next year is likely to be inappropriate, and that the current forward-guidance language in the statement is far too constraining and very much ignores the data and the progress the economy has made. Indeed, it's time that we abandon our current communications and forward guidance and instead work toward a better articulation of a reaction function. That, I believe, would serve us better than our ongoing practice of calendar- or time-based language for forward guidance that we've relied on.

At this point, my primary discomfort is in the current forward-guidance language. It's increasingly at odds with my past economic projections and my views of appropriate policy. Let me illustrate. In December 2013, which was the meeting at which we started to taper, my economic projections indicated that, by the fourth quarter of 2014, the unemployment rate would have declined to 6.2 percent and we would have headline PCE, measured from fourth quarter to fourth quarter, at 1.8 percent. Consistent with that projection, I believe that an appropriate monetary policy would be a funds rate of about 1.25 percent by year-end. By the end of 2015, I projected an unemployment rate of 5.8 percent and an inflation rate of 2 percent, calling for a funds rate just over 3 percent. The economy has now reached my December 2014 projections in

terms of inflation and unemployment, nearly six months earlier than anticipated in December, and it's projected to reach my December 2015 projections by the end of this year.

Now, you might say, well, that's your problem—that's not the Committee's problem. But I'd also note that if you go to the December 2013 SEP, we are very close to what our projections were for December 2015, 18 months ahead of where we thought we would be. That, to me, sounds like considerable progress toward our goals. And, like me, a number of you around the table viewed the funds rate consistent with those 2015 projections as notably higher than it is now or is likely to be anytime soon based on our current statement language. This discrepancy, I think, is increasingly problematic.

I might note that this does not necessarily mean or assert that we've reached our goals. That's not what I'm saying. Yet many labor market metrics in addition to the unemployment rate have, in fact, improved—as many people have pointed out today. The change in nonfarm payrolls has averaged about 230,000 over the past six months and 272,000 over the past three months. U-6 has fallen 1 full percentage point since December, and both the average and median durations of unemployment have dropped noticeably. The number of those unemployed for 27 weeks or longer has dropped by nearly 800,000 people since December, and the JOLTS data show more and more job offers.

On the inflation front, we're also closer to our target. As mentioned, year-over-year PCE inflation has risen from about 1 percent last December to 1.8 percent now. Other measures—including medians, trimmed means, and other indicators—also suggest we are moving closer to our goal.

But I don't believe that monetary policy should remain at the zero bound until our goals are met or slack is zero. Monetary policy works with a lag. But that seems to be the message—

that is, that we were going to remain at zero until we reach our goals—or at least the interpretation of the message by many in the marketplace. I think that this Committee must recognize and acknowledge that we are much closer to our goals today than we anticipated. If we are to be appropriately data driven in our policy, we should be adjusting our policy, particularly our forward guidance, to reflect that progress. I don't believe that the proposed statements reflect such an adjustment. Indeed, to me, the fact that there's no change in our policy seems to deny the good news that many people have talked about around this table.

There's another manifestation of my concerns that's been alluded to around the table. The Tealbook, Book B, shows the outcomes for various rules for monetary policy, as usual, and we saw those in the charts that Bill presented. With the exception of the nominal income targeting rule, for which, I think, we have very little evidence as to its practical or robust characteristics, all of these other rules see the zero bound as no longer binding and are calling for liftoff. The baseline funds path is now starkly at odds with these rules, and that tension is increasing. I would also note that the optimal-control exercise also calls for liftoff and is thus less accommodative than our baseline forecast.

Some of you will argue, and perhaps appropriately so, that we don't and maybe shouldn't follow rules. Nevertheless, in my view, it should give us pause that our current policy stance stands in such growing contrast with these guidelines and historical experience. Even more notable, and perhaps troubling—and the Chair noted this—is that it seems that our statements and communications to date have resulted in market expectations for the future funds rate path to be even more accommodative than the baseline and, obviously, a lot more accommodative than the rules would suggest.

I believe our statement today will likely reinforce these disparities. The longer we tolerate or encourage such a discrepancy can only increase the risks of a very bumpy, uncomfortable, and perhaps disruptive exit from this extraordinary period of accommodation. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support alternative B as written. As I mentioned yesterday, there remains substantial slack in labor markets, and PCE inflation has and is expected to continue to come in below our 2 percent target.

I would make no change in our current policy. We have communicated clearly to the market that we will continue with the taper program, concluding in October. At that time, we should have sufficient data to determine how best to interpret "considerable time" in the statement. The earlier forward guidance in our statement implied that we might wait at least until the middle of 2015. Our current guidance focuses on a considerable time after the purchase program ends. I will be reluctant to alter that guidance unless there is strong evidence that inflation is coming in significantly higher than we currently anticipate.

Because of the uncertainty surrounding estimates of full employment, even in normal times, and the variety of labor market statistics that currently remain far from their historical norms, we probably should be highly focused on how wages and price pressures are developing. While it is important to note that wage and price pressures can be lagging indicators of labor and product market tightness, at this time, both are well contained, suggesting that we still have some way to go before we reach full employment. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I fully support alternative B as written. The incoming data since our last meeting have been favorable, and they indicate that a solid rebound from the first-quarter drop in GDP is well under way. The improvement in labor market conditions has been especially encouraging, and inflation does appear to be heading back toward our longer-term target. I think alternative B, the first paragraph, acknowledges these improvements appropriately, and the changes in the second paragraph also nod to the fact that inflation and labor market conditions are moving toward our goals.

It will be some time, however, before excess labor market slack is sufficiently reduced and underlying inflation has picked up enough to warrant an outright tightening of policy. These circumstances call for maintaining the current course of monetary policy, including the further measured reduction in the pace of asset purchases, and maintaining the forward guidance that signals a highly accommodative future path for the funds rate at this time. Thank you.

CHAIR YELLEN. Thank you. President Lacker.

MR. LACKER. Thank you, Madam Chair. I support reducing the pace of asset purchases at this meeting as described in alternative B. I think two aspects of the draft statement for alternative B are likely to garner the most attention in market commentary. One is the change in our inflation language at the end of paragraph 2. Those changes make eminent sense because of the firming we’ve seen in the inflation numbers of late.

The other focus of attention is going to be the characterization of labor markets in the first paragraph. I think it makes sense to drop “remains elevated” at this meeting and to note that labor market conditions have improved and the unemployment rate has declined further. The next sentence gives me pause, however. We qualify our acknowledgment of labor market improvements by citing “a range of labor market indicators” suggesting that “there remains

significant underutilization" of resources. As I noted in my comments during the economic go-round yesterday afternoon, there is always more underutilization than indicated by U-3. The question should be whether there's more underutilization than usually occurs when U-3 equals 6.1 percent, and the answer to that question is ambiguous. Yesterday I pointed to some research that's consistent with U-3 being a good summary statistic rather than not, but I realize there are some around the table who disagree. Clearly, though labor market conditions are improving. By shifting attention from unemployment to other indicators, we risk confusing the public. We also risk being seen as cherry-picking the data to bolster a case for stimulus.

The key issue we need to face in the coming months is the disparity between the sense of the pace of tightening that we have and the market's sense of that pace. Some people have made reference to that around the table here. I think we'd prefer to see that convergence take place smoothly, and, to me, this is another reason to avoid downplaying labor market improvements by shifting attention away from the unemployment rate.

The disparity between our expected funds rate path and the market's suggests to me that the last sentence in our statement, which says that "economic conditions may, for some time, warrant keeping the target federal funds rate below levels the Committee views as normal in the longer run," is having, perhaps, a greater effect than we intended. Now, if you look at it, it's going to be a sentence that's going to be hard to walk away from, in the sense that it's hard for me to see how we'd be able to explain, at any given juncture, why we're removing that sentence just then, since it's about something way out in the longer run, but maybe we can. But an alternative means of addressing this disparity problem that I talked about between the market's path and ours would be to avoid downplaying the SEP dot plot in public. I know it has its limitations. I know everyone has some complaints about it. But it's one of the best vehicles we

have for communicating how we expect the funds rate to unfold, particularly the steepness of the path after takeoff. So in our public communications, I'd urge some support for the dot picture.

CHAIR YELLEN. Could I just mention that I did, in fact, point to the dot plot specifically, voluntarily [laughter], in my recent press conference, for exactly the reason you gave?

If I could make one other comment, I recognize, as I said in my summary, that there are disagreements among us about whether U-3 is a sufficient statistic or not, and I did not interpret the new language in paragraph 1 as intending to take any position on that matter at all. I don't see it that way. It's, I think, a perfectly good sentence even if U-3 is a sufficient statistic. Even by that metric, one could say there is significant underutilization. But I wanted to emphasize that I don't see that sentence as opining on whether U-3 is sufficient or not.

MR. LACKER. Thank you, Madam Chair. I support alternative B as written. I can support the statement here. I intended my remarks as cautionary in nature regarding what I see as the perhaps incipient movement of a bolder pace away from U-3 toward other labor market indicators, recognizing, as we always do, that we do look at a broad range of data in all of our assessments of economic conditions.

CHAIR YELLEN. Thanks. President Fisher.

MR. FISHER. Thank you, Madam Chair. I support alternative B, but with reluctance. First-quarter growth was weak, and now we've had a first estimate of pretty smart second-quarter growth. My positive view of the outlooks for GDP growth, job growth, and inflation during the second half of 2014 and through 2015 hasn't changed since June. And my confidence that those expectations will be realized has substantially increased, based partly on the data we've seen and partly on what I've heard from my contacts in the business community.

Downside tail risks, as I mentioned yesterday—and as you referred to in your summary as well, Madam Chair—have clearly diminished. The unemployment rate continues to surprise. We're already in the 6 to 6.1 percent central tendency of unemployment rates that were projected for the fourth quarter, according to last month's SEP.

I did take note of Governor Tarullo's excellent commentary and the staff work on the long-term unemployed. However, I hold the view, personally, that it's questionable whether monetary policy can affect the composition of the unemployed or the division of the unemployed between part and full time. I have argued publicly and at this table that we have to take into considerable account fiscal, education, and regulatory policy as well.

On the price front, the risk of deflation or downward de-anchoring of longer-term inflation expectations has receded. As I said yesterday, there's less danger than there certainly was before—and less than what we had discussed at this table—of slipping into a Japan-style low-inflation trap. And the greater danger of significantly overshooting full employment is something I'm concerned with.

These changes in the actual and projected performance of the economy suggest to me that we'll want to remove accommodation either sooner than previously planned, as in the "Optimal Control Policy" simulation in the Tealbook, Book B, on page 8, or more quickly than previously planned, as in the "Optimal Control with Forward Guidance Regarding Liftoff" simulation, which, by the way, happens to closely match my June SEP submission.

This is a personal opinion, and, as we all discussed, there's some guesswork here, but I think the staff model of inflation likely understates inflationary pressures. Moreover, it's certainly well within the realm of possibility that the natural rate of unemployment, as we discussed earlier, is above the Tealbook assumption and closer to the CBO estimate. Given what

I see as the evident extreme difficulty of avoiding recession when policymakers try to engineer a period of below-potential growth, I don't think we ought to push our luck. That's my point.

Now, you have entertained us for quite some time with driving across our great country. I would suggest that we're approaching a bend in the road, and I think the data are showing that. If we continue to do that, I'd rather start easing up on the accelerator a little bit early as we approach that bend than wait until the curve is unmistakably on us. That's your analogy. I'm from Texas, so I prefer to talk about guns. [Laughter] We need to lead, not follow, so I have said in previous meetings that I want to see the whites of the eyes of this recovery before we raise rates. But I'm not going to shoot—forgive me—in the back of the head. Or what I did in the speech in July was, I used duck hunting as an analogy. You bag a mallard by leading the flight pattern, not by shooting where it is.

Governor Fischer, I think, made a very good point, and this is where I continue to maintain the emphasis on wording. Governor Fischer said a lot of people built their strategies around what we've been doing. This is one of the reasons I was against QE3, by the way—because we have created expectations. I don't worry, Governor Fischer, about the moneychangers. They made a hell of a lot of money. What I do worry about is how it impacts the real economy and some of the things that Governor Powell was mentioning, which is the behavioral response of how it works its way through the real economy.

I do think that, if we're going to move earlier, we need to be changing the message, and I agree with Governor Fischer on that point. To that point, if I had my druthers with this statement, I would trim the third sentence of alternative B, paragraph 1, to read "However, a range of indicators suggests labor resources remain underutilized." I would take out the word "significant." However, I note, Madam Chair, that we did take out "elevated," and I also note

that, in your Humphrey-Hawkins testimony, you used this terminology. And that was based on our last meeting. But it may be a little bit too soon to take out the word "significant." But my bias would be to do so if I were writing the entire alternative. I would eliminate the adjective "significant," as I said.

In paragraph 5, I'm increasingly uncomfortable with "for a considerable time." I notice that, in alternative C, we have "for some time." I don't expect the Committee to agree with me, but I think that, as we get closer and closer, if the data get better—again, to follow up on Governor Fischer's suggestion, with which I agree, we're at a tender moment, and we don't want to have a negative impact on the market—that's a word that is changeable. I'm likely to argue very strongly for that at the next meeting.

Let me comment on paragraph 2. I think it makes significant progress. Again, if I had my druthers, I'd take "diminished somewhat" out, but it's in there, and I can support it as it is written.

In summary, I support alternative B—again, with reluctance. If the numbers keep improving along the path by which they have been improving, then I'll be less supportive in the future—without language changes, in particular. I think we will have to start signaling that we're going to either move things up sooner, which would be my preference, or move things more sharply when we move. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. I support alternative B. The characterization of the economy and outlook in alternative B is broadly consistent with my own reading of the situation. Because of the weight I put on elements of employment slack, such as persons working part time for economic reasons and the participation rate, I actually considered

whether the language in alternative A that references these factors specifically would be preferable to the words “range of labor market indicators” in alternative B. However, I don’t think it’s wise to set off unhelpful market speculation related to the specifics of our reaction function, so I am comfortable—as you are, Madam Chair—with the general language in alternative B.

I also like the new verbiage in the last sentence in paragraph 2 acknowledging the firming of inflation and the reduced likelihood of inflation remaining soft. So I’m comfortable with the statement language as presented. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. To offer a counterpoint to President Fisher’s comment about QE3, I’d like to say I’m very happy that we undertook QE3 and the forward guidance, as I think the economy is better because of that. I do support alternative B as written. This is a significant change in language. Unemployment has come down, and inflation has moved up from its lowest recent readings.

Of course, it is still much too early to declare victory. I think that substantial risks remain. In alternative B, the language recognizes these developments pretty well. In paragraph 1, we mention that the unemployment rate has declined further. We’re not using the term “elevated.” In my own mind, I still think that 6.1 percent is elevated against my take on the natural rate of 5 to 5¼ percent, but I’m okay with that. It’s important to acknowledge “significant underutilization,” as the statement indicates. I believe that’s accurate. And, in terms of the range of labor market indicators, you’ve talked quite a lot about your dashboard for the labor market, and I think that everyone will understand the language pretty clearly.

In paragraph 2, the inflation language removes the phrasing that we're monitoring for evidence that inflation is moving back to our objective. That's fine, but considerable uncertainty does remain. The inflation uncertainty bands point to that. As I mentioned in my question-and-answer, I do think that it's useful to characterize our take on where inflation is going in terms of the probabilities of that. As President Kocherlakota has noted quite often recently, the probability that inflation is going to underrun our objective is higher than the probability that it will be above 2 percent. The bands show that.

There was some discussion between President Williams and me on the right way to calculate those bands and what they really mean. It would be nice if, in the Tealbook, they tabulated some of these probabilities with respect to a couple of benchmarks, like 2 percent or something. I'm not quite sure exactly what the numbers and benchmarks should be, but that would be useful for resolving some of those questions.

I do still worry that we're hoping to thread the needle in terms of getting inflation up to 2 percent by getting it up gradually. I'd like to get it up there much more quickly and use our policy accommodation to do that. The Tealbook takes until 2018. I think we need more confidence that the probability of inflation being above 2 percent is balanced against the downside probability. But, for today, I certainly support alternative B. Thank you.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. I support alternative B today. There's not been a significant enough change in the outlook to warrant deviating from the path of tapering asset purchases by another $10 billion per month. My expectation is that we'll announce in September that the program will conclude in October.

I do have two concerns about the language. First, as we discussed, we've seen considerable improvement in the economy over time—in fact, more improvement in labor market conditions than was anticipated. And the outlook on labor markets has, if anything, improved since June. So I'm concerned about introducing the language that there's "significant underutilization of labor resources" into paragraph 1.

Now, we can reasonably disagree about estimates of the level of underutilization. My concern is more about the message this new language will send. In particular, to me, the language suggests we're more concerned about labor market developments now than we were in June or earlier in the year—and perhaps even then, our estimates of the degree of underutilization increased—yet the data, our forecasts, and our discussion belie that. So I would suggest we drop the qualifier "significant" and not give any characterization of the degree of underutilization, saying simply that "there remains underutilization."

Omitting any qualifier provides a wide umbrella for different views on the Committee about the amount of underutilization. I don't view that as inconsistent with the Chair's testimony. I also believe it would set us up better for the next meeting. We will have two employment reports before our September meeting, one coming out this Friday, as well as a new round of FOMC projections. A qualifier on the degree of underutilization could become obsolete as early as our next meeting. But a change in that statement language will get noticed. In fact, our statements are a little bit like Hotel California—words check in, but it's hard to get them to check out. [Laughter] So I think we'd better take that into account and not create a future communications issue for ourselves.

My second concern, which I talked about last time, is with our forward guidance on the federal funds rate. The end of the asset purchase program is looming, and a rate increase is

anticipated sometime next year. Pretty soon, it's going to be both necessary and desirable for us to change that forward guidance that indicates the first increase will be "a considerable time" after the purchase program ends. Liftoff has been moving closer, not further away. We've seen more rapid improvement in the economy than many anticipated, and both the Tealbook federal funds rate path and the June SEP path are steeper than market expectations. That's true of the dealer survey. It's true of the federal funds futures and Eurodollar futures paths. So I think what we should be doing is to do our best to better align the public's expectations with our own view about the path, and we should do that before we get too close to the liftoff date. My hope is that the combination of a press conference, the release of the new SEP numbers, and the probable release of normalization principles will make the September meeting a good one to revise our forward guidance. Thank you.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. President Fisher, I may have generated some heat a moment ago, but there's nothing like the heat that was between you and President Lacker yesterday.

MR. FISHER. I'm so sorry I said that.

MR. KOCHERLAKOTA. Sorry, I can't remember that.

MR. LACKER. There goes the transcript. [Laughter]

MR. LOCKHART. Wait until the historians get hold of it.

MR. LACKER. Try to keep it off www.federalreservehistory.org.

MR. BULLARD. Madam Chair, I agree with Governor Fischer that we are well ahead of where we expected to be. Last year at this time, we expected to be at 7 percent unemployment,

and we expected to be done with the QE program. Instead, we're at 6.1 percent unemployment, and the QE program has not been completed yet.

I'm willing to support alternative B for today with a change to the phrase "significant underutilization of labor resources." And I'm agreeing with President Mester. I propose that we simply eliminate the word "significant." To me, the word "significant" would apply to a situation in which we have 8 percent unemployment or 9 percent unemployment. We've come down to a much lower level, and, even on the other dimensions of labor market performance, things have improved. So I think we can just say "underutilization" and get the point across. I like President Mester's characterization that we don't want to set ourselves up for difficulties in changing the language, as we have more labor reports coming and we are expecting reasonably good news, we hope, in those reports. So you would eliminate one word. The phrase would be "there remains underutilization of labor resources," which I think is a perfectly fine characterization of what's going on. This would better reflect the labor market situation, in my view. That's my only suggested change to the statement today.

Let me make a few comments on alternative A, which was more direct in noting alternative labor market indicators. If we go in this direction in the future, I would encourage the Committee not to cite the labor force participation rate. Some of you know that I gave a speech called "The Rise and Fall of Labor Force Participation in the United States." That was a review of the literature on labor force participation. My take on this is that demographic models explain nearly all of the decline in labor force participation since 2000. Demographically-based models developed in 2006 are basically spot-on with their predictions of where labor force participation would be today. And most of these models predict that labor force participation will continue to decline in the quarters and years ahead. That's basically on a downward path. Labor force

participation has not historically had a significant cyclical component. So I think that, if we would lean more on that interpretation of the labor force participation rate, we would get better unemployment forecasts. That's what I've been doing in recent years. I've been fortunate enough to be more accurate on what was going to happen with unemployment. The other labor market indicators, other than labor force participation, might be reasonable—persons working part time for economic reasons, for instance. But labor force participation, I think, is a special category that is driven by factors outside of the control of monetary policy.

I would also say this about other indicators of the labor market health, other than the unemployment rate: I think we need better empirical evidence that would justify citing these particular measures in the statement as they are in alternative A, if we ever wanted to go in that direction. I'm doubtful that we can get improved empirical performance by adding one of the lesser-cited labor market indicators to variables in a VAR or a related empirical model. In other words, the marginal contribution of adding a labor market indicator of that nature is probably small or zero. So I think that, until we have some evidence of that nature, I would not raise those kinds of indicators to the level of putting them in the statement. I understand that we, of course, want to talk about all information that's in front of the Committee, but to raise it to that level says that it's a variable that can really explain a lot about what's going on in the macroeconomy. And I don't think the lesser-cited labor market indicators can do that or can meet that kind of test. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. I support alternative B in terms of a further reduction in asset purchases. Compared with the June statement, I had a similar reaction to the language in paragraph 1—that it seems to downplay labor market improvements. And I, too,

would prefer to reframe that characterization by dropping the word "significant" so that the Committee's acknowledgment of the broad improvement in labor markets is clear.

I think the language we use is increasingly important as we steer toward normalization. Policy rules and the Tealbook, Book B, prescribe less accommodation than they did at the June meeting, even as the gap between the Committee's views and those of the market remains wide. The federal funds futures market shows a much more gradual trajectory for the funds rate following liftoff. Threading the communication needle will be challenging to avoid either surprising markets by moving faster than expected or delaying policy normalization at the risk of falling behind the curve and jeopardizing our long-run objectives. In this regard, I remain concerned that we may already be behind the curve. The current unemployment rate gap, looking at the difference between the unemployment rate and the CBO's long-term estimate, is currently just over ½ percentage point. This gap is the same as it was in June 2004 at the time of liftoff for the last round of policy tightening.

I understand the arguments for delaying liftoff longer than in the past, but we should not complicate this risk by letting markets expect that we will also move slower than in the past. Most research on monetary policy at the zero lower bound finds that, if liftoff is to be delayed because of the constraint on rates at zero, short-term rates should return to normal faster, not slower, following liftoff. Of course, these models generally do not incorporate the important role of financial stability for markets. So my own preference would be to lift off sooner and move more slowly. At a minimum, however, I would like to avoid painting ourselves into a corner by letting financial markets think we're going to both delay liftoff and move exceptionally slowly following liftoff. Thank you.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I support alternative B as written. I would be opposed to removing the word "significant" in paragraph 1. I think, especially since that word appeared in your Humphrey-Hawkins testimony, it's appropriate to leave it in at this time.

I do agree with some of the comments from participants around the table that we will need to revisit the words "considerable time" in the very near term and try to provide more clarity about what exactly we mean by that. I would hope we do that in terms of economic conditions and not so much in terms of dates, but I think that, very soon, in the September–October time frame, we're really going to be put in a position of having to try to answer some tough questions about that.

For a long period of time, this Committee has been struggling with the employment mandate and focused on the employment mandate as really the main challenge facing us. I'm increasingly thinking that the big challenge for us is really on price stability, and the perhaps overly extended dialogue that we had leading into this round highlights some of those challenges. Staff estimates right now are that inflation expectations are 1¾ percent. I think that, if you carefully read the memo that we received in June, this estimate is unduly generous to this Committee. If you actually read the numbers behind the assessment, you could have gone with a lower number, as Mr. Wilcox mentioned earlier, in fact.

We heard lots of passion yesterday about the loss of credibility associated with missing the federal funds rate target range by 10 basis points for one day. We need to bring that same level of passion, or even more, to the prospect of missing our inflation target by 25 basis points or more over an extended period. When we have a flat Phillips curve, that miss of 25 basis points represents lots of resource loss and lots of underutilization. And I'm concerned that

FOMC participants seem comfortable with long-run misses of inflation. Maybe I'm misreading the conversation—I apologize if I am. But I am concerned that I'm hearing a degree of sanguineness about having inflation underrun our target for a very long period of time.

President Evans asked me if I had some good points to make, and I said I didn't, but I do have a lot of points. [Laughter] President Plosser, I think, raised a good point about how our behavior is likely to deviate from rules as we move forward. One reason for that lies in the behavior of inflation. Inflation has been so low for so long relative to target that we're starting to see these estimates of what inflation expectations are drift downward. That really forces us to be more accommodative than we'd otherwise be, given the current metrics.

As we contemplate how to interpret those words "considerable time," my own thinking about how we should be formulating the conditions governing liftoff is really in terms of the inflation mandate and the price stability mandate. It's very hard to justify liftoff taking place when the one- to two-year-ahead outlook for inflation is below 2 percent. In my mind, there's no reason for us to be lowering rates simply because unemployment has gotten too low. That's built into Tealbook objectives—that there's a loss associated with unemployment being too low. I don't read our statutory mandate as saying that you should not have unemployment be too low. I don't read our communications from our long-run goals statement as saying, "We don't want unemployment to be too low." So I would not be supportive of raising rates simply because unemployment has fallen too low.

The other piece that's built into Tealbook objectives is a desire to keep interest rates smooth. In fact, as the Tealbook, Book B, notes, a lot of weight is put on that. I don't see that in our statutory mandates. I don't see it in our long-run goals or communications. For those reasons, I don't put weight on that in my objective.

Accordingly, I would see no reason for us to be raising rates as long as the inflation outlook remained below 2 percent. I say “no reason.” There is one reason—potential financial instability concerns, which I’ve talked about in the past. But I agree with Governor Fischer here. As long as housing is not being affected by this, it’s really hard for me to see how this is going to get into the broader economy. That’s where you’re going to see it—in housing. Until we see it there—and we’re a long way from that, unfortunately—I don’t think that’s going to be a risk.

When I think about how to reframe “considerable time,” it would be to frame it in terms of the necessary condition for liftoff being a one- to two-year-ahead outlook for inflation of 2 percent. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you very much, Madam Chair. I don’t want to go back over, essentially, the previous round, so let me just address alternative B, which I support, and make a few comments. But I would like to start by addressing a point that President Plosser raised.

It is clear that, if we were using the Taylor rule, or any rule, with this level of unemployment and this rate of inflation, we’d be well above zero. That’s clear. But I think that doesn’t take into account the history dependence of how we got here. We have only recently reached the conclusion—and when I say “we,” you’ll have to include me in some metaphysical sense—that we are making progress, in which the risk of deflation has fallen off the table and in which, at least in the labor market, we seem to be seeing significant, sustained improvements in performance. We haven’t seen it in growth yet, and it may just be that we won’t see it in growth, because it’s entirely possible that we may reach the unfortunate conclusion that the rate of productivity growth has declined. If that’s it, so be it. That’s one of the many things that monetary policy can’t particularly deal with.

It's that we're starting from a zero interest rate that causes us to be so significantly away from almost every monetary rule that would have applied if we had come to this point as a result of some normal business cycle, in which we'd gone up to 7½ percent unemployment and started coming down, and we hadn't had a huge financial crisis and so forth. Then we wouldn't be in this situation. But we did go through a financial crisis of massive proportions, and I'm glad that the Committee voted for QE3, because I think that made a significant difference. But it's just an intra-Fischer/Fisher disagreement. [Laughter] We don't have to worry about that too much.

Let's go to the issues. I've also toyed with the issue that you're dealing with, President Plosser, and have tried to explain to myself why I wouldn't want to do what the Taylor rule says or what you recommend, and that's my answer to that.

Now, let's look ahead a few months and ask what could happen. Well, we could continue to get good news out of the labor market, and that would almost certainly mean that we'd want to raise the interest rate sooner than late in the second quarter of next year or even early in the third quarter. If that were to happen, we would want to send—by September, for sure—a fairly strong signal. Sending a fairly strong signal raises the risk of a "taper tantrum 2." We went through QE1, QE2, and QE3. We really don't want to get that series going on taper tantrums, and I think we should avoid it.

If that were to happen, we would want to have sent some signal that we already got an internal estimate that liftoff will be sooner than the markets think. Alternative B sends that signal pretty well. This is going to be noticed, and people will say, "Oh, yes. Okay. They are worried about inflation. They continue to be worried about unemployment. But there's a very significant change, particularly at the end of paragraph 2." But, in fact, the whole of paragraph 2 is a significant change, and I think that will have been enough.

Well, why don't we say, "It could be in the first quarter of 2015"? The reason is, we could get some bad news, and we don't want to go too far. We don't want to do something that we'll regret having done. So my sense is, this language is about right. It sends a signal that will be noticed, for sure, but it doesn't send a signal of massive change. If we get another two good labor market reports—or even another one—before the next meeting, I'm pretty sure we'll want to change this statement, as President Fisher and others have suggested, in a far more definite direction. And we will have given some warning that that's on its way. If we get really bad news, we don't have to do any changes in the next meeting. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I don't hear any disagreement around the table with respect to the policy action we're going to take today, so it all seems to be a matter of wording. More precisely, as I think Stan has just tried to frame the issue, it's one of strategic planning for how we're going to word what we say now and over the course of the next several meetings.

I believe we have two sets of aims. One is the aim that the Chair began with, which is an indication of wanting to move market expectations closer to where we all evaluate that a critical mass of next year's voters probably occupies right now. And it doesn't seem to a lot of us as though there's the degree of alignment in markets that we would like. I think a second aim—which, again, Stan was just alluding to—is to maintain some optionality on our part, depending on what the data show over the course of the next several meetings, as to whether that critical mass is going to change its own set of expectations—that is, to pull forward the date of the first liftoff or, conceivably, depending on what I don't think any of us expect—maybe getting some very bad data—to push it back. We've got to have both of those aims in mind, not just in

crafting today's statement, but also in thinking about how today's statement affects what we say over the next few meetings.

With that perspective in mind, I'll begin by saying that, even if I agreed with Charlie Plosser's substantive views, which he knows I don't, I really wouldn't want to make a change in the forward guidance today, because I think it would be more than bumpy—it would feel like one of those air pockets you hit over the Rockies sometimes. It would be a complete reversal of expectations by markets as to what we may do. We need to move more incrementally, and I believe the Chair tried, in her monetary policy testimony, to move incrementally. I think most of us agree that what we'd like to see this statement today do is, again, to take a baby step further along the way to changing market expectations without some kind of giant leap forward, because those of us who feel that we don't have a strong view as to whether we are going to pull forward or not do want to maintain some of that optionality, and we also don't want to unnecessarily roil markets along the way.

With that in mind, with respect to the sentence that several of you have talked about, it seems to me there are three options there. One, you leave it in as it is. Two, you take it out. And, three, you either delete "significant" or change it to some softer adjective. We all need to borrow David's cloak of humility in trying to project how markets are going to react to any of this stuff. But we should probably think it through roughly along the following lines: If we put it in, it is, to my mind, a statement of fact. I agree with it as a factual matter. What it's basically doing is trying to warn that the critical mass is not moving too rapidly to the conclusion that some might reach—and, I think, some of us around the table have already reached—that we're on the way to liftoff. Changing "significant" is the hardest to figure out. I'd be a little concerned about changing "significant," either deleting it or changing it to something else, because

everybody will just compare it with what the Chair said at her monetary policy testimony. And that creates the largest chance of there being an excessive reaction, from our point of view.

The third option, obviously, is to omit it, and Loretta made the case for that. President Mester made a dynamic case for it, which is, what do you do with it once it's in there? My own view is that, ultimately, this is the Chair's call to make, because she's the one who's got to navigate this along the way. But I do think that, right now, we probably do need that baby step forward in terms of market perceptions. So the way I would try to judge this is, what's our level of confidence that the statement with the sentence will move that baby step, but only a baby step, forward, as opposed to the statement without the sentence moving that baby step forward, bearing in mind what Loretta said about the future? In some sense, Madam Chair, I'm throwing this back on you, but I do think this is a pretty important decision right now, precisely because of what Stan said. It's taking us one step at a time, and whatever we do in September is going to build on what we've done today. Thank you.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I will support alternative B today as written. It does seem to me that the margin of slack is significantly smaller, and that it's been disappearing significantly faster than I had expected. I was pleased to see that the primary dealer survey put some significant probability on a March liftoff. The actual market readings are not so well aligned with that view, and I think the first rate increase needs to be well telegraphed in advance, obviously, and not a surprise to markets. So if data come in as expected or better, we seem to have some work to do on that front.

On the statement language today, I want to think ahead. If the modal case is realized and we get 250,000 jobs in each of the next two months, it seems to me that a couple of things will

happen. First of all, I think the SEP will start to show liftoff in the first quarter—on the part of some, at least—which would be appropriate at that time. But, in addition, that would put significant pressure on the language in the statement in at least three places. First, the word "significant," at that point, will come under a lot of pressure. I subscribe to David Wilcox's and Governor Tarullo's belief in the need for humility on this, but I do think that that will be the most noticed word in this statement, and that it will be the word that characterizes the overall thrust of this statement. So that would come under tremendous pressure in September. Second, I do think that, with respect to the "considerable time" language, at the end of paragraph 5, you would be under a lot of pressure.

Finally, I believe that the next SEP will include 2017. The Tealbook has the federal funds rate at 3.8 percent. So I don't know that that last sentence in the whole statement—which, I guess, President Lacker referred to—is going to be true any longer at that point. In other words, it may not be correct that the federal funds rate is below normal levels at that point. I think there is an opportunity to drop that, but the bottom line is, this is a risk-management call that the Chair really gets to make. There's risk in leaning too far forward now. The risk is that there will be a lot more pressure on the September statement, and I'll be happy to support your conclusions on that. Thank you.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Let me start by saying I support alternative B. In reflecting on the changes in alternative B from the June statement, obviously the new news for all of us is the accelerated pace at which slack is diminishing in the labor market. That's really the biggest piece of data that came in well ahead of expectations. Of course, we're also seeing signs of a healthier inflation rate and now a lower likelihood that we will not be able to reach 2 percent for

a very protracted period of time. We also don't see, I think, anything on the financial-stability side that would materially change our inclinations on monetary policy.

The anomalous performance, though—the poorly understood performance on GDP and GDI—should give us some pause and, if nothing else, injects considerable uncertainty—and uncertainty that does matter, I think importantly, for monetary policy. I don't believe that uncertainty is likely to be greatly resolved at least until the QSS revisions, and possibly not even at that juncture, in September. Because it's very difficult to reverse course once liftoff is initiated and because this recovery has proven unusually susceptible to false dawns, I think that, if we have the breathing space to wait for a clear pattern of signals—and the inflation data suggest that we do have that luxury—the prudent course is to digest that additional data before committing decisively.

I will say that, on the other side of those considerations, I am troubled that market participant expectations on the date of liftoff and on the path of the federal funds rate seem both late and shallow relative even to the June SEP. The June SEP path itself is below the July Tealbook projection for the funds rate. And, as was said earlier, while a policy rule is not particularly binding for these sets of circumstances, I think that, nonetheless, we should be looking at a range of policy rules. The Tealbook projections, in turn, are later and shallow than prescribed paths from a whole set of policy rules.

That growing divergence between market expectations and our internal projections argues in favor of altering the description of economic conditions, as is reflected in the proposed alternative B statement. I would hope the market would have put greater weight, actually, on the data relative to the forward guidance, based on the statement made by the Chair in her Humphrey-Hawkins testimony. Here I'm referring to the statement that "if the labor market

continues to improve more quickly than anticipated . . . , then increases in the federal funds rate target likely would occur sooner and be more rapid." That does not seem to have gotten much traction. And I would think we would want to see that sentiment, the data dependency, start to dominate the market's thinking.

It's worth thinking a little bit about the tradeoff between waiting a little longer with a possibly steeper path of rates thereafter, versus moving a little sooner and thinking that we could actually see a somewhat shallower path. If the dominant consideration is not moving prematurely in the context of considerable uncertainty about the extent of slack, then the later time of liftoff and possibly steeper path thereafter probably are preferable. If, instead, we were particularly worried about risks to financial stability, then perhaps we would be more inclined toward the sooner, shallower path.

It's helpful, as many people have done here, to discipline our discussions about this thinking forward to a sequence of signals that we would be sending over the next few meetings as more data come in—especially, again, because it's going to be very difficult to reverse course once that alteration is made. So I think we would want to tilt toward a more positive read on the elimination of slack and inflation in this statement. In September, we'll have the new SEP numbers, which will move considerably—if I hear people around the table correctly—and the market will see that. The Chair will be giving a press conference, and we'll also have the principles on exit. Those things together will give us the potential for adjustments based on the data that we'll have in the intervening period. Thereafter, if, in fact, we continue to see this acceleration of the elimination of slack, I do think we have to start moving away from the "considerable time" language and altering the forward guidance.

With regard to the actual characterization of underutilization, I have to say I share the concerns that have been articulated that the characterization of slack as "significant underutilization" does seem a bit strong in relation to the data that we've seen. The real concern is, how do you move off of that without sending too strong a signal? I think Governor Tarullo has suggested two alternatives, and President Mester stated that tradeoff nicely. Again, I would defer to the Chair, but that is something that I would give a little bit more thought to. Thank you.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I support alternative B as written. But before I get into the language, I'd like to make some observations about the outlook for monetary policy over the longer term.

It strikes me that the prospects for an earlier-than-anticipated tightening of monetary policy have increased. I, for one, can certainly imagine liftoff occurring next March, presuming that the outlook evolves in line with the Tealbook forecast or something close to that. Given that, we need to start thinking about working backward. How would we actually manage to a March liftoff? That's not to say we absolutely will do that, but the data certainly could evolve in that way.

The way I see it happening is in a number of steps. The first step happens today, when we basically move it a baby step, as Governor Tarullo said, just to start to change market expectations a little bit. In September, if the next two employment reports confirm that we're still on this trajectory, then we take a bigger step in terms of language. And then in December, we remove the "considerable time" language, and that's the signal that, at the next press conference meeting three months later, it's highly likely that you're actually going to go ahead with tightening. That's how I think it would go. But we need to start to have some discussion

around the table about how this sequence would work and get people in agreement on how this process would unfold.

Now, the second question I want to talk about is something that Governor Fischer raised, which I think is interesting—this gap right now between what we think and what market expectations are. The question I want to pose is, how big a problem is this, and what should we do about it at this meeting? My own view is, I'm probably a little bit less concerned about this problem than maybe some others at this meeting, and the reason for that is, consider two alternatives. The first alternative is a circumstance in which market participants expect us to go earlier than we think we're going to go. The market has the tightening as occurring likely before we actually think we're going to move. That's a particularly dangerous circumstance because, if we don't go when the market expects us to go, there's a real risk of a loss of credibility and an unhinging of inflation expectations, and that could be very damaging. But that's not the situation that we're in. We're in the opposite situation, in which we think we might go earlier than the market thinks, and that's less risky in the sense that there is less risk of it leading to a real loss of credibility for the FOMC in terms of its commitment to keeping inflation in check. Yes, there would be a credibility hit in the sense that we misled the markets, and, certainly, there would be some jolt to financial asset valuation. But at least the misalignment we have today is the less dangerous of the misalignments that can occur when market expectations and what we think are not lined up.

Also, I think it's important to dig a little deeper about why market participants are in a different place than we are. Is it because they don't understand our reaction function, or is it because they just have a different forecast in terms of how the economy will evolve? It's interesting that, when you look at the Tealbook unemployment-rate projection and you compare

that with the primary dealer survey unemployment-rate projection, you see a pretty wide gap. In 2016, the Tealbook is at 4.7 percent, and market expectations are at 5.4 percent. Well, if that's the reason for the disagreement about the timing of liftoff and the trajectory of interest rates, that's not really something that we should be that concerned about, because one of those forecasts is going to be more right than the other and that gap will tend to close on its own as it becomes more clear whether the Tealbook forecast is the right forecast or the primary dealer forecast is the right forecast. So it's really important to think about, what's the reason for the disagreement? Is it a disagreement about the trajectory of the economy, or is it a disagreement due to a lack of understanding of our reaction function? If it's a lack of understanding of our reaction function, that's a much more serious problem.

In terms of alternative B, I do think it does exactly what we want to accomplish at this meeting. It acknowledges the improvement in the labor market, it acknowledges the fact that the risks of inflation getting stuck far below our 2 percent objective have lessened, and those are the changes made in paragraphs 1 and 2. But it doesn't jump yet to drawing implications for those changes in terms of what's actually going to happen in the later paragraphs with respect to monetary policy. It says we acknowledge what's happened. We're on watch, but we're not quite ready to actually put that into action in terms of monetary policy, and I think that's about right.

If the next two employment reports and the data are consistent with 3 percent growth and 200-thousand-plus payroll gains in the two months, then, in September, you'd want to start to make changes to those latter paragraphs about the monetary policy pieces. That would be the second step that would affect the change in market expectations that's appropriate.

There will be a market reaction to the statement today. I think they will take it as our being more optimistic about the outlook and less concerned about inflation. So I believe that the market will take some signal from this. But the fact that we're not changing the later paragraphs means the market reaction will probably be pretty mild.

In terms of the language issues, the big debate around the table seems to be about the word "significant" in paragraph 1. My own view is that that word should stay in, and I think it should stay in for a couple of reasons. The first reason it should stay in is that that's the language that the Chair used in her testimony. So people are going to be comparing the two, and, if it comes out, people are going to view that as quite meaningful.

The second reason it should stay in is, it's actually accurate. If you read not just that sentence, but also the changes that are made to paragraph 1 in its entirety, we're basically saying that the unemployment rate is no longer elevated, in our view. We're acknowledging that it's declined further, and we're then qualifying that slightly by saying that, despite those things, which are good developments, we still think there's "significant underutilization of labor resources." If you read the statement as, we're just saying there's "significant underutilization of labor resources," and that was the main point of the paragraph, then it could be up for debate. But the reality is, we're using that sentence to qualify the other changes that we've made in that first paragraph.

Also, to me, "significant" means meaningful, and the question I would have on the table is, do we think that the underutilization of labor resources that we have today is meaningful? Well, we almost certainly think that, because, if we didn't think that, we'd probably be lifting off already. So it seems to me that "significant underutilization of labor resources" is exactly, completely paired with the policy that we're actually pursuing. Thank you.

CHAIR YELLEN. Thank you very much. Well, thanks to everybody. The comments on policy have been very thoughtful, and I think we're actually in considerable agreement about where we're heading. I believe everybody recognizes that we're on a path here where, if the data continue to come in strong and to create a series of positive surprises, we're likely going to be moving up sooner than we previously anticipated, and that we will have to signal our intention to do that in a series of steps. I am more than prepared to go in that direction if the data continue as they have been. So, to my mind, the questions with respect to language concern the sequence of steps that so many of you have talked about and what's the right move for today.

It's always hard to know what the market reaction is going to be to language. I think, as many of you have indicated, the change in the characterization of the inflation outlook is going to be noted quite carefully and taken as a signal of a somewhat "hawkier" stance. I don't know what markets will think of the word "significant," but my own interpretation was that it was exactly in line with what the Vice Chairman indicated—that it means "appreciable" or "meaningful," and that the overall thrust of that paragraph is, we're no longer saying the unemployment rate is elevated. We're saying that not only has the unemployment rate declined, but we think labor market indicators quite generally show that there's also been improvement in the labor market, and we've moved away from "elevated." But I do think it's accurate to say that the degree of underutilization is significant.

Obviously, I've heard many of you who would be inclined to change the word "significant." Also, I've heard a considerable number of you who think that it's the right word for today. My preference would be to stick with "significant," and I suppose this point that this is exactly the language that, just over a week ago, I uttered in testimony and was in our *Monetary*

Policy Report inclines me to keep it. Because of how markets interpret these things, to remove that word would be taken as a serious signal.

But September—obviously, we will have to reconsider that characterization of the labor market if we continue to see very strong labor reports. And I agree with those of you who have talked about the forward guidance and the eventual need for that to change. I think March is very much on the table as a time when we might begin to tighten. I am concerned about the gap between market expectations and, perhaps, our own evolving expectations. Obviously, the SEP will show, if things continue this way, meaningful changes in September, and I am completely open to changing the language. But I would like to do so in as smooth a way as possible and in a series of steps, if we can.

Hearing the concerns that you have about where we are and where we need to go, I take those very seriously, and I'm ready to work with the Committee to move faster if the data call for that. For today, I would like to put forward the statement as it stands for a vote.

MR. LUECKE. I'll call the roll.

CHAIR YELLEN. Yes. Go ahead.

MR. LUECKE. The vote will cover the FOMC statement, alternative B, on pages 6 and 7 of Bill English's exhibits, and it will cover the directive on page 12 of that same document.

Chair Yellen	Yes
Vice Chairman Dudley	Yes
Governor Brainard	Yes
Governor Fischer	Yes
President Fisher	Yes
President Kocherlakota	Yes
President Mester	Yes
President Plosser	No
Governor Powell	Yes
Governor Tarullo	Yes

CHAIR YELLEN. Great. The motion passed. The next meeting is September 16 and 17. My guess is, we will begin early. We haven't decided that, but I think that's probably a reasonable forecast. And Linda Robertson is going to give us an update on the state of legislative and congressional affairs over lunch. Is lunch ready for people who are able to stay? We'll come back, and Linda will speak.

END OF MEETING