**Meeting of the Federal Open Market Committee on
June 17–18, 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, June 17, 2014, at 10:00 a.m. and continued on Wednesday, June 18, 2014, at 9:00 a.m. Those present were the following:

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

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

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

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

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

Simon Potter, Manager, System Open Market Account

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

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

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

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

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

Mark E. Van Der Weide, Deputy Director, Division of Banking Supervision and Regulation, 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

Brian M. Doyle, Senior Adviser, Division of International Finance, Board of Governors; Ellen E. Meade and Joyce K. Zickler, Senior Advisers, Division of Monetary Affairs, Board of Governors

Daniel M. Covitz, Eric M. Engen, Michael T. Kiley, and David E. Lebow, 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; Beth Anne Wilson, Associate Director, Division of International Finance, Board of Governors

William F. Bassett and Jane E. Ihrig,[1] Deputy Associate Directors, Division of Monetary Affairs, Board of Governors; Joshua Gallin, Deputy Associate Director, Division of Research and Statistics, Board of Governors

Min Wei,[2] Assistant Director, Division of Monetary Affairs, Board of Governors

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

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

Laura Lipscomb,[1] Section Chief, 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

[1] Attended the joint session of the Federal Open Market Committee and the Board of Governors.
[2] Attended Tuesday's session only.

Wendy Dunn and Patrick McCabe,[1] Senior Economists, Division of Research and Statistics, Board of Governors; Etienne Gagnon, Senior Economist, Division of Monetary Affairs, Board of Governors

Jonathan Rose, Economist, Division of Monetary Affairs, Board of Governors

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

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

David Altig and Daniel G. Sullivan, Executive Vice Presidents, Federal Reserve Banks of Atlanta and Chicago, respectively

Cletus C. Coughlin, Mary Daly, Troy Davig, Michael Dotsey, Joshua L. Frost, and John A. Weinberg, Senior Vice Presidents, Federal Reserve Banks of St. Louis, San Francisco, Kansas City, Philadelphia, New York, and Richmond, respectively

Deborah L. Leonard,[1] Giovanni Olivei, and Douglas Tillett, Vice Presidents, Federal Reserve Banks of New York, Boston, and Chicago, respectively

Marc Giannoni, Research Officer, Federal Reserve Bank of New York

[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 June 17–18, 2014

June 17 Session

CHAIR YELLEN. I'd like to begin by welcoming three people to the table today: Stan Fischer, Lael Brainard, and Loretta Mester. This is the first FOMC meeting for both Stan and Lael, but both have very deep experience in economic policy over many years in a variety of other contexts. Loretta, as you all know, has actually been attending FOMC meetings for 14 years, but she joins us now as President of the Federal Reserve Bank of Cleveland. We welcome our three distinguished colleagues and look forward to collaborating with them and to learning from them.

The first thing we need to do is items 1 and 2 this morning, which we will discuss in a joint FOMC and Board meeting. So with respect to the Board meeting, I need a motion to close the meeting.

[Aside to Governor Fischer] "So moved.". Remember, I told you, it is an assigned job.

MR. FISCHER. So it's always "so moved"? There's no variation?

CHAIR YELLEN. No, that's it.

MR. FISCHER. No variation. All right.

CHAIR YELLEN. Thank you. And then I say, "Without objection." [Laughter] Maybe there is an objection, but at any rate, our first item is a staff report on market developments and operations. Lorie Logan.

MS. LOGAN.[1] Thank you, Madam Chair. Over the intermeeting period, market participants were focused on two ongoing themes: the decline in longer-term interest rates, and the low levels of volatility across financial markets. I will focus on these two developments before turning to the ECB's recent policy actions. Simon will review Desk operations and discuss two memos on the effective federal funds rate

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

and overnight RRP counterparty framework that you received in advance of the meeting today.

As shown in the top-left panel of your first exhibit, domestic financial conditions eased a bit over the period, continuing a broad trend since the December FOMC meeting. Longer-term U.S. interest rates have declined—driven almost entirely by declines in real rates—while corporate credit spreads have narrowed and equity prices have increased. This easing in conditions has occurred against a backdrop of highly accommodative monetary policy from major developed-economy central banks, including the ECB.

The pronounced decline in longer-term tenors has occurred across advanced foreign economies despite important differences in their economic and policy outlooks. As shown in the top-right panel, the U.S., U.K., and German five-year, five-year forward nominal rates are about 65 to 90 basis points lower since December. Market participants cite a variety of potential drivers for the declines, but do express some puzzlement over the extent of the moves.

To better understand the drivers, the Desk's dealer and buy-side surveys asked respondents to rate the importance of various factors in explaining the decline in the five-year, five-year forward Treasury rate since the end of last year. As shown in the middle-left panel, on average, respondents assigned the highest importance to three factors: a decline in the expected level of the long-run real federal funds rate, changes in economic and policy outlooks in other advanced economies, and "market-related factors," which includes things such as portfolio reallocation, positioning, and safe-haven flows. Changes to the U.S. economic outlook and the accumulation of U.S. dollar reserves were viewed as somewhat less important, although as you can see, buy-side participants placed more weight than dealers on reserve accumulation as a factor.

The Desk's surveys provide further evidence of the importance of a decline in the expected level of the long-run federal funds rate as a contributor to the decline in longer-dated forwards. As shown in the middle-right panel, the distribution of dealer estimates of the longer-run target rate shifted down between the December and June surveys, with the median and modal responses declining from 4 percent to 3.5 percent. The buy-side survey also shows a decline in expectations for the longer-run rate. In commentary explaining revisions to these expectations, dealers principally highlighted reductions in estimates of potential GDP growth. Additionally, many have highlighted comments reportedly made by former Chairman Bernanke during recent private speaking engagements that he does not expect the federal funds rate to reach 4 percent in his lifetime. Notably, roughly one-third of dealers expect some downward revisions to the SEP projections for the longer-run target rate.

As I noted, survey respondents also rated changes in the economic and policy outlooks in other advanced economies as an important contributor. Commentary over the period highlighted building expectations for additional accommodation from the

ECB, which reportedly pressured euro-area sovereign yields lower, increasing the relative attractiveness of Treasury securities.

Lastly, survey respondents rated market-related factors highly. Desk contacts have pointed to a reversal of positions from investors who came into 2014 betting on an increase in rates as one such factor. This view is supported by net speculative positioning in 10-year Treasury futures, which has moved closer to neutral after starting the year significantly short.

In contrast to longer-term rates, the market-implied federal funds rate path is little changed since December, as shown in the bottom-left panel, and currently lies below the median of Committee participants' target rate projections in the March SEP. Most dealer and buy-side survey respondents continue to see the second half of 2015 as having the highest probability of liftoff, roughly in line with market pricing, and do not expect material changes to the 2015 or 2016 rate projections in the forthcoming SEP. Among those who do expect changes to these nearer-term rate projections, views are roughly evenly split on the likely direction of those changes.

In sum, while expectations for the path of policy rates over the next several years appear little changed since December, the evidence suggests that a significant portion of the decline in longer-dated forward rates is due to declines in longer-run policy rate expectations. A number of other factors also appear to have depressed term premiums.

One other factor that Desk contacts have linked to the declines in longer-term interest rates is the low level of realized and implied interest rate volatility, the second theme in focus over the period. In fact, low volatility is a phenomenon that extends broadly across financial markets. As shown in the bottom-right panel, implied volatilities in equity, currency, and interest rate markets are currently at or near their lows since these markets developed in the 1990s and around levels prevailing just prior to the financial crisis. While the panel shows options with one-month expiries, implied volatility on options with longer expiries has also generally declined, albeit not to historical lows.

The Desk's surveys asked respondents to rate the importance of various factors in explaining declines in implied volatility across markets. As shown in the top-left panel of your next exhibit, respondents on average rated "investor reach-for-yield behavior" and "low levels of realized volatility" as the most important factors. Reduced uncertainty about central bank reaction functions and the global economic outlook were viewed as relatively less important. Reach-for-yield behavior in this context might be interpreted as investor willingness to sell options even when the expected returns to doing so are unduly low, in an effort to boost portfolio returns amid exceptionally low levels of interest rates. Desk contacts report that selling options to enhance yield is being employed in larger size by a wider array of market participants.

A reach for yield amid these low interest rates and volatility has likely contributed to the appreciation of various risk asset prices over recent months. As shown in the top-right panel, high-yield corporate credit spreads to Treasury securities have narrowed significantly and are near historical lows. Similarly, emerging market asset prices have risen and EM sovereign and corporate spreads have narrowed. This has occurred despite a broad downgrade of EM growth prospects and uneven improvements in addressing economic imbalances across countries.

Risk asset prices in the euro area have also risen over recent months, driven in large part by building expectations for ECB policy actions. The ECB signaled its willingness to ease policy at its May meeting and announced a variety of easing measures at its meeting earlier this month; taken together, these measures exceeded most market participants' expectations. Specifically, the ECB cut its main refinancing rate to 15 basis points and deposit rate to negative 10 basis points. It also lowered the marginal lending facility rate to 40 basis points. In addition, it announced targeted long-term refinancing operations linked to bank lending, extended the fixed-rate full allotment stance, suspended the sterilization of its Securities Market Program, and announced that it would intensify preparatory work related to outright purchases in ABS markets.

Since the May ECB meeting, broad euro-area financial conditions have eased. Expectations for the path of policy rates in the euro area have pushed out considerably, with futures rates now implying EONIA will first reach 25 basis points in early 2017, out from spring 2016, and the euro has depreciated over 2 percent against the U.S. dollar. The easing in conditions has been especially pronounced in the periphery. As seen in the middle-left panel, peripheral equity indexes have increased as much as 7 percent, while 10-year Spanish and Italian spreads to German equivalents have narrowed as many as 20 basis points. In addition, there have been reports of credit lines for peripheral banks opening up in recent days as institutions search for positive yield.

Despite the positive impact on asset prices and market conditions, building expectations for ECB action appear to have only modestly affected euro-area inflation expectations. As shown in the middle-right panel, the recent increase in measures of shorter-dated forward inflation compensation has only partially offset the earlier declines, and they remain well below the ECB's objective of close to, but below, 2 percent over the medium term. However, longer-dated measures of euro-area inflation compensation have remained relatively stable.

The ECB actions also prompted notable declines in euro-area money market rates. As shown in the bottom-left panel, forward EONIA rates have declined between 10 and 20 basis points since the May meeting. While EONIA spot and forward rates have thus far remained positive, we understand there may be some interbank overnight unsecured trades taking place at negative rates, while offered rates on overnight repo against core euro-area sovereign collateral have turned negative, as shown in the bottom-right panel.

To avoid negative rates, investors are attempting to term out their euro-area money market investments when they can, though this may become increasingly challenging. German bills rates are already offered at negative rates out to 12 months and French bills are offered at negative rates out to 6 months. Despite the negative rates, the Desk has not yet heard of material dislocations in euro-area money markets. However, the impact on market functioning may become more pronounced as additional excess liquidity is introduced to the financial system with the suspension this week of SMP sterilization and the start of targeted LTROs in September. I will now turn it over to Simon.

MR. POTTER. To continue Lorie's discussion of euro-area money markets, negative short-term rates pose challenges for the investment of the SOMA and ESF euro portfolios, given the goals of both ensuring adequate liquidity and preserving the principal balance of foreign currency holdings. As shown in the top-left panel of your third exhibit, over the last few days we have lowered holdings of euro reverse repos, which would earn negative returns, and moved investments into official deposits, which currently earn either zero or a small positive return. We have not until today invested in market instruments at negative rates; however, given the Euro system's decision to apply a minus 15 basis point rate on top of the negative 10 basis point deposit rate on cash accounts over 100 million euro, we have decided to temporarily invest in market instruments with mildly negative rates. As well as continuing to evaluate all options at official institutions, the Desk will increase the duration of the portfolio's outright bond holdings.

Continuing with foreign operations, as explained in the memo that Steve Kamin and I sent to the Committee on June 6, the Bank of England, Bank of Japan, ECB and Swiss National Bank announced earlier today that their routine 7-day dollar auctions will continue for at least another two months beyond July 31. Although they phased out their 84-day auctions, these central banks expressed the view that continuing 7-day operations would be prudent in light of potential systemic instability in dollar funding markets. Their current plan is to evaluate on a monthly basis whether to announce further extensions of the scheduled auctions. Recall that the recent usage of the liquidity swap lines has been minimal.

Turning to domestic operations, the overnight RRP exercise continues to serve as a floor for overnight rates. Treasury bill supply decreased significantly in April and May, consistent with the typical seasonal pattern. Historically, ongoing declines in Treasury supply have put downward pressure on GC repo rates. However, GC repo rates did not decline significantly this year, as shown in the top-right panel. Rather, take-up at our operations increased sharply—shown in the middle-left panel—and the GCF repo index printed consistently above the 5 basis points offered on our operations. Over the past few weeks, bill and other Treasury supply have increased, likely leading to increases in GC repo rates and large declines in overnight RRP take-up.

Looking ahead to quarter-end, market participants generally expect that participation in the overnight RRP exercise will increase notably. As banks and dealers cut back on the amount of overnight investments that they offer to money funds, interest in our operations is expected to increase. Of note, over the past two quarter-end periods, take-up has increased by an average of about $160 billion in the week leading up to quarter-end.

The staff also continues to test the TDF. As part of the current testing plan, the maximum award amount and offered rate are being gradually increased. Take-up at operations, shown in the middle-right panel, has increased significantly as a result. The offered rate will increase over the next three operations, to a maximum of no more than 30 basis points. Market participants estimate that take-up could reach $100 billion or more over the remainder of the testing period, which extends through early July.

Banks suggest that as long as the rate offered on TDF deposits remains only modestly higher than the IOER rate, participation and usage in the exercise will be limited. A significant spread is likely necessary to encourage take-up since, unlike reserves, TDF deposits do not count toward an institution's high quality liquid assets in the LCR. However, if banks had the option to withdraw funds before the specified maturity date, TDF deposits could become LCR-compliant. As discussed in the memo you received last week, staff have developed plans for preliminary testing of a variation of the TDF that would include an early-withdrawal feature. Under any such testing, a penalty rate would be charged to firms for breaking a term deposit, and it would be set at a level that would make the opportunistic early withdrawal of funds very unlikely.

Shifting to asset purchases, over the intermeeting period market participants pushed out their expectations for the timing of the end of SOMA reinvestments, as shown in the bottom-left panel. Pooling across the dealer and buy-side surveys, the median respondent now expects MBS reinvestments to end three months after liftoff, six months later than in the April survey, though the dispersion of responses remains very wide. Survey respondents and other contacts suggested that the shift to anticipating a later end to reinvestments is largely due to a speech by Vice Chairman Dudley, in which he discussed his preference to end reinvestments after the first increase in short-term interest rates. MBS market participants in particular focused on these comments and cited them as one factor contributing to the 9 basis point narrowing in option-adjusted spreads on production-coupon agency MBS over the intermeeting period. However, market participants also described the recent narrowing in OIS, shown in the bottom-right panel, as part of a longer-term trend, which they primarily attribute to limited origination.

We have fully transitioned to purchasing MBS over FedTrade, the Desk's in-house trading platform, though we continue to conduct dollar roll transactions over Tradeweb, a commercial trading platform. The switch to purchasing through large-scale auctions does not appear to have significantly changed market dynamics and staff analysis thus far indicates we are receiving better execution than the mini-auctions run on Tradeweb, consistent with standard auction theory.

As was the case at the last meeting, if the FOMC chooses to decrease the pace of Treasury purchases, we will reduce the frequency of Treasury operations, while leaving the purchase distribution unchanged. If Treasury or MBS purchases are reduced, 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.

Finally, I will briefly review two memos you received prior to the meeting, beginning with the staff's proposal for creating a more robust federal funds effective rate. As we have discussed in the past, and as you can see through the dotted line in the top-left panel of your final exhibit, trading volumes in the fed funds market have decreased significantly since the financial crisis. A few foreign banking organizations now comprise the majority of federal funds borrowing. The implementation of regulatory change and some of the normalization approaches the Committee is considering may further reduce activity in the market, to the point that the fed funds effective may become an inappropriate benchmark for money market conditions or an unreliable reference rate for financial contracts.

The staff recommends addressing this concern in two parts. First, we intend to switch in 2015 to using FR-2420 as the source for the underlying transaction data in the calculation of the effective rate. In addition to the improved governance, the panel structure of this data may reduce complications that are caused by the changing quality-mix of firms in our brokered data set.

Second, we propose publishing an expanded overnight, unsecured bank funding rate that includes trading activity in Eurodollar deposits negotiated in New York. Eurodollars are likely the closest alternative to fed funds. Both are used by DIs to fund short-term assets, including reserve balances, and both are transacted in wholesale markets, usually at overnight tenors. Moreover, as again shown in the top-left panel, Eurodollar activity brokered in New York has averaged $100 billion since 2010, more than twice the volumes in the fed funds market. As shown in the top-right panel, the volume-weighted averages of the two rates tend to be very close to each other.

The staff proposes two options if the Committee chooses to move forward with the introduction of an expanded rate. The first is to continue to publish the current fed funds effective rate, while also introducing a second rate, with a different name, that includes Eurodollar activity. The second is to incorporate Eurodollar activity into the current fed funds effective rate, with no change in name. Under either option, the Committee could choose either to target the expanded rate or to use it as an additional indicator of money market conditions.

A second staff memo you received last week reviews the counterparty framework for overnight RRP operations. As you know, the Desk conducts overnight RRPs with an expanded set of counterparties, including large money market mutual funds, GSEs, and a few depository institutions. The share of take-up in our operations by each counterparty type is shown in the middle-left panel. These counterparties were originally chosen in "waves" from 2010 to 2012 and were selected mostly for their capacity to support term draining operations. Given operational constraints on our total number of counterparties and our interest in adding firms in an efficient manner, the eligibility criteria we established requires a minimum level of investable assets. We last took applications in September 2012, well before the overnight RRP exercise began.

As I mentioned, the overnight RRP operations seem to provide a floor on overnight rates, which suggests that efficacy considerations do not require changes to our counterparty list. However, the Committee may consider changing the counterparty policy for other reasons. In the memo you received, the staff discussed four possible approaches, outlined in the middle-right panel. These approaches are not mutually exclusive.

First, the Committee could decide to defer any decision about the counterparty list until a later date. This option may be attractive if the Committee is concerned about inadvertently signaling that overnight RRPs will become an ongoing part of the operating framework. However, we would not recommend postponing action for more than a short period of time, as a fixed counterparty list does not seem consistent with a standard Desk objective of fairness in the counterparty framework: Fairness implies not discriminating among firms that can equally satisfy eligibility and execution objectives subject to operational constraints. Many firms that are similar to current counterparties have expressed interest in participating in operations, and market participants are generally accustomed to the primary dealer framework, in which counterparties are added on a rolling basis.

Second, the Desk could add more counterparties of the current types, with either the current or different eligibility criteria. Opening the exercise to new counterparties would address the fairness questions discussed above. If the Committee is interested in expanding the opportunity to participate in operations to a broader array of firms, one option would be to decrease the minimum assets under management for money funds.

Third, the Committee could choose to admit new types of firms. For example, the Desk has been approached by nonfinancial corporations, nonbank financial services companies, state and local government pension funds, and others. While this option could improve the efficacy of the overnight RRPs, it is operationally impractical and, we believe, unnecessary to extend eligibility to investors in these categories.

The fourth option is to prune the existing counterparty list, so as to simplify the operating model or achieve policy objectives distinct from those usually considered by the Desk. For example, one standard reason to remove a primary dealer would be weak participation in operations, perhaps caused by a change in business model. However, in the case of the overnight RRP operations, even if a firm does not always actively participate in operations, assuming no change in business model, its counterparty status may still provide it with bargaining power that helps in the formation of a floor for overnight rates. Removing counterparties for reasons unrelated to efficacy may be difficult to communicate and may also compromise the efficacy of the tool. That said, if directed by the Committee, the Desk could quickly eliminate some categories of expanded counterparties—for example, prime money market funds—and attempt to restore any loss of efficacy by adding counterparties from the remaining categories.

In the interest of fairness—especially as we have not accepted applications for the program for some time—the staff recommends the second option: admitting additional firms that meet the current eligibility requirements.

A few more details on the staff's recommended approach are outlined in the bottom-left panel: We would like to seek your consent to open a new wave in July for firms that meet the current eligibility criteria. By beginning the process soon, the staff could start the time-consuming credit, legal, and regulatory reviews. We would anticipate receiving applications from about 25 money funds, about evenly split between government and prime funds. About half of those funds would be associated with investment managers that do not currently have a fund that is a counterparty to our operations. A few additional FHLBs may also join.

If the Committee chooses to use overnight RRP operations as part of its normalization strategy, the staff would recommend a switch in the future to accepting new counterparties on a rolling basis, similar to the primary dealer process. If the Committee was interested in changing the eligibility criteria—for example, by decreasing the required assets under management—that might be a convenient time to do so. Thank you, Madam Chair. That concludes our prepared remarks.

CHAIR YELLEN. Thank you. Questions for Lorie or Simon? President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. Simon, just on this last discussion, can you project forward to an imagined steady state in which we are using overnight reverse repos as a key part of our scheme? What volume level and counterparty population do you think would be required just to exercise monetary control?

MR. POTTER. We have reasonable control in terms of providing a floor with the 140 counterparties we have right now. The government money funds account for just over 50 percent of the assets under management in that sector; the prime for about 85 percent of the assets under management. So I don't think that we would necessarily need to add counterparties solely for the reason of execution. The reason is that we think it's hard to explain why a certain set of money funds have access and others don't have access, given how we rolled out the waves—so that's a fairness objective.

In terms of how large the facility will get, that's really going to depend on the spread that you set. And if we're at the current spread, we've seen activity, when Treasury bill supply declined, between $200 billion and $300 billion. So if you added more counterparties, it's likely you'd get slightly more usage. Over the last week, usage has declined quite markedly. You can't quite see it in the chart because we closed the chart on Friday, but yesterday we dropped down to $53 billion of usage as rates got higher.

MR. LOCKHART. Thank you.

CHAIR YELLEN. President Lacker.

MR. LACKER. Thank you, Madam Chair. You said in response to President Lockhart, and in your presentation, that the overnight RRP facility is providing an effective floor on the RP rate. Late last year, when the Desk was seeking an extension of the program—this program of testing and exploration and learning and research—I was asking what were we going to learn in the period ahead. And I was told we'd learn more about whether it would provide an effective floor. So it seems like we've learned that. I'm wondering, are we going to learn more about the extent to which this provides an effective floor between now and the time at liftoff when we would want to use this? And, if so, is there a reason to continue this program at this scale? Or should we be winding it down and waiting and rolling it up for when the time comes to use it?

MR. POTTER. I would say, under the current set of rates, the additional amount that we can learn relative to what we learned over the past few months is going to be much smaller than what we learned in the first nine months. We will still learn just a little bit—we've got the quarter-end coming up. If we weren't restricted to the 0 to 5 basis points, we could definitely learn more. Right now—you can see in chart 14 that repo rates have increased quite a lot. And we don't know what would happen if we weren't restricted to the 0 to 5 basis points. I don't think that we feel comfortable recommending a change just to test for what we might learn there, because trying to explain changes like that to markets could be quite difficult, just as explaining the change that "We have tested it, it works great, and we are just going to shut it down until, say, the middle of next year" would be a reasonably complicated thing to explain, given we have the authorization through January 2015.

MR. LACKER. If I can follow up, Madam Chair. Do markets view this as a permanent program at this point?

MR. POTTER. No. No, they don't. Certainly, many people in the market on both sides hope that it will be a permanent program. When we meet with the types of investors who use this program, they would like to have more clarity as to whether it will be a permanent program or not. Most analysts who look at the issues that we face expect it to become a permanent program. But the investors have to be wary as to the decisions that you might take around this table.

MR. LACKER. One of the memos contained information that someone is designing a fund specifically for investments in this. That seems to indicate that at least some asset managers view this as highly likely to become relatively permanent.

MR. POTTER. Certainly, I think both because of the success that we've had in forming a floor, and when they look at the problem we are facing with a very large balance sheet, they would expect us to use this type of operation—it would be a natural conclusion. And the overnight RRP−only fund will be one device that will be likely to firm the floor. There could be issues arising from that type of model that might come out in the later discussion that we have.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I had a question about chart 17 on exhibit 3, which is the answer to the question about expected number of months. I had a concern that this line of questioning could send the signal that the Committee is thinking about the decision to lift off in terms of a time-contingent basis as opposed to a state-contingent basis. I was wondering if the Desk had contemplated formulating this kind of question, either replacing or augmenting the survey by asking about changes in conditions that would lead to liftoff.

MR. POTTER. So we asked for economic conditions at liftoff. We also asked—I'm just going to check that I've got this right—for the modal time of liftoff and the time at which you expect reinvestments to end. Then, we took the difference between those two dates.

I think it would be a little bit leading right now for us to ask for economic conditions consistent with ending reinvestments, because we haven't really directly communicated that as being one of the criteria. If that is one of the criteria that you choose for ending reinvestments, then we could definitely ask that question.

MR. KOCHERLAKOTA. I see. So this is imputed from two different questions. I didn't understand that.

MR. POTTER. Yes.

MS. LOGAN. The question asks: "Provide your estimate of the most likely quarter and year during which the FOMC will first cease reinvesting some or all payments of principal on Treasuries and/or agency debt and MBS. In addition, please provide your expectation for the timing." It has been a long-standing question.

MR. KOCHERLAKOTA. That is helpful. Thank you.

CHAIR YELLEN. President Evans.

MR. EVANS. Thank you, Madam Chair. Actually, President Lacker's question touched on mine. Let me just be clear. So, Simon, based upon your conversations with market participants and as you think about the different counterparty expansion options, the market participants don't have a strong view as to whether or not this will, in fact, be a temporary program through our transition to policy normalization or whether or not it will become a permanent program, say, still in existence 5 to 10 years from now?

MR. POTTER. Yes. There's no real confidence of the operating regime, say, in 2020 that the Federal Reserve would have. That's probably similar to any projection six to seven years ahead that people would make.

MR. EVANS. Would any of these options under consideration tend to bolster the belief that it would be more permanent than otherwise?

MR. POTTER. I think that option 2 is definitely going to make people think that it is more likely permanent. Option 3,in which we reach out to a different set of firms, would certainly do that. Option 1—definitely the pro on that is that it leaves flexibility with the current counterparty list. The reasons that we don't really like option 1 are, first, that we think it's likely that you will choose something like the overnight RRP. And second, it takes time to onboard the new counterparties that we would get, and it's a strange operating model to have this fixed list whereby the only changes to the counterparties on the list come about because a firm goes out of business or its assets under management go below $5 billion, which are some of the changes that we've had.

MR. EVANS. Thank you.

CHAIR YELLEN. President Fisher.

MR. FISHER. Thank you, Madam Chair. I defer my comments on panels 21, 22, and 23 until we get into the discussion. I want to come back to the Term Deposit Facility, because you have mentioned we have had some memos about perhaps providing some flexibility there by allowing for withdrawal, but at a penalty rate. And I just wondered, as you mentioned, Simon, if you could give us a sense of the mathematics at this juncture as we contemplate this.

MR. POTTER. I'm going to pass that over to Bill.

MR. FISHER. Bill, would you provide us with the mathematics, please?

MR. ENGLISH. In terms of the breakability? Part of what we described in the memo was, for example, a fee that would involve giving up the interest on the term deposit and paying a penalty of 75 basis points at an annual rate on the amount. So that would mean that if you broke the term deposit immediately—when you got it, in effect—you'd be giving up the interest and then paying the 75 basis points. That would be something like using the term deposit at the discount window and getting a discount window loan at 75 basis points. Later in the week, if you broke it, it would be more expensive because you would be giving up the interest and you'd also be paying 75 basis points for the whole week, in effect, rather than paying it just for the couple of days, say, that you needed the cash.

So we have in mind a pretty hefty penalty. It's higher than the cost of using the term deposit as collateral at the discount window, which you could do and borrow at the discount window. So we think there wouldn't be usage except in very, very unusual circumstances.

MR. FISHER. Thank you. I know we're not going to talk about financial stability, Madam Chair, but following up on Lorie's point, we're talking about the VIX and we're also talking about what's happening in high yield. The Santander issue caught my eye in terms of their auto deal. I mean, nonprime debt issuance has been growing very rapidly. It is about 34 percent of the market thus far this year; it's up from one-fourth last year. And then the CLO market has priced $53 billion or $54 billion through last week; that's up 35 percent over last year. I'm just wondering, from the Desk's standpoint, are you seeing these as danger signals, or has it been expected?

MS. LOGAN. What I was reporting was what we're hearing market participants focus on lately, and they've been talking a lot about the low levels of volatility and the spread levels, particularly in high yield, as we show in the chart. I haven't been in conversations with them when they've been pointing to particular vulnerabilities in particular asset classes, though I know there's a lot of staff work going into this and other areas. It wasn't part of the conversations I've heard. They've been more focused on these overall levels in these particular markets.

MR. FISHER. Perhaps, Madam Chair, when we rotate back at whatever proximate meeting we have, we might drill down a little bit on the CLO market because it obviously is something that got out of control before. It is growing like Topsy, and I just hope we're paying attention to it again. There's a limit to what we can do, but I'm just—

MR. POTTER. It's certainly a market that we have tracked, and the structures that are in place are reasonably robust. I think that I would be more concerned about the reach-for-yield that's going on perhaps outside the United States and about an event similar to what we saw last year happening—but not within the United States, because we have really good insight now into some of the behavior here.

MR. FISHER. Forgive me for taking up time on this, but you're less concerned about the CLO expansion domestically?

MR. POTTER. Less concerned. It's not like 2005 to 2007, when I think we ignored some of the large growth in credit. However, insight into what's happening in the rest of the world is quite low. In Lori's chart number 8, if you look at the correlation there between two things that don't necessarily have to be related—they have been quite close since late February.

MR. FISHER. Thank you.

MR. NATALUCCI. President Fisher, if I can add one thing. So we have heard anecdotes of investor funding essentially triple-A tranches or other tranches of CLO, using financial leverage, repo, or prime brokerage. We added a special question in the SCOOS this round asking exactly this question, whether dealers have seen funding of these structures. The responses came back saying that, first of all, they have seen an easing in terms of funding since the beginning of the year. And they have seen demand coming from credit hedge funds, and then they have seen funding across the capital structure essentially from triple-A all the way down to the mezzanine tranche. Now, this is not quantitative—it's a qualitative question—but it confirms the anecdotes that we have heard in markets, that investors are reaching out to boost yields using financial leverage.

MR. FISHER. Thank you.

CHAIR YELLEN. President Rosengren.

MR. ROSENGREN. I have two questions for Simon regarding eligibility. The first one is whether any nonbank SIFIs—AIG, Prudential, or GE Capital—have asked whether they should have access to the ON RRP facility because they are supervised by the Fed, and money market funds aren't. And then the second question is that currently it looks like the SEC reform is going to go forward sometime in July. But if it were for some reason to stall and we were to choose to only use government money market funds and not prime money market funds, do you think there would be sufficient capacity to run this facility with the government funds only?

MR. POTTER. To answer the first question, we've definitely heard from at least one of those three. I think that is a different type of extended counterparty. We could definitely do that. I just think it's easier to have a very clear regime in place. We could use the FSOC—if they designate a firm a systemically important nonbank institution, that could be one metric for doing that.

On the government funds—if you go to the chart which shows you that most of the take-up has been from the government money funds, and given that we have somewhere between 50 and 60 percent of the assets under management in the government money fund industry, I think if we wanted to exclude the prime funds, we could certainly do that. One of the things that is true is prime funds can invest in government-only funds. So just excluding the prime funds doesn't necessarily mean they won't have pretty quick access through the family of funds they're in to the overnight RRP.

MR. ROSENGREN. Though there may be a difference between treating somebody as a counterparty and giving them access to instruments indirectly.

MR. POTTER. Definitely, there is a difference, yes.

MR. ROSENGREN. Thank you.

MR. FISHER. May I follow up, Madam Chair?

MR. ENGLISH. I think what we emphasized in the memos that we sent was there are two issues here. One issue is the financial-stability issue, the kind of run-risk issue. There, excluding the prime funds doesn't really help for the reasons that Simon just gave. They can still run. They just run through an affiliated government fund, a government-only fund. The other issue is the desire to send a signal, make a statement, about concerns about the business model of prime money funds. And that would be a separate reason not directly involving the issues surrounding normalization, but another policy point that you want to make.

MR. NATALUCCI. There's another financial-stability issue which the memo highlights that you might want to consider and that is that the variability or volatility of take-up of the prime funds is much higher than that of the government funds. If you have this individual cap and the volatility of take-up is very high, you might see a tradeoff between volatility and where you set the cap, essentially. So excluding the prime funds would essentially have a take-up that is much less volatile than if you included them. Now of course, if the prime funds start putting money into the government funds, that might increase the volatility of the government funds, so the tradeoff is not obvious.

MR. POTTER. Also, we have to be careful because we don't know exactly how the prime funds use their access. So it could be part of the bargaining path or make the market more competitive. Sorry, President Lacker, a follow-up.

CHAIR YELLEN. President Fisher.

MR. FISHER. Thank you, Madam Chair. I just want to follow up on Eric's point to understand the New York Desk's thought here. So if we were to decide to exclude prime funds, you're not worried about closing the barn door. You have 25 percent share of allotment presently. That would not present a problem to you?

MR. POTTER. As I said in the briefing, we would attempt to restore the efficacy of the overnight RRP. It's really a decision for you about that tradeoff. At first, the efficacy would be lower without the prime funds, but over time I'm sure we can build that back up.

MR. FISHER. Thank you.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I'm going to refer to exhibit 1, chart 3, which shows factors contributing to the decline in five-year, five-year forward Treasury rates. There are a lot of factors here. A lot of the market chatter that I've heard would attribute the decline to the ECB taking an extraordinary policy action. I didn't see that listed explicitly here as a reason. So should I put that in the category of "Other AFE Outlook"?

MS. LOGAN. That's correct.

MR. BULLARD. Okay. So that's what they're referring to there.

MS. LOGAN. Some of them may be referring to that. I think others could be different, but I think those who would put a lot of weight on the ECB explanation would put it in that category.

MR. BULLARD. As opposed to, say, China or something else. Oh, China wouldn't be AFE. Sorry.

MS. LOGAN. I think that China would be "reserve accumulation," mostly. But I guess, the stories they tell would be mostly reserve accumulation, which does show some difference between the dealer and the buy side.

MR. BULLARD. Okay. My interpretation has been that the ECB has been contemplating extraordinary action. They finally came through on it and that's been at least a major factor. So that's consistent with what's being said here.

MS. LOGAN. Yes. I cited the longer-run target rate and then also, I think, the ECB—I talked a little bit about that playing a role. As those rates have come down significantly, it's affected rates globally.

MR. BULLARD. Okay. Very good. Thank you.

MR. POTTER. China is still buying a tremendous amount of securities each day as well.

CHAIR YELLEN. President Plosser.

MR. PLOSSER. Thank you. I want to follow up on President Rosengren’s question as well, and I want to take a little different variation. I think you were alluding to this, Simon. If we stuck to government-only money market funds and excluded the prime funds, for example. If I look across the quarter, look across the usage, one of the things that we’ve witnessed is this sharp uptake at the end of quarters. Presumably, I’m guessing, there’s some balance sheet dressing that’s going on by primarily the prime funds, or is there a usage variation in these periods when you’ve gotten these spikes for the prime funds and the government-only funds?

MR. POTTER. It’s not balance sheet dressing by the prime money market funds. It’s balance sheet dressing by the counterparties they would usually invest cash with. So, for example, one of the issues with prime funds is they still invest a lot in European banks effectively, and the European banks, as they get close to quarter-end, tend to reduce the amount of their balance-sheet funds that they’ll offer to the prime fund. So one of the things that we’ve seen at quarter-end is an increase in take-up in the overnight RRP. That has meant that RRP rates, despite this big flow of cash into the repo market, haven’t fallen that much because we’ve provided this floor. And we’ve improved market functioning relative to the repo markets in the United Kingdom, for example, over those month- and quarter-end periods. It’s a difficult question as to why this window-dressing is so powerful and what it means for the regulations in place that banks choose to window-dress so much.

MR. PLOSSER. But it’s the banks as the counterparties, not the prime funds that are doing it. Interesting. And your other point then, just to make sure I understand, is that if there is a government-only fund and a prime fund, even in that situation they are part of the same family of funds. Your point was that—and Bill was making it—prime funds can actually use the government-only fund as a conduit to—

MR. POTTER. It's an eligible investment option for the prime fund.

MR. PLOSSER. Okay. Thank you.

CHAIR YELLEN. Thanks. Further questions? [No response] If not, I need a motion to ratify open market operations. [No response] Without objection.

MR. FISCHER. Am I supposed to say something?

CHAIR YELLEN. This is an FOMC issue as opposed to a Board issue.

MR. FISHER. So moved, Madam Chair.

CHAIR YELLEN. This is very subtle, Stan. [Laughter]

MR. FISCHER. It's way beyond me. I'm just a central banker—

CHAIR YELLEN. Let's move to our discussion, then, on policy normalization, and let me just make a few remarks, if I might, to begin. First, I'd like to express my appreciation to all of you for the very engaging and productive discussion we had at our last meeting, and I very much want to thank the staff for their excellent support last time and this time as well. We covered a number of issues. We considerably clarified the area in which we're likely to find consensus, and we succeeded, I think, in trimming down the range of options appreciably.

As we resume our discussion today, let me remind everyone that we have set a goal of clearly articulating to the public our normalization strategy and framework at the time of the September meeting. This is an important deadline because I consider it essential for us to define concretely and communicate our plans well before the first steps in normalizing policy become appropriate. We will also need to provide clarity about the mechanics of our approach in order to ease the transition for market participants and to make sure that the required market infrastructure is in place.

Meeting this timetable will require our collective focus on some key remaining issues. In general, I think we've agreed that our normalization framework should allow us to deploy our mix of tools relatively flexibly to deal with contingencies that arise. But it also needs to be simple and clear enough that we can convincingly communicate it to the public. Since interest rate normalization will begin at a time when our balance sheet is quite large, there's broad consensus that raising the interest rate on excess reserves will be a central part of the rate normalization process.

Of course, there are also some additional issues, and I'd like to describe, based on our previous discussion, what I'd characterize as a centrist approach. There seems to be broad, although not unanimous, agreement that the overnight RRP facility should play at least some role in our normalization plans since it would help to provide a more reliable floor for short-term rates than would IOER alone. Assuming that we do operate this facility during normalization, the spread between the overnight RRP and IOER rates becomes an important issue, and at the last meeting, I heard pretty widespread support for keeping that spread rather wide.

We focused on two arguments that favor maintaining a significant spread, perhaps in the neighborhood of the current 20 basis points. First, I think there is a general desire to preserve trading activity in the federal funds market; and second, given a range of uncertainties and concerns about the overnight RRP facility, there's a desire to keep that facility modest in size.

I hope we can make progress today on a number of important follow-on issues, which are spelled out in the staff memos. In particular, we need to consider the role of the federal funds, IOER, and overnight RRP rates in both the implementation and communication of monetary policy. We need to decide how to limit the financial-stability risks associated with the overnight RRP facility. We have to make choices, as Simon mentioned, relating to the modernization of the federal funds rate. And we also need to decide on our reinvestment strategy.

It's probably not essential that we reach final agreements today. Of course, if we do reach agreement on particular issues at today's meeting, we could convey such progress to the public either through the minutes or tomorrow's press conference. However, by the end of the July meeting, I hope we will have settled most of these substantive issues. That would allow us to finalize a set of revised normalization principles at the September meeting.

We had what I thought was a very good discussion and back-and-forth on the issues last time. I hope that we can again make good use of the Q&A period after the staff presentations to make comments and ask questions that will help us all work through these complicated issues.

We will also have a full go-round to make sure we hear everyone's views on the key remaining issues, and we have purposely started very early today to allow a good deal of time for this discussion. So with those introductory remarks, let me turn the floor over to the staff. I think Gretchen is going to begin.

MS. WEINBACH.[2] Thank you, Madam Chair. My colleagues and I will be referring to the exhibits titled "Monetary Policy Normalization." We will focus on three key decisions that you will need to make as you develop your approach to policy normalization. I will talk about considerations that might bear on your choice of rates to use for setting the stance of policy and communicating it to the public, then Fabio will talk about how you might choose to limit the financial-stability risks posed by an overnight RRP facility, and finally Debby will discuss the Committee's options regarding the end of reinvestment.

I'll begin by summarizing the staff's reading of the perspectives that you provided during the normalization go-round at the April meeting. Although you expressed preliminary views and made no decisions, there appeared to be areas of common ground. Staff took these areas as building blocks for a couple of approaches to policy normalization that you may find broadly acceptable, though not yet fully specified.

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

As shown in the top panel of your first exhibit, and as the Chair just noted, in April, most of you envisioned using overnight RRPs in addition to IOER to help control short-term interest rates during the process of policy normalization. This approach could entail risks to financial stability from disruptive surges in take-up of RRPs during periods of financial stress. As a result, you expressed interest in imposing some limits on potential disruptive surges of take-up at an overnight RRP facility. In addition, you generally expressed a preference for approaches to policy normalization that would not be expected to further reduce trading in federal funds. To support such trading, you could have an appreciable spread—such as the current 20 basis point spread—between the IOER and overnight RRP rates, at least initially. An appreciable spread would also help to address your reservations about executing a very large volume of overnight RRPs with money market mutual funds and other nonbank counterparties on a regular basis.

You held mixed views regarding the use of term deposits and term RRPs to drain reserves; some thought such tools could be helpful but many saw them as likely to be expensive or ineffective. Even so, you generally did not wish to preclude further development and testing of term tools because it could prove useful to have them at the ready if the combination of IOER and overnight RRPs does not work as expected. Two other common themes to your remarks were the desire to preserve flexibility about the longer-run policy framework, and support for developing an expanded measure of the federal funds rate. Finally, you generally supported informing the public about your updated normalization plans at the time of the September FOMC meeting.

If you wanted to consider approaches that incorporate these broad features, then, as noted in the middle panel, one key design issue is the role that you want the federal funds rate (or, as Simon discussed, an expanded version of that rate) to play during normalization—that is, do you want to set and communicate the stance of policy primarily by targeting the federal funds rate, or by emphasizing the administered rates on overnight RRPs and IOER? Either way, you'd be using a variant of a floor system to implement policy, one with two floor rates—the IOER rate for depository institutions and the overnight RRP rate for the Federal Reserve's RRP counterparties. We think approaches that rely on adjusting these two rates to manage short-term interest rates can be successful, whether they focus primarily on the federal funds rate or on administered rates.

As noted in the bottom panel, you might want to target the federal funds rate because the rate is familiar to the public, so your communications should be well understood; making a change could risk complicating policy communications during normalization, when clear communication will be critical. You may also be inclined to use the federal funds rate now because you want to leave open using it in the longer-run policy approach after normalization is complete.

If the Committee chooses to target the federal funds rate during normalization, it would also need to decide whether to use a point target, as it did prior to the financial crisis, or a target range. Although current conditions in the federal funds market differ appreciably from those that prevailed when the supply of reserve balances was much smaller, you might judge that the public would most easily understand a point target for the federal funds rate, and that changes in a point target may provide a clearer signal of adjustments in the stance of monetary policy than would changes in a target range. With this approach, the FOMC would set a specific target level for the federal funds rate and direct the Desk to adjust the overnight RRP rate, perhaps within a specified range, during the intermeeting period to help keep the federal funds rate close to the point target. The Board would set the IOER rate at an appropriate spread to the federal funds target. Because entities with direct access to overnight RRPs should not be willing to lend overnight in unsecured markets at a rate below the overnight RRP rate, an increase in the overnight RRP rate should put upward pressure on rates in short-term unsecured funding markets and help to move the federal funds rate back up toward its target when it falls below. Similarly, reducing the overnight RRP rate should put downward pressure on the federal funds rate. However, this approach is untested. As such, the Committee might also need to authorize the use of term reserve draining tools, on a contingent basis, in case they prove necessary to hit the point funds rate target. Even so, given the high level of reserves and the reliance on new tools, the Committee might need to tolerate, at least initially, greater volatility in the level of the federal funds rate around the point target than was the case before the financial crisis. Thus the Committee might want to communicate that it expects the federal funds rate to be close to the point target on average over time, but not necessarily each day.

Alternatively, the Committee may want to use a target range for the federal funds rate, as it does today. In particular, as I just described, in current circumstances it may be difficult to hit a point target for the federal funds rate with sufficient precision. Also, if the Committee targets a range, the spread between the two administered rates likely could remain constant throughout the intermeeting period rather than being subject to adjustment, as would be the case if there is a point target. Having a fixed spread between the two administered rates could be seen as desirable because it might be more efficient for the transmission of monetary policy and less disruptive for money markets than the case in which the overnight RRP rate was adjusted regularly. If it took this approach, the Committee could begin to normalize rates by announcing a higher target range for the federal funds rate, and the IOER and overnight RRP rates could be raised by the same increment, preserving their current spread. However, given the level of reserves and the use of new tools, the accompanying increase in the federal funds rate could be larger or smaller than desired, and policymakers would need to decide how to react to situations in which the federal funds rate moves outside its desired target range—for example, by making an adjustment to the administered rates.

Rather than focusing on the federal funds rate, you might choose to set and communicate the stance of policy primarily through the overnight RRP and IOER rates, as noted in the top panel of exhibit 2. If you took this approach, you could announce a less accommodative policy stance by raising these two administered rates by the same amount, and the Committee could state that it expects the general level of short-term market rates to rise by a broadly similar amount. You could even say that you expect short-term rates *including the federal funds rate* to rise by a broadly similar amount, if you wanted to focus some attention on that rate without targeting it. Communicating through administered rates may afford the Committee greater leeway to take no action if short-term market rates were to move temporarily outside of their expected range, since the range would not be the primary focus of communication, though also pointing to the funds rate would probably reduce that leeway. Of course, if short-term market rates were persistently outside the Committee's desired range, then some additional adjustments in the administered rates would be necessary, perhaps even during an intermeeting period.

Finally, as noted in the last panel, the efficacy of your chosen approach will depend in part on your decisions about how tightly to limit take-up at the overnight RRP facility. The tighter the caps on take-up at the facility—that is, the more frequently they bind—the less the facility can be expected to exert control over short-term market interest rates. In general, the degree of control that the ON RRP facility is expected to have over short-term market interest rates has implications for your decisions about your communications strategy, but also for the effectiveness with which the stance of overnight rates is transmitted to longer-run rates and real activity.

Fabio will now discuss approaches to limiting disruptive surges in take-up at the ON RRP facility as well as its total size.

MR. NATALUCCI. Thank you, Gretchen. In my remarks, I will review design features and other mitigants that could lessen financial-stability concerns associated with an overnight RRP facility. These mitigants are the subject of one of the memos you received over the intermeeting period.

As indicated in the top left panel of exhibit 3, the memo focuses on caps on usage as a form of circuit breaker during a period of market stress. These caps are not intended to limit average take-up at the facility under normal market conditions and are expected to bind only rarely. Instead, these caps are designed to prevent a disruptive surge in take-up at the facility over a short period, which could be associated with a loss of short-term funding for financial institutions and nonfinancial firms, and to provide policymakers with some time to assess conditions and to determine whether additional responses are warranted.

As noted to the right, the memo identifies two main possibilities for the design of circuit breakers: individual caps—that is, caps specific to each reverse repo counterparty (or RCP)—and an aggregate cap on potential facility usage. The main benefit of individual caps is that each RCP would know in advance the maximum amount it can invest at the facility each day. An aggregate cap instead would allow greater flexibility for allocating usage across RCPs, and could be accompanied by a market-based pricing mechanism—such as a uniform-rate auction—to allocate take-up when the cap is binding. Ordinarily, the rate produced by this process would be the overnight RRP rate set by the Committee, but when the cap binds, the auction rate could be lower.

The Committee may consider additional features that apply to both individual and aggregate caps. Caps can be rigid (so that there is a take-up limit that cannot be exceeded) or flexible (where the limit could be exceeded, perhaps at a lower rate, when demand exceeds the stated cap). In addition, caps can be static (set in advance and unvarying) or dynamic (adjusted periodically according to a predetermined algorithm). Finally, dynamic caps could be set equal to previous average usage over some period plus some amount (so additive) or equal to previous average usage multiplied by some amount (so multiplicative).

As indicated in the middle left panel, in assessing advantages and disadvantages of these possible design features, the Committee may find it useful to consider a number of issues. A table in the memo summarizes these various considerations. In this briefing I will focus on three of them.

First, how to effectively balance the two policy goals of controlling potentially disruptive surges in take-up and setting an effective floor on short-term rates. The caps should not be too tight: Very low caps that often bind could virtually eliminate surges into the facility but would diminish its effectiveness in controlling rates. By contrast, very high and loose caps would have the opposite outcome, improving control over rates, but allowing potentially disruptive surges into the facility. Evidence from the overnight RRP exercise to date indicates that individual take-up varies proportionally much more than aggregate take-up, so it may be difficult to set individual caps that provide enough flexibility without leaving considerable room for a surge in aggregate usage. This observation suggests that an aggregate cap may be more effective than individual counterparty caps in balancing the two policy goals, especially if accompanied by a pricing mechanism to facilitate a market-based allocation of overnight RRP when the cap binds.

Second, ease of implementation and burden on RCPs. Current Desk systems could handle in a robust and automated fashion an aggregate cap with a uniform-price auction to allocate awards when the cap binds as well as a uniform system of individual caps. However, implementation of some other more complex possibilities—for example, a system in which the rate on the overnight RRP declines with aggregate take-up according to a specified schedule—would require a potentially significant amount of time to make changes to Desk systems. With respect to burden on RCPs, an aggregate cap paired with an auction would require RCP bids to include both a quantity and a rate that may vary. As a result, this option may be perceived as somewhat more burdensome than current operations, which only require RCPs to submit a quantity and confirm the specified ON RRP rate. However, when the aggregate cap is not expected to bind, the problem faced by RCPs would be no more complex than it is now.

Finally, communication issues. Overall, simpler options would undoubtedly be easier to communicate. Static, uniform counterparty caps, as currently used, would probably present the fewest communication challenges, but a rigid aggregate cap would also be straightforward to describe. The use of dynamic caps might present some communications challenges, at least initially. Advance communication of rules for setting the level of caps, so that market participants would be familiar with the mechanics of the facility and would not necessarily interpret binding caps as signals about the Committee's intentions, would also be advantageous.

In light of the considerations outlined above, the Committee might want to focus today's discussion on two options, highlighted in the panel to the right. The first option—an individual cap option—envisions the use of individual rigid caps that are adjusted periodically based on past usage. For example, an RCP's cap could be set each month to its average take-up over the previous month plus an amount in a range between $1 billion and $5 billion. The rate paid is the overnight RRP set by the Committee. The second option—an aggregate cap option—involves an aggregate rigid cap that is adjusted periodically based on past usage. For example, the aggregate cap could be set each week to the average take-up over the previous week plus an amount in a range between $50 billion and $300 billion. Each day, the Desk would conduct a uniform-price auction for the cap amount with a maximum allowable bid equal to the overnight RRP rate set by the Committee; because demand would rarely exceed the cap amount, RCPs would almost always be able to invest the amounts that they have requested and receive the announced overnight RRP rate.

As indicated in the bottom panel, the wide range for the additive factors in these proposals reflects the difficulty of evaluating the tradeoffs between having caps set high enough to make an overnight RRP facility effective in firming rates but also low enough to limit potentially disruptive surges. Both components of the tradeoff are uncertain, and more staff work during the testing phase would be needed to help inform the Committee's choice of the additive factor.

The Committee may want to consider whether setting caps so that they may bind occasionally—for example, at quarter-ends—could have salutary effects. Occasionally binding caps may reduce pressures for changes in rules when caps do bind because market participants would become familiar with procedures, expect them to be followed, and temper their reliance on overnight RRP in their own contingency planning. On the other hand, caps that bind, even rarely, in normal times could also have costs—for example, by constraining the facility's ability to accommodate quarter-end pressures.

In addition to the risks associated with a sudden surge in take-up, the Committee may be concerned that dynamic caps that adjust automatically could result in a very large facility size during protracted periods of stress as the effective limit ratchets upwards, an outcome that could lead to further disruptions in funding markets. Although the Federal Reserve has a number of tools at its disposal to ameliorate financial strains by injecting liquidity back into the system, several factors could limit the efficacy of these tools or temper the willingness of policymakers to use them. Hence, the Committee may want to impose an ultimate limit on facility usage as a complement to dynamic caps. For example, it may set an overall facility limit of $750 billion or $1 trillion or an individual limit of $10 billion or $15 billion if individual caps are used. Further staff work would be needed to calibrate this ultimate limit to balance the financial-stability risks with reduced control over rates during the normalization process.

In the event that caps bind because of a surge into overnight RRP—that is, if circuit breakers are "tripped"—the Committee may face pressures from multiple constituencies. RCPs may advocate raising or eliminating the caps, while institutions facing strains in funding markets may advocate for injections of liquidity. The Committee may want to consider whether additional actions to mitigate strains would be warranted in such situations. For example, the Committee could lower the overnight RRP rate, adjust the cap, or provide liquidity.

Debby will now talk about reinvestment options.

MS. LEONARD. Thank you, Fabio. Turning to exhibit 4, I will cover options for when to cease or reduce reinvestments, which is another element of your normalization strategy.

As noted in your top left panel, the exit principles included in the minutes of the June 2011 FOMC meeting indicated that ceasing or reducing reinvestments would likely be the first step in the process of normalization, and would be followed by modifications to forward guidance, reserve draining operations, and only then an increase in the target federal funds rate; agency securities would likely be sold sometime after that. Several important changes—noted in the top-right panel—have occurred in the three years since. They include a substantial increase in securities holdings and excess reserves; the sale of shorter-dated Treasury securities holdings during the Maturity Extension Program; changes in the forward guidance; the Committee's indication that it no longer expects to sell agency MBS during normalization; and the development of overnight RRPs to help control interest rates with a large balance sheet.

As summarized in the next panel, if the economy evolves in line with the staff's baseline expectations, halting reinvestments six months before liftoff, at liftoff, or sometime after liftoff has relatively limited effects on estimates of the term premium and balance sheet. Accordingly, in that case, the choice does not materially affect the timing of liftoff or macroeconomic outcomes, nor does it have a discernible effect on projected remittances to the Treasury. That said, to the extent that the flow of purchases might have an effect on interest rates—a possibility that is not factored into staff models but which some market participants appear to put weight on in the MBS market—announcing a halt in reinvestments may put some upward pressure on MBS rates, which could pass through to primary mortgage rates.

As noted in the middle-right panel, there are several possible options for timing an end to reinvestments as part of a revised normalization strategy—before liftoff, after liftoff, or coincident with liftoff. All else equal, ceasing reinvestments prior to liftoff—the first option—would normalize the size of the balance sheet sooner than in the other options and would slightly reduce the level of reserves prior to liftoff. In the staff's current baseline, reserves are drained to a lesser degree (both in dollar terms and as a share of the balance sheet) than the staff originally projected in mid-2011. Because even passive reductions in security holdings are a means for removing policy accommodation, the Committee would presumably stop reinvesting principal payments only when it judged that conditions were appropriate to begin to tighten policy.

However, if you are concerned that reductions in securities holdings might have an unpredictable effect on interest rates that could potentially delay liftoff, you may prefer to maintain reinvestments until sometime after liftoff—which is a second option. You also might prefer initiating policy normalization with an increase in your target for short-term interest rates in part because you have indicated that you plan to use short-term interest rates as your primary tool for adjusting the stance of monetary policy. Moreover, you might want to gain confidence in the sustainability of the tightening cycle, halting reinvestments only once you were confident that the decision was unlikely to be reversed. Some policymakers may judge it appropriate to maintain reinvestments beyond liftoff in order to limit the risk of a too-large tightening of financial conditions upon liftoff, and potentially to enhance flexibility to provide more accommodation if the economy weakens during the tightening cycle. But other policymakers may be concerned that an end to reinvestments could be delayed for a substantial period, implying that the balance sheet would not begin to shrink until much later than they judge appropriate. If you decide to end reinvestments after liftoff, you might want to adopt a trigger or threshold relative to your interest rate target, economic conditions, or time. Depending on the details of the approach taken, communications associated with an after-liftoff option could be more complicated than in the other options for stopping reinvestment.

A third option would be to halt reinvestments at the same time as liftoff. Taking actions on interest rates and the balance sheet simultaneously offers simplicity in communications, but also could make the initial tightening move less gradual than starting with either tool first.

Of course, ceasing reinvestments entirely is not the only alternative to reinvesting all payments of principal. As seen in the bottom panel, the monthly runoff of securities from the SOMA portfolio is quite variable in the case of Treasury securities, which start to mature in size in 2016. It is also subject to prepayment uncertainty in the case of agency MBS (for which modeled estimates are shown in the chart). If you wished to see a steady decline in the size of the portfolio, you could smooth the path by conducting partial reinvestments in months when runoff was particularly large, perhaps augmenting this strategy with sales of short-dated securities in months when runoff was small. Separately, you could use reinvestment policies to shift the allocation of assets within the portfolio—for example, by diverting MBS reinvestments into Treasury securities to expedite a return to an all-Treasury portfolio, or *vice versa* to provide ongoing support to the housing market.

The final page of your handout provides a copy of the questions that were distributed with the staff memos on normalization. You may want to address these questions in your contributions during the go-round. Thank you, Madam Chair, that completes our prepared remarks. We'd be happy to take questions.

CHAIR YELLEN. Thank you very much. Let's go to a question and answer period, and as last time, I urge two-handed interventions when topics come up where there are a number of issues that would benefit from back-and-forth. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. Debby, I think this question is probably primarily directed toward you because it's about reinvestment. As I read the memo and listened to your presentation today, I came away with the impression—but correct me if I'm wrong—that you collectively think that the most significant effect of a decision to end reinvestment would be a signaling effect rather than a real economic effect. I know there's the continued stock−flow debate, but apart from that, is it essentially a signaling device?

MS. LEONARD. We think the signaling effect that this should have on short-term rates probably wouldn't depend on which tool you use, but there is uncertainty around what kind of signaling effect an announcement on reinvestments could have in regards supply For example, for MBS, there's some endogenous response to our purchases, and that creates at least some uncertainty. We don't think that's necessarily a big issue now, as we've been tapering purchases in a very predictable way, but we hear from market participants that there could be a flow effect that is associated with the signal we send about our purchase plans.

MR. TARULLO. I guess I had been under the impression, just listening to market participants, that regardless of on which part of the yield curve the ceasing of reinvestment would have the most noticeable effects, that the cessation of reinvestments would be read more generally as a prelude to tightening or, if it came after liftoff, it would be read as sort of a ramping up of tightening. And I guess I'm asking whether the Desk shares that general view.

MR. POTTER. Based on last year's events, it seems that we can say things that should not be that big of news to markets, and they take it as a viewpoint of the reaction function. I do think what Debby was trying to put in play there is if you're looking at early next year, then the main focus will be on when the first increase in the policy rate happens. So that's what the memo looked at. There is potentially more signaling there. *Ex post*, it is also true that if you kept reinvesting, it would be a sign of all clear to stop the reinvestments at that point, which might be either good for you or bad for you at that point.

MR. TARULLO. Right. That's very helpful, and that actually gets to the question I had about the decision on reinvestment. It seems as though there's a certain contingency associated with this. That is, it seems to me it's a little hard to judge now when that signal would either be minimized or maximized, as we would most prefer. So I was a bit concerned about the prospect of setting forth a chronology similar to what we did in June 2011, which had cessation of reinvestment clearly at a particular stage in the normalization process. Can you address a bit whether that concern is outweighed by the need for clarity to markets, or do you think it's a legitimate concern and thus an argument for not committing ourselves now to where it would fit within the sequence of normalization policies?

MR. POTTER. Last year, when we tried to give clarity, it didn't work too well.

MR. TARULLO. It was a lot of clarity. It was like a blinding light. [Laughter]

MR. POTTER. This is a little bit different. You saw how diffuse expectations are for when reinvestments end. I think we would take seriously, surprisingly after all this time, the flow effects just a little bit in the MBS market. And one of the issues the memo tried to address is that we own a lot of mortgage-backed securities. So our decision about whether to reinvest or not could be quite a large signal for that market , which is, I think, the second point that Debby was trying to make.

This is a result of the asset purchases that we've done. We own—what was the share of the outstanding stock?—something like one-third of the mortgage-backed securities. And if we limit it to the set of securities that we are actually buying, then it is about 40 percent—so a significant presence in that market. I think over the next two months, the reinvestments will be larger than the new purchases that we're making.

MS. LEONARD. I could add to that, Simon. With MBS, given the uncertainty as to what prepayments will look like in the future, too, there's some uncertainty as to exactly how much will be rolling off our balance sheet and what risk we're putting back into the market over time.

CHAIR YELLEN. A two-hander—President Bullard.

MR. ENGLISH. Sorry, could I just add something? Governor Tarullo, I think a key question that you face is how you describe when it will be that you will want to end reinvestment. And as I think you were suggesting a moment ago, it probably would be better to not be too crisp and clear about what the timing is expected to be and instead condition that on some set of economic outcomes that would suggest it was then appropriate to begin not reinvesting or reducing the amount of reinvestment. Perhaps there would be some intermediate step, as Debby described. But I think being a little bit too crisp and too clear, as we learned last year, can make people think you're on a forced march to do it, and that, maybe, is where you get an adverse reaction.

MR. TARULLO. Are you saying—when you're cautioning against being too crisp or clear about the when, do you mean just in absolute terms or do you mean even relative to other normalization steps?

MR. ENGLISH. Well, I think relative is okay. I mean in absolute terms.

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

CHAIR YELLEN. President Plosser.

MR. PLOSSER. Just about the flow effects, Simon, I was looking at exhibit 3, at the option-adjusted spreads. If I look at those prior to when we started reducing purchases in MBS this past December and today, they have gone up and down, but they are kind of where they were before we started reducing purchases. So should I interpret that as maybe the flow effect isn't having that big an effect on the spreads or what should I take away from that picture? Because we are buying a lot less now than we were.

MR. POTTER. That is true.

MR. PLOSSER. And the spreads are about the same now.

MR. POTTER. There's a lot of forces that move around the option-adjusted spread.

MR. PLOSSER. There's a lot of forces that move around lots of interest rates.

MR. POTTER. That's true, and that's one of the issues that we face with the large-scale asset purchase program. It is probably only contributing 20 to 30 percent of the fluctuations we see. So we look at experiments. We know when we announced the $40 billion per month, that had an effect which was a little outsized at first, which is probably related to the dynamics of the mortgage market. The tripwire for Vice Chairman Dudley's speech tells you something similar to that as well. Now, I can construct calculations in which the market's view of the stock of mortgage-backed securities changed sufficiently following that speech to justify that fall in the option-adjusted spread. But I wouldn't put 100 percent weight on that type of model.

The issue that you are facing as you move toward liftoff, the situation you don't want to have is an abrupt tightening of financial conditions. And we are putting a little bit of weight on the MBS flow effect as potentially producing that, if you announced a reinvestment policy that was surprising to the market. As you can see in panel 17, the market has moved a little bit, but it's a little bit all over the place. Some people will be surprised right now.

MR. ENGLISH. Just one point to make. The effect of Vice Chairman Dudley's speech in markets isn't really a flow effect. We didn't change our flow of anything. We were talking about a change in flow being further in the future, and that affects the stock of the securities we're going to be holding for quite a long time, potentially. And I think that also had an effect. So I'm not sure how much I want to read this as telling me that there's a flow effect and how much I want to be saying it's telling me there are stock effects and other market dynamics, and we are now expected to hold more MBS for longer than we were before.

MR. PLOSSER. That's what I was trying to get at. It's more than just sort of—

MR. ENGLISH. It's hard to be confident of how to interpret that.

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

MR. BULLARD. Thank you, Madam Chair. This is a question for Debby. You argued that our tapering, because it has been on a schedule, has not had very much impact in markets. So, by analogy, could I argue that a managed reinvestment policy in which you allowed the balance sheet to shrink at some fixed rate over time would be equally smooth and equally predictable in markets, and that, there again, you would get very small effect or no effect?

MS. LEONARD. We think that could certainly help. That doesn't necessarily mean by not doing it that you risk having the opposite effect. I think with the amounts that we're looking at for reinvestments, it's one thing to go from $40 billion a month to zero. Depending on how much you have coming off in any month, that may or may not have as large an effect, right?

MR. BULLARD. Yes. So what I'm saying is if you look at this picture at the bottom of exhibit 4, that's saying that it's highly variable if you just cease reinvestments altogether. But if you manage that process so that the balance sheet goes down in an orderly way, then evidently, or I guess, you would get the same kind of effect that we've gotten from our taper, which is that that gets fully incorporated into market expectations. There are no surprises.

I think something like the speech by Vice Chairman Dudley does create something of a surprise in markets, because they are not quite sure how that is going to be managed in the future. But then, we could announce a schedule like this, is what I'm saying, and then you think it would work out smoothly if we went in that direction.

MS. LEONARD. That's right, to provide that kind of clarity, I think then the market can slowly adjust and find other marginal buyers as we slowly step out of the market.

MR. BULLARD. Thank you.

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

MR. FISHER. I did. Simon, going back to your 30 percent number, in your own mind, do you contemplate us conducting reinvestment in order to maintain that ratio?

MR. POTTER. That's what the reinvestment would do—it would maintain that ratio.

MR. FISHER. Unless we agreed on some kind of adjustment of the reinvestment rates.

MR. POTTER. That is subject to the rate at which the outstanding stock is growing. The net issuance has been quite small for a while, as you know. We would expect, then, that in

2015–2016, that would start to grow, both as you got more activity in the housing market and house prices went up, the limit becomes a smaller share. But effectively, if you reinvest the principal paydowns, you are keeping your share of the outstanding stock reasonably constant.

MR. FISHER. Thank you.

CHAIR YELLEN. Vice Chairman Dudley, did you have a two-hander?

VICE CHAIRMAN DUDLEY. Yes, a two-hander. On this issue of the announcement effect, I think it really depends a lot on market position. This issue of distinguishing between flows and stocks is very difficult, because it is also a question of, how does this signal affect what portfolios people actually want to hold. And so you can have a signal that has a pretty large effect on interest rates—you know, last summer is a good example of that. Even though it doesn't change how the balance sheet is actually likely to evolve. So I think market positioning is really a big factor here, and I think we do not want to lose sight of that.

Now, in terms of Governor Tarullo's observation about what do we need to say, my own view is I think we do have to say something, because we basically said in the old exit principles that we're going to do the reinvestment ahead of raising short-term rates. And I think to say that we have no idea now, is probably not a very good outcome. But I do agree with Governor Tarullo that we don't want to say more than what we actually know. We certainly want to keep flexibility, because when you would want to time the end of reinvestments could depend on a whole host of factors, depending on what the shape of the yield curve looks like, what the strength of the economy is, what is happening in the housing sector. So you might want to maintain a fair amount of flexibility in terms of the precise timing.

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

MR. KOCHERLAKOTA. I did. Thank you, Madam Chair. And it actually builds on what Vice Chairman Dudley was just saying. I understand the desire to retain flexibility, but I guess I took a slightly different lesson from the events of 2013, which is that the Committee's desire to retain flexibility in September 2012 left markets with uncertainty about what we meant about sufficient improvement in the labor market outlook. And then our decisions were viewed as containing information about our reaction function, about how hawkish or dovish this Committee is. And so that's a cost of retaining flexibility—that your decisions are not viewed as being necessarily conditional on economic outcomes, but rather on the makeup and the inclinations of the Committee. My own view of the events of 2013 is that we weren't sufficiently clear in September 2012, and that's what led to the challenges. And I think we should be careful in thinking that through as we are thinking about communicating in the future.

CHAIR YELLEN. Okay. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I had several questions about MBS, which have now been fully answered. But I have one I'd like to ask about Treasuries. There is quite a bit of volatility in Treasury volumes coming up in 2016 as the MEP cycles out. I assume these are the kind of volumes that we would expect the Treasury market, in ordinary times, to be able to absorb without great difficulty. Is that the case? And, if not, have we thought about ways to mitigate that?

MS. LEONARD. If we're not rolling it over, this is an amount that we think the market would be able to absorb, and that Treasury would also be able to make plans for in their primary issuance and be able to accommodate in their refundings.

MR. POWELL. Thanks.

CHAIR YELLEN. Governor Fischer.

MR. FISCHER. I want to slightly change the focus, and that's why it was one-handed. I have a series of questions. First, we are thinking about whether we want a system in which we are going to use the overnight RRP and IOER, and then make a decision about what we want to do with the federal funds rate. What information did you get about the predictability of the federal funds rate from this experiment?

MR. POTTER. It's printed somewhere between 7 and 10 basis points. It's a little bit firmer over the last week. The reason we said it was an untested approach is that we don't know whether changing the rate on the overnight RRP would lead to changes in flows in the federal funds market, which would allow us to then control the fed funds rate. We think that the logic suggests that we would be able to do that. I don't know, Bill, if you want to add some more.

MR. ENGLISH. I think that's right, that the funds rate has continued to move with other short-term market rates, as Simon discussed. We think that the overnight RRP rate has set a floor for market rates that has been reasonably good in the period when there was a reduction in bill issuance and rates fell. I think that what we have learned is really about control and the control that we can get from the overnight RRP rate. But as Simon indicated, particularly if you were trying to hit a point target, the question of, if the funds rate is 5 basis points or 7 basis points below your point target, how much do you move the overnight RRP rate to get it there? How quickly do markets adjust to the higher floor? And so how rapidly does the funds rate get there? And also, there is the constraint that if you want to keep the funds market more or less trading as it is trading now, you can't raise the overnight RRP rate too far, too close to the IOER rate, because that will ultimately undermine the trading in the funds market.

So there are just a bunch of things that we don't really know, and trying to implement an approach in which there is a target for the funds rate that you are trying to hit by moving the overnight RRP rate would require some learning by doing. And potentially some of that learning would be, do you want to also be constrained by keeping a reasonably large spread between IOER and overnight RRP. There may be times when you can't hit your target, and you just have to live with some uncertainty of where the funds rate will be relative to target.

MR. FISCHER. Okay. So the next question I have is, if we had never had the federal funds rate, and we run without worrying about the federal funds rate for two or three years, and the system more or less works, and let's say there's a lot of turnover on this Committee, so nobody remembers why we used the federal funds rate. [Laughter] Isn't this a strange thing that you want to focus and go back to? It's a market between European banks and Federal Home Loan Banks. Why would you put that in the middle of this system if you were reinventing it?

MR. ENGLISH. It's currently this somewhat idiosyncratic market. But in normal times—and we hope to get back to normal times—it will not be. It will be, again, the rate at which DIs are lending to each other in an overnight market, and it will be their marginal cost of funds, and it actually seems to me an attractive rate to target. The marginal cost of funds for DIs, it's a relatively small market in which we control a lot of the parameters, so that we can operate in that market and control rates with a relatively small balance sheet, relatively small operations, and depend on the DIs basically to arbitrage that into other short-term market rates. I think it has real appeal as a long-term way of implementing policy. That's why we ended up, back in the 1980s, using that structure for implementing policy.

If the Committee were confident they didn't want to go back to that, then I would agree with you that currently this is a somewhat strange market. Why are we twisting ourselves around to not unwind that market? Well, I think the discussion around this table has suggested that there are people who want to go back, down the road, to implementing policy with the funds rate. And that, I think, suggests it is at least costly to step away from that rate for a while, allow that market to potentially get very small and idiosyncratic, and then try to come back to it later.

MR. POTTER. Can I just add one thing? We need some market rates that we would actually look at to see whether the policy is actually working through from the other rates that we are setting. And it is pretty natural for the FOMC to look at something like the effective federal funds rate as the market rate that it might be looking at, just because that's what we used before.

MR. FISCHER. Well, just one last comment. As I understand it—this is academic knowledge—actually hitting the federal funds rate is a complicated story. And if you were starting to tell that story, it would sound no less complicated than the stories we have about using the federal funds rate and all that, and everybody has to get up in the morning and figure out exactly how much liquidity to put into the market, and so forth. So is it a very natural policy rate?

MR. ENGLISH. I actually disagree with that in normal times, because in normal times, as I said, the funds market is small, we control a lot of the parameters through reserve requirements and through our open market operations, and we have pretty good visibility into, for example, what the Treasury balance is going to be. So we can make pretty small adjustments and target the funds rate very closely, and we understand that market very well.

I would be at least hesitant and would want to think pretty hard about shifting to a system in which we're implementing policy in an ongoing way through an RRP rate and our operations are overnight RRPs. I think that's an implementation process that is feasible, but you would have to do it with a much bigger balance sheet, because potentially you'd be doing a lot of RRPs to push around what is a very, very large market. And it would just be, I think, a very different set of special factors that we would have to learn about, and we'd learn about them, and we'd figure them out, and we could do that. But it is a very different way of implementing policy, and it would have serious consequences for the balance sheet and the size of our operations. I know Simon will have more to say on that.

MR. POTTER. I don't think we have to worry about checks getting stuck on planes anymore, the way that check processing works. So that's good. That simplifies one part of some of the issues that we have.

MR. FISCHER. Now we have to worry about the computers being hacked.

MR. POTTER. That's right. It's a lot easier than it would have been 25 years ago. I do think that when you describe to people what that operating system was, it is not the most obvious operating system that we evolved to. However, it worked really well, and it achieved the goals of the FOMC for a substantial period of time.

Regulatory reform and other changes in the financial system, which I think we discussed at the last meeting, make me, I think, a little less confident that we could go back to that nice position in which, each day, we could hit the target basically by injecting a very small amount of cash, you know, one three-thousandths of what the balance sheet is right now, and whether we'd really want to do that to affect financial conditions.

I think Vice Chairman Dudley was really clear at the last meeting that none of you really care about which rate we target each day on the Desk. What you care about is the impact you are going to have on general financial conditions. And Bill English gave, I think, the real strength for the federal funds rate, which is that targeting it was very effective in moving financial conditions around. What we don't know, when we get back to 2021, 2022, whenever it happens, and we've got a smaller balance sheet, whether that market will be as effective as some other markets, given the change in the financial system, particularly driven by regulation.

MR. FISCHER. Okay. Thank you.

CHAIR YELLEN. Vice Chairman Dudley.

VICE CHAIRMAN DUDLEY. There is no reason, though, why we have to make this decision today about what we're going back to. It seems to me that the only decision we would probably want to make is, do we not want to rule out one or the other? As long as both are still viable, it seems that it's more sensible to learn more. I mean, the world is going to be quite different in 2021, 2022. I don't see why a decision needs to be made today. I mean, Bill, do you think we have to decide or in any way pre-commit ourselves?

MR. ENGLISH. No, not at all. But I think what all of you have said in the past is that you don't want to close doors. And I think it would be at least pretty close to closing a door, for example, if the Committee went with the rate on overnight RRP very close to IOER; it should then not expect the federal funds market to function, at least in its traditional way. And if all of the communication about policy was in terms of IOER and overnight RRP, then I think it would be difficult to go back to something like the pre-crisis structure.

MR. POTTER. So, Bill, not to disagree [laughter], but if we got the overnight RRP close to the rate of interest on excess reserves, one possibility is that we would get back the traditional fed funds market. What we have right now is a market that we don't want someone to write a long newspaper story on about how the effective rate is constructed, because it is basically FHLBs taking money out of their bank accounts with the Fed, giving it to a foreign banking organization that puts it back into a bank account with the Fed and earns 25 basis points. That's a pretty unusual market. It's a very efficient deposit market. We had a very efficient market before for sharing liquidity across banks. Both of them seem to work in terms of getting your intent through to financial market conditions.

MR. LACKER. Madam Chair?

CHAIR YELLEN. President Lacker had a two-hander.

MR. LACKER. Two observations on the line of questioning that Governor Fischer initiated. One is that under the old regime, when targeting the fed funds rate, there was this two-week window in which DIs had to hit their reserves target. It worked by itself. We only really needed to hit the target the last day. It was the expectation of that that made the funds rate equal the target for all the other days in the two-week maintenance period. A lot has changed, but the fact that we were targeting the federal funds rate is what led it to behave the way it did. It is not obvious that now—when we're not implementing a point target for the funds rate—provides good evidence about how the relationship between the RP rate and the funds rate would work if we were targeting the funds rate.

I'd also point out that, in the old regime, the spread between the RP rate and the funds rate was tremendously variable. You know, it was above 15 basis points, below 15 basis points, above and below very frequently. And it didn't seem to bother us, and as you said, we had effective control over the broad set of market interest rates. So the nature of these spreads is something that is very regime-dependent. And just making an inference about what a point target for the funds rate would be like is difficult to do.

About whether we need to decide our long-run framework or not, we're building some machinery and we're raising some expectations. And some market participants are building business models on the availability of a Fed RRP facility. And I raised this point last fall. We are raising expectations, and we are raising adjustment costs. We are inducing people to undertake investments that would be costly to reverse, and the prospect of those costs has the ability to kind of stay our hand, and make us reluctant to back away from offering RRPs on the scale and scope that we are offering them now. This is why I raised the question at the beginning.

MR. POTTER. Can I just make one little point? The fact that we had a lot of control means that, if people know you have a lot of control, you don't necessarily have to do that much to achieve the point target. In the situation we're in right now, people might doubt the precision of control that we have on the federal funds market. So announcing a point target, we'd probably have to have a proof of concept that we can get the effective federal funds rate to hit that target with a reasonable amount of ease.

MR. LACKER. I'd say a third thing—so it could be that IOER is quite effective. But if we choose another thing that has a fixed relationship to IOER, and announce that that's the thing we are changing, it's not clear everything is going to work out just the same way, even though if you looked at it, the funds rate would look like a peculiar market to claim you're targeting, as Governor Fischer pointed out.

MR. ENGLISH. Can I just add a thought in response to what you said on building expectations about overnight RRP? I think the Committee can choose to build expectations or not. In particular, one could imagine in September saying that we are going to use overnight RRP as a tool during normalization, but we don't necessarily intend to use it in the long run.

And I can see a path forward that would involve, let's say, raising IOER and overnight RRP basically in parallel as you tighten, raising the target range for the federal funds rate, maybe later on you go to a point target. Over time, the balance sheet is shrinking. Over time, the overnight RRP isn't as helpful and isn't as important in applying a floor. The setting of IOER is sufficient to pull rates higher. So you allow the overnight RRP rate to fall relative to market rates, relative to IOER, and over time it becomes essentially irrelevant. Nobody really wants it because the rate on it is lousy relative to market rates, and so it goes away. I don’t see that there isn’t a process for proceeding whereby you could use overnight RRP as a tool to give you confidence that you can raise rates when the time comes to raise rates, but not make it part of a long-run toolkit.

MS. WEINBACH. I was just going to add one thing along those lines, that in the April memos the staff raised the issue of the consideration of how big of a footprint you would like to have in the long run in the nonbank sector. And the conversation so far has mainly been about control and efficacy and transitioning back and forth. But in the long run, you might have some concerns about possibly relying quite heavily on nonbanks, paying them interest. That gets attention politically, maybe, and you may just have some longer-run considerations that mean that you could rely on the overnight RRP facility in the short term but not necessarily forever.

MR. LACKER. Madam Chair, may I follow up? There was this point where, in the sequence you sketched out, in which we discover that the overnight RRP rate isn’t that necessary. Then, we reduce it. I’m unclear on how we would learn that before we would reduce it.

MR. ENGLISH. Within the range between overnight RRP and IOER, market rates would move up toward IOER. As the amount of reserves goes down, as IOER is the more effective tool—

MR. LACKER. I mean, we know that it’s about a 15 or 20 basis point spread you need to arbitrage IOER and the ON RRP rate. We have a lot of information that points to something in that range. So if you keep the interest rate on ON RRPs at 15 or 20 basis points, you are not going to see whether, without that floor, the arbitrage is effective.

MR. ENGLISH. I agree, at the beginning, when you raise rates in the way I described, you wouldn't see whether the overnight RRP was doing you all that much good. It might be that just raising IOER with no overnight RRP would provide a sufficient magnet, would move rates up along with IOER. You would not see that in the process I described. You would ultimately see, as the balance sheet shrank and the amount of reserves shrank, market rates moving up within that range—that, say, 20 basis point range between overnight RRP and IOER. And, as it moved higher, you would have less take-up on the overnight RRP facility. It would just be less important as a way of providing a floor. You wouldn't get a lot of dollars coming into overnight RRPs and—

MR. LACKER. How much balance sheet shrinkage would we need—

VICE CHAIRMAN DUDLEY. Eventually, some banks would be short of reserves, and if they're—

MR. LACKER. Yes. But wouldn't we have to go down to like, $100 billion in reserves to get there? I mean, that would take a long time.

MR. POTTER. A hundred trillion? Do you mean—

MR. LACKER. I'm sorry?

MR. POTTER. Did you say "$100 billion" or "$100 trillion"?

MR. LACKER. I said "$100 billion." I didn't say "$100 trillion." That our balance sheet—[Laughter]

MR. ENGLISH. I don't think we know exactly, as the balance sheet shrinks and the amount of reserves goes down, where it is that rates are going to begin to move up in this range. But I don't think it's going to be $100 billion. I think that, at $100 billion, the funds rate would be trading above IOER.

MR. LACKER. That makes sense, but it strikes me it would take a while. We can find out right away by leaving the RRP rate at 5 or 10 basis points when we raise—

MR. ENGLISH. Absolutely. I agree you could do that experiment, as long as you're comfortable saying, "Here it is. It's D-Day. We're raising rates. We're going to do it." You raise IOER, and rates don't go up—because they might not—and—

MR. LACKER. So they don't go up when—you know, for a couple of weeks—so we miss the liftoff by a couple of weeks. We raise the RRP rate at the next meeting.

MR. ENGLISH. This is clearly an issue before the Committee, but I would be nervous, I guess, that if that happened there would just be a tremendous risk to confidence that markets have in the ability of the Committee to raise rates when the time comes.

CHAIR YELLEN. President Fisher has a two-hander.

MR. FISHER. Well, with regard to Governor Fischer's comment about the possible vestigial nature of fed funds, we had a discussion at the last meeting about the contractual obligations being $11 trillion. Just for point of clarification, did our legal minds give us an answer on that in terms of, if we were to move away from fed funds qua fed funds, does this present a problem from the standpoint of the outstanding $11 trillion in contractual obligations that we discussed at the last meeting?

MR. POTTER. I think there are a number of issues which are addressed in the previous memo and the memo that you got this time. The first one is, how robust is the current effective federal funds rate print? And do we feel that we can print the effective federal funds rate in the future, either from the brokered data or the FR-2420?

Now, the quality of that as a reference rate could get low if the volume in the markets got low. And we don't want a very small cash market supporting $11 trillion of other types of instruments, because that offers lots of incentives for behavior that we don't want.

There is another issue if we try to expand the federal funds rate. If we take option 2, in which basically we start printing an effective federal funds rate which has the Eurodollar transactions there, whether that could lead to contract frustration claims. We don't think that's a high chance, but that's a higher risk than under option 1, in which you are printing off the federal funds classic, say, and an overnight bank funding rate, whatever name we go with. That was one of the issues we addressed in that memo.

I don't think any of the lawyers in the room will be able to give us great confidence on this. Scott had some reasonably good ideas about how, when we refine the data collection on the FR-2420, we could guide market participants. I don't know, Scott, if you want to explain that.

MR. ALVAREZ. Yes. We think that we could do either of the two options. The advantage of the second option is we think it would have slightly less disruptive effect in the market, the second option being the one in which we continue to print the first effective federal funds rate and create a new rate. That allows the market to self-adjust without changing the expectations around the first effective fed funds rate.

On the other hand, either way the parties in some contracts are going to want to renegotiate their terms based on the information that is available. Our rate is put out there not as one that we expect the markets to use, but just as information that we make available to the public and that they are able to use as they want. As long as we give them notice about how we are changing those rates and we give them various options, we give the market more flexibility to adjust its contracts. And so we think the second one gives it a little more flexibility.

MR. POTTER. I think that's option 1 in the way we described this, Scott, is that right? Yes, I think it is, so—

MR. ALVAREZ. Okay.

MR. POTTER. One of the problems with option 1, or, as Scott called it, option 2, is we are still printing the effective federal funds rate. So shifting people from those contracts which have the effective federal funds rate might be harder to do. And we can't really say that it's a very bad rate that we're printing, but we'd like to persuade people to move to the more robust rate.

A lot of the reference-rate work that Governor Powell is going to be involved in is trying to make sure that reference rates are more robust in the future. And the effective rate that we are currently printing doesn't have some of the characteristics you'd like of a robust rate.

CHAIR YELLEN. Governor Powell with a two-hander. I'm sorry. President Fisher, do you want to—

MR. FISHER. I'm just trying to decide, does this interfere with our deciding between option 1 and 2? It sounds like option 1 is a little more friendly.

MR. POTTER. I think it is. Under option 1, the push to move from the federal funds classic is less big. We could indicate through the data collection that we believe that this overnight bank funding rate is a more robust rate and try to make it clear from that.

MR. FISHER. Thank you very much.

CHAIR YELLEN. Governor Powell, a two-hander, and then we're going to go back to our—

MR. POWELL. I was going to talk about this in my comments, but because of the LIBOR work that I have been involved in, I've spent a fair amount of time on this contract frustration issue, and my answer to the question of do we need to let the contract frustration issue drive this is "no." I mean, there are other things that can be weighed back and forth, but under New York law, it's a very, very difficult case to make, and we've got pretty good facts that just wouldn't fit within any of the precedents that have been done, in my view. I no longer have a license to practice law, but that's my take. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. I'm going to switch the topic completely if I could, and I want to talk about the individual rigid caps. My question is, the purpose of the caps is to deal with broad-based financial-stability concerns. It's not really intended to deal with micro issues specific to money market funds. So if we think about the prime money market funds—and Simon mentioned that one-third of their assets are in European bank debt. Currently most of that bank debt is paying about 25 basis points. So it's a way for the prime funds, in effect, to pay for their management fees, but it doesn't really get passed on to the investor.

But if all of a sudden we raise rates when Europe isn't—say we go up by 25 basis points—then the assets that the prime funds previously were investing in are no longer going to be particularly attractive. So either investors are going to switch, or the prime funds are going to switch. That's going to cause variation in individual funds, both in government funds, potentially, and in the prime funds. And you might get a situation in which the caps become binding at a time when it was just meant to be a 25-basis-point change that we did that wasn't done in conjunction with Europe. And as a result, the micro decisions that the prime funds have been making result in a bunch of these individual rigid caps becoming binding. And now we have something that's binding not because of a financial-stability concern, and it could be at the very first time we tighten.

So do you have that concern with the individual caps? And do you think the individual caps that are so micro-focused run the risk of not really dealing with broader financial-stability concerns, but maybe much more micro concerns than we're trying to get at?

MR. NATALUCCI. I don't think we thought in those terms, but following up on that thought, we looked at the variability of take-up of an individual fund. So if you think of the tradeoff during a potential surge between where you set the size of the cap and the frequency of binding of these caps, the aggregate cap has a better tradeoff. Because the individual caps are much more volatile, you need a much higher individual cap to get an equal frequency of binding for an individual cap versus an aggregate cap. So the individual cap has a less favorable tradeoff than the aggregate cap, whereby you can essentially have a lower aggregate cap and at the same time have the same frequency of binding. That's one of the arguments I made during the briefing, that you essentially get a better tradeoff between the potential surge and the frequency of the time that you want the caps to bind. That was one of the arguments in favor of the aggregate cap. It wasn't applied to that specific European case, but that was the underlying argument.

MR. POTTER. One issue is, suppose we do use the overnight RRP as part of the liftoff and we do have caps, we should think very carefully about what might happen as we're first raising money market rates. It wouldn't be the case, then, that we'd want to trigger one of the caps, because what we're trying to do is raise rates and use the overnight RRP to make sure we don't leave any rates behind. So I take the point that we should think very carefully, if we do use the overnight RRP, about how flows might change as we are initially raising rates.

CHAIR YELLEN. Vice Chairman Dudley, a two-hander.

VICE CHAIRMAN DUDLEY. I'm not sure it would work exactly the way you outlined, President Rosengren, in the sense that dollar rates can diverge from euro rates, and the difference between those rates gets reflected through the forward foreign exchange rate. So even if we raised dollar rates, those European banks would still fund in dollars. I don't think that they would vanish from the dollar market to go to the euro market to fund themselves. So I don't think you would see this loss of demand just because our rates rose relative to their rates.

MR. ROSENGREN. But their dollar-denominated bank debt in Europe is paying roughly 25 basis points now. So if you have a choice between buying bank debt of a European bank with a lot of credit risk or a reverse repo with no credit risk at 25 basis points or higher, it does seem that that's going to cause shifts among either investors or in terms of funds.

MR. ENGLISH. Those European banks would have to pay more. That's the point. We're raising rates.

MR. ROSENGREN. But the Europeans aren't raising rates.

[Simultaneous conversation]

MR. ENGLISH. I don't think that's relevant.

MR. POTTER. I think it is probably relevant depending on how well the swap market works. That is a caveat that you—

VICE CHAIRMAN DUDLEY. Assuming the markets work in a reasonably efficient way, you've got the big change between dollar rates and European rates, and they'll still fund in dollars.

MR. KAMIN. I think most of the demand for dollar funding by European banks is to fund their—

VICE CHAIRMAN DUDLEY. Dollar book.

MR. KAMIN. —dollar assets, exactly, and not so much to arbitrage between investments in dollars and investments in euros—

VICE CHAIRMAN DUDLEY. They can fund in euros and then swap it into dollars or they can fund in dollars, you know, to fund their dollar assets, but I don't think it has quite—

MR. POTTER. And efficient markets, if they work properly, they should be exactly the same. They might not be completely efficient at this time.

CHAIR YELLEN. Okay. We are going back to our one-handed list. [Laughter] President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I think everyone will be relieved to know that I'm going back to the line of conversation between Bill English and President Lacker. [Laughter] Seriously, I thought it was very important and very interesting. I think there are two kinds of long runs to think about. One kind of long run is when interest rates are back to normal. So interest rates are back in the 3 to 4 percent range, consistent with what the Committee thinks is back to normal. I think a lot of these issues that seem very important right now, about 20 basis point spreads versus 40 basis point spreads, are basically very important right now because of the fact that we're going to be raising rates from 25 to 50 basis points. I think when we're back to the 3 to 4 percent range, I don't see those questions as probably being as material.

So my question is, how easy would it be to vary the usage of the facility, the overnight reverse repo facility, as we raise rates? If we think about allowing the spread to increase between the two rates as we were to raise rates, is that doable? Is there a technical problem with that?

MR. ENGLISH. I don't think so. As I said earlier in my remarks to President Lacker, I think as the balance sheet shrinks—so your long run, is it as rates go up or as the balance sheet shrinks? What I had in mind was more the likelihood that, as the balance sheet shrinks, the additional control we get from the overnight RRP will become much less consequential—

MR. KOCHERLAKOTA. I understood your point.

MR. ENGLISH. —and, as I said, can be allowed to wither away if that was what the Committee—

MR. KOCHERLAKOTA. No, I understood your logic, and I thought that made perfect sense, although that long run, as President Lacker pointed out, is what one might call the very long run, and I'm anticipating a more—

MR. POTTER. So you're thinking 2017.

MR. KOCHERLAKOTA. 2017, 2018, 2019. In any event, a nearer long run when we're getting back to normalization of the federal funds rate.

MR. ENGLISH. At that time, the Committee could choose to lower overnight RRP relative to IOER. In some sense, it might be an experiment to see how much control you're getting from IOER and how much control you lose by lowering the overnight RRP rate. I know Simon probably has more thoughts.

MR. POTTER. There's control on the overnight rates and the effect on financial conditions. When we get to 2017, 2018, the regulatory environment will be fixed. Everyone will be in that new regulatory environment. We have to look at what the best way of implementing monetary policy is in that regulatory environment, and that could look quite different from the way it looked in 2000.

MR. KOCHERLAKOTA. Could I ask a follow-up, Chair? Bill English, you gave some sample language about the use of the facility. I guess this is more a question for the Desk. Suppose the Committee were to announce that in the long run we do not plan to be using the overnight reverse repo facility as part of the implementation of monetary policy. Do you think that would cause significant disruptions in our ability to use it in the near term?

MR. POTTER. I would say that you might have to pay up 1 or 2 basis points to get the same interest rate control, but, no, if you said, you know, once the balance sheet gets down to $200 billion above currency, we'll no longer use the overnight RRP—that is significantly far off. I mean, in the modal estimate, it's six or seven years away. In expected value, it might be an infinite amount away. So they probably wouldn't care about it.

MR. KOCHERLAKOTA. Right. Thank you.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. Let me pick up where President Kocherlakota left off, because my first question—I have two—but he just asked one, which was would the ON RRP effectiveness be reduced if we announced explicitly that this is only going to be a temporary program and we have no intention of it being permanent. So the answer is not really, not much difference.

MR. POTTER. Not on the interest-rate control.

MR. EVANS. Okay. All right. So the second one is, I personally think it's going to be tough to end this overnight RRP program. I keep thinking about what the permanent consequences of it are. I'd like to ask a question along those lines. And I think we would benefit if we, sooner rather than later, had some of the scenario analysis. But if we are thinking about how to understand the long-run implications of using the overnight RRP program with our monetary policy tools, how would the overnight RRP rate behave during a global risk event?

Suppose there's a global risk event. There's a lot of risk aversion somewhere else in the world at a time when the United States is running the more normal funds rate, say 4 percent, and in fact, the economy is doing well and maybe we're worried about inflation. Following up on Governor Fischer's question, which I interpreted as maybe we don't need the funds rate, so maybe it's the overnight rate that is a big policy indicator, and we're running an aggregate cap with flight to quality. We hit the cap. The overnight rate is going to run down at a time when we're posturing that we probably need tighter policy. How are we thinking about doing monetary policy in a world configuration like that, in which signals are being confused?

MR. POTTER. So in this world, the aggregate cap is triggered. The uniform price auction comes in, and then the rate that clears that auction goes down. And the next week in the example, the take-up can go up in the overnight RRP and the cap resets to a large amount. So you have that temporary effect there. If you had a more rigid cap, you would still have flight-to-quality flows into the United States, into other markets, that would be affecting those rates.

MR. EVANS. Suppose the Committee had an attitude that we really didn't want to increase beyond this cap very much; that, you know, we're willing to use this, but we don't—

MR. POTTER. So then what you're going to see is if people really want to get into U.S. assets, they will tier through various U.S. assets at that point, which effectively will ease financial conditions in the United States, which you might not like. With the overnight RRP, you have a little bit more control of that because you're fixing that rate.

MR. EVANS. So in the past we would—you know, when we had a funds rate that we controlled, I mean, we could control it, and Treasury rates would start plummeting, like the

Asian financial crisis, and so depending on how things got priced off that, mortgage rates fell in that time period and in another time period they might not. But all of a sudden this could lead to even more exuberance on the part of the economy at a time when you think that inflation is overheating. If it's a global event that's taking place somewhere else more than in the United States, how are we going to implement a tighter policy? I mean, if—

MR. POTTER. Well, an overnight RRP would let you do that more easily than other mechanisms we have, subject to how much take-up—

MR. EVANS. But the rate has gone down.

MR. POTTER. No, no. You're not meddling with the rate.

[Simultaneous conversation]

MR. EVANS. Well, that's if you let the cap go.

MR. POTTER. Yes, that's if you let the cap go first. If you don't—

MR. EVANS. But if you have an attitude that you don't really want to play around with that cap, I mean—so these are a lot of choices that have to be made.

MR. POTTER. These are choices that the private sector is making and we're moving along with them, or we can be more explicitly making those choices. I don't think it's that different of a world.

MR. NATALUCCI. There's nothing specific, though, about the behavior of the facility in that case. It's just behaving like a Treasury bill, right? So that's what a Treasury bill would do, and in fact, it's intended to mimic the same dynamics that you've seen out of safe assets. There is a lot of demand. The price goes up and the rates go down based on demand. It wouldn't be idiosyncratic to the facility. It's just like the behavior of short-term safe assets.

MR. EVANS. Right. In the past, though, we could sort of keep the funds rate firm and point to the markets doing that. We weren't doing this. Now our policy rate would be moving down. So—

MR. POTTER. The policy rate is not moving down, I don't think, in the way that we described it.

VICE CHAIRMAN DUDLEY. Well, the market clearing price is going down.

MR. POTTER. The market clearing price is going down at one of the auctions in which this happens, and then it depends how big that is. That'll show you the size of the flow, but I don't think that's your policy rate.

MR. NATALUCCI. One point we try to make clear in the memo is that this is really meant to be a circuit breaker, to give you some time to reassess what conditions in markets are and what the appropriate response is that is warranted at that point. You could decide to lower the overnight RRP or you could decide to play with the caps. You could decide to do whatever you decide to do. The caps are not meant to entirely solve your problem right there. They're just supposed to give you some time, as a circuit breaker would work, to reassess conditions and decide what the appropriate response will be.

CHAIR YELLEN. I have a two-hander from Governor Fischer.

MR. FISCHER. Yes, I mean, in these circumstances you'd have to use the rate, and it would be the same today as well. I don't see that there's any new principle that's being introduced in this. It's only because the United States is so big that we think that we can be indifferent to what's going on in the rest of the world. When conditions change in the rest of the world, they accept that they're a little country. They adjust the rate as well as the quantities, and we're getting to be relatively smaller than we used to be.

MR. KAMIN. I would add that lately we haven’t seen too many instances in which the rest of the world has gone risk-off, in other words, flight to safety, and the U.S. financial system has remained risk-on. Usually, when we see is spikes of risk aversion abroad, we see spikes of risk aversion in U.S. markets. And so you could imagine some geopolitical event abroad spiking the usual increase in corporate credit spreads and declines in stock prices, wherein—although that would be a decision for you to make—some reduction in the fed funds rate might not be amiss.

MR. POTTER. I thought your scenario was one in which we didn’t want to reduce the policy rate. Maybe I misunderstood.

MR. EVANS. Right—it was one in which we still thought that there could be inflationary pressures in the United States.

VICE CHAIRMAN DUDLEY. So they raise the overnight RRP rate—

MR. EVANS. No, but there’s a flight to quality. So they’re busting through the cap.

MR. POTTER. But then the next week people know that the cap is going to go up. So rates—

MR. EVANS. Oh, no. That’s if you’re—okay. So that’s a choice, which is you’re willing to play around with the cap. I’ve sort of listened to some of the commentary around the table, and I don’t think that there’s going to be the same type of—

MR. POTTER. President Evans, the weekly average has gone up, which moves up—

[Simultaneous conversation]

MR. ENGLISH. If I can clarify something at least—it’s either the cap or the rate, right? You either set a quantity or a price, and I think President Evans is suggesting that you don’t want to raise the quantity because you have concerns about the quantity. Then you’re going to have to let the price fall. And that's a basic monetary policy issue. Alternatively, if you want to raise the rate and you want to do whatever you think is right for monetary policy, you're going to have to, at least over some period of time—maybe not immediately, as Fabio was saying—let the cap be much higher.

MR. NATALUCCI. Also, it's the aggregate that matters here. So it depends what kind of mechanism you have set up. If you adjust based on usage during the previous week and you reset quickly, then the cap moves itself up to accommodate demand, and the price impact is going to be lessened.

MR. EVANS. Okay. One thing, I mentioned is that this is intended to be an example in a more mature period. So we have to decide what the size of our balance sheet is so that we have sufficient assets on our balance sheet so that we could expand it into, potentially, a very large cap if there was a tremendous flight to quality. We'd have to be making some contingency decisions about how we'd want to be able to allow that cap to increase. There are a lot of moving parts in this, and we're familiar with the way we've thought about it when we have a funds rate as the instrument and the Treasury market responds as it does to market forces. And I think it is incumbent upon us to just think through these issues in a careful, clear fashion sooner rather than later. That's really my only point.

MR. POTTER. President Evans, I think we have been trying to think through them in a clear way. If the balance sheet gets smaller, then we'd have to think about whether you want to keep the overnight RRP. There are many reasons separate from interest rate control that this is an operation the Federal Reserve might want to offer, reasons to do with the regulatory changes and other things, such as the provision of safe assets. I think we're focusing a lot on the normalization part and the negative parts to do with the disruptive surges. There are other reasons why we might want to offer a facility like this. On net, you might still want to do it. It's separate from the normalization issues.

MR. EVANS. Right. So maybe I wasn't clear enough. I meant to be suggesting that this was a question for 5 to 10 years in the future when we're in that type of setting and we needed to make some choices, not during the normalization period, during which I don't have that many problems with this.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. I thought this was a very interesting and useful conversation. The part I took away as being especially important is what Fabio said, that the better terminology for these caps is circuit breakers. It will just give the Committee time to think and react. I think we should be communicating about them if they are put in place, but the idea that they are hard-wired, I think, is wrong. I think the Committee will be making state-contingent decisions in a very short period of time to deal with a crisis.

I would actually push back a little bit on what President Evans said about the need to think through these scenarios. I think it's not humanly possible to think through all of the possible scenarios that will arise in those situations. I think staff has done an excellent job of leading us through a wide range of important ones, but I think it's very challenging for us to be thinking through this in the kind of calm we're sitting in right now with VIX at whatever it is, 11½—to be thinking about what's going to happen in these crisis scenarios.

MR. NATALUCCI. One observation we make in the memo is that, if you want to ease market participants' concerns about how it would work when the cap binds, how the auction would work, test it and make it bind occasionally. And you could choose whatever framework you want to make them bind, whether quarter-end or some other period, so that people get used to the idea that the caps might bind once in a while or there could be an auction. And it's something that they can plan and they can think of like contingency planning, as opposed to a case in which it never binds, and then after three years it's binding all the way. Some signal is attached to what the Committee's intentions are at that point.

MR. KOCHERLAKOTA. I think that's a helpful idea. I think having it bind at quarter-end will be different from having it bind in the middle of a financial panic. Bagehot's description of the financial panic of 1866, which was like the end of the world, is very helpful in understanding that. I think it is just really hard to think through how things will work in those situations.

MR. POTTER. So it's supposed to bind in those situations to prevent disruptive changes in the funding flow, not to prevent people getting access to a safe asset when they really need that safe asset.

MR. KOCHERLAKOTA. Yes.

CHAIR YELLEN. Okay. I think we have come to the end of our list. So my suggestion at this point is we take a break and have lunch, bring lunch back here, take a 45-minute break. We'll start up again around 1:00, and we'll have our go-round.

[Lunch break]

CHAIR YELLEN. I suggest that we now move into our go-round in which we'll address the questions, and let's start with Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. And let me apologize in advance for the relative length of these remarks. I'll try to balance it off by keeping my remarks during the economic go-round short.

Before beginning, though, I did want to commend the Chair and the staff for organizing our decision on normalization policies in the way that they have, with a series of discussions in consecutive FOMC meetings preceded by that set of introductory memos we got in April, which have now been supplemented with this additional set of memos that elaborate on some of the issues and questions raised in the April meeting.

Having read last week the portion of the April transcript on normalization, I also want to note the openness with which participants considered the issues in that first discussion, the way in which the Chair encouraged productive interaction among participants, and the thoroughness with which the staff has responded in the second set of memos. And I say all this not simply to heap praise on people, but because I actually think it has presented a template for deciding on key issues that will serve us well over the course of the next couple of years.

Turning now to the substance of the set of policy issues on normalization, I don't want to bury my lead, so I'll say upfront that my basic reaction is a growing uneasiness at the prospect of our normalization process resulting in a large, regularized ON RRP program. I hasten to add that I think we need to have ON RRP among the tools we use during normalization, and with respect to longer-term policies, there's certainly merit in thinking about the idea of having ON RRP as a permanent tool of monetary policy. So my uneasiness is grounded not in opposition to the instrument as such, but in a concern that by committing or perhaps overcommitting ourselves now to a large, sustained ON RRP facility, we could be courting unintended and possibly undesirable consequences.

At the April meeting, a number of participants commented on the potentially profound consequences for money markets and for the organization of the financial sector more generally of the creation of a large ON RRP operation. Many of us also noted the possibility that in times of stress, such an operation could exacerbate disintermediation by facilitating a run on assets carrying any credit or liquidity risk in favor of completely safe repos with the Federal Reserve. A specific concern bridging both these observations was the possibility of the truly ironic outcome whereby the FOMC, nearly all of whose members have publicly identified money market funds as a major threat to financial stability, would have paved the track by which these funds could run from commercial paper, CDs, and other private-sector assets.

But I think the issue goes beyond this discrete though important consideration. One might ask, for example, whether a large and permanent ON RRP facility would encourage a range of cash lenders to assume greater risk in the belief that they can quickly shift their asset composition to ON RRPs as circumstances change. Even financial actors that are not certified ON RRP counterparties might take advantage of this safest of havens through a restructuring of the interconnections of financial actors, whereby such actors would have what we might call a standing line of liability with qualified counterparties.

The staff memos for this meeting didn't really address the potential for far-reaching change in business models of various parts of the financial sector. Indeed, it would have been asking a lot to expect such analysis in just a few weeks, based on the limited testing that has taken place to date. The memo on counterparties seemed to assume that a greater number of counterparties was desirable precisely because of the intention to use ON RRP as a primary tool of normalization. In any case, I don't think we yet have a very good basis for understanding the effects a large, sustained ON RRP program would have. Among other things, I wonder whether such a program would actually be reversible after monetary policy normalization or whether some years from now its contemplated termination would be seen as too disruptive to a reshaped financial sector.

The financial-stability concerns from the previous meeting were addressed mainly through a proposal for some variant on a system of caps in order to limit the potential for a surge of disintermediation during a crisis. The memo on financial-stability concerns considers both individual and aggregate caps but forthrightly acknowledges that it's very difficult to determine what level of cap would best balance the presumed reliance on ON RRP to firm rates and the desire to avoid disruptive surges.

Actually, though, I read the suggestion that the cap might be set at average recent use plus as much as $300 billion—the estimated amount of flight to quality in the worst week of the crisis—as tantamount to forgoing this balancing effect by having formal caps that are not practically binding. I at least would be uncomfortable launching a normalization program that essentially subordinated financial-stability concerns to the interests of maximum control over short-term rates.

But even if we were to set caps that would be expected to bind, I think there are two concerns. The first and lesser is that they could be a quite visible metric of the flight to quality during a period of stress, assuming that there would be something close to real-time transparency around the usage of ON RRP. That is, they would provide a kind of play-by-play of increasing stress as funds flowed into the ON RRP program.

The second and more important concern is that the system of binding caps could lack credibility. I think there's some reason for skepticism that the caps would hold in a period of near-crisis, and in fact, I think the characterization by some in the morning session of these as circuit breakers or triggers rather than real caps more accurately captures the institutional dynamic that would ensue. Based on what we know and have discussed to this point, the cap system strikes me as an almost textbook case of a time-consistency problem. We will grow the

ON RRP facility and solemnly indicate that its usage has limits, but then as stress builds and the money markets in which ON RRP will have become such a major part come under pressure for capital conservation, we could be tempted to offer this safe haven without any limit but the size of our balance sheet, at least to those previously qualified as counterparties and maybe to others as well. And, it's important to note, that might well be the right ex post response under such circumstances, but it's precisely for this reason that the caps may lack ex ante credibility.

A large-scale flight to quality at the Fed would mean the withdrawal of funding from lots of private balance sheets, a circumstance in which we would doubtless feel considerable pressure, policy and political, to lend the funds that we were borrowing. In that case, we would once again be in the business of creating our alphabet facilities that *de facto* affect significantly where relatively scarce credit is flowing in the economy. But in this new world, we might have morphed from being a lender of last resort to an intermediator of something less than last resort. I think it's hard to know how much more disintermediation would take place in a world in which the Fed was providing a safe asset whose price was, at least for a time, insensitive to increased demand over and above the amount we saw actually occur during the last financial crisis. But it's at least possible that it would be significantly greater and, indeed, that the existence of a large, standing ON RRP program would, by facilitating disintermediation, amplify it during moderate stress periods, such as that we experienced in the late summer of 2011. More generally, it is possible that such a program would encourage business models of short-term intermediation that would be premised on the ability to exit quickly to a completely safe haven.

To repeat what I said at the outset, I believe we need to include ON RRP in the normalization toolkit, but, subject to further discussion today and between now and our July meeting, my current view is that we should aim for the ON RRP program to play more of a backup role. If the program does not become and remain predictably large, the odds of unintended and perhaps not fully understood consequences are lower. Moreover, even a less prominent use of the program in pursuit of specific monetary policy ends, as opposed to simply for testing, might provide some insight into what the effects of a large, permanent program would be.

And I want to add here that I listened with interest to some of the discussion before lunch as to whether we might say at the outset that we would not continue the program after normalization was completed. I actually think that might be a mistake as well. I don't know why we'd necessarily want to rule out the possibility of continuing its use as some form of a monetary policy instrument. It's just the growth of it and the consequences that would ensue from the early growth that concern me.

Obviously, this set of concerns has implications for our choices on normalization policies, and in an effort to be at least somewhat constructive here, I've tried to specify for myself what I think those implications are. First, we should rely principally on the IOER rate to affect interest rates.

Second, in order to avoid the need for continuous fine-tuning using ON RRP, to the degree that we set the federal funds rate as a target—whether the current or revised version of the federal funds rate—that target should be a range rather than a specific point. I'm not really sure whether it's better to have this rate as a target or whether the Committee can instead simply be monitoring the effect of IOER and other instruments on relevant interest rates without setting even a target range, and on that point I'm interested to hear the views of others today.

Third, so as to limit the growth of the ON RRP program, the spread should be at least the current 20 basis points.

Fourth, a desire to limit, if possible, the size of the ON RRP program means we may need to use some policy tools that, considered individually, may not have seemed particularly attractive. As is usually the case, policy decisions entail a choice among imperfect alternatives. Since each mix of policy tools carries certain risks alongside its expected efficacy, a tool should not be disqualified simply because it's arguably less effective than another, since it may entail fewer risks. So, for example, my uneasiness about a large ON RRP operation has caused me to rethink what was my tentative conclusion that we shouldn't use a term deposit facility.

Fifth, it's important to note that if the approach suggested in the preceding four points did not produce the firming we desire during the normalization process, we would still be able to expand the use of ON RRPs either by increasing the universe of eligible counterparties or narrowing the spread relative to the IOER rate.

I acknowledge that this more eclectic approach compounds what is already a communications challenge for our normalization policies. An inability to communicate our intentions and expectations with relative clarity might undermine the efficacy of the normalization process itself. I hope that, at least as far as communication in September of our revised exit strategy is concerned, we might be able to describe something that was driven by IOER with reference to the effect on the federal funds rate or some other relevant rates, and that we could refer to other tools, including ON RRP, that would be available to firm interest rate floors if and as needed.

But here again, my own calculus of the costs and benefits of this approach would be affected by the views of others, particularly the Chair, on whom the burden of communicating on behalf of the whole Committee will fall, as to the relative communication challenges of this and different approaches. Thank you, Madam Chair.

VICE CHAIRMAN DUDLEY. May I ask a clarifying question? Governor Tarullo, you used the word “large” a lot in your comments. Can you give me a sense of what “large” is?

MR. TARULLO. Well, part of the problem is that I haven’t been able to get a very good sense of what people are contemplating for the size of the ON RRP program as an ongoing tool to play the kind of role in a corridor system that people had contemplated. But I have to say that it seems to me that if it got very much larger than it already is, we would begin to run some of the risks that I identified.

VICE CHAIRMAN DUDLEY. So $200 billion is okay? I’m just trying to get a sense of where you start to get concerned.

MR. TARULLO. It’s fairly easy to say that at current levels I don’t have a high level of concern. Because of my skepticism about how well caps will hold once one is on some sort of trajectory upward, I think my concern may be as much in the way we project it and grow it initially as opposed to the size it actually ends up being.

VICE CHAIRMAN DUDLEY. Okay. Thank you.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. Let me begin by thanking the staff for the background memos on normalization issues. I thought these were thoroughly done, touching on a wide range of topics that could influence the Committee’s future decisionmaking in this area. I intend to simply walk through the four questions posed in the appendix of the staff memo “Overview of Additional Staff Memos on Normalization” by English and colleagues.

The first question concerns the wisdom of keeping the federal funds rate as a primary vehicle for Committee communications regarding the stance of monetary policy. My main comment here is that I think it is risky to keep referring to the federal funds rate or its more elaborate cousin that includes Eurodollar transactions as the main policy focus of the FOMC. With such high levels of reserves in the banking system, the federal funds rate is a mere shadow of its former self, and it seems unlikely to return to true form over the medium term.

Moreover, the expanded version—the overnight bank funding rate—may behave inappropriately in times of stress, as noted in the staff memo on the subject, possibly because of events outside U.S. borders. This could make for a difficult situation to manage if FOMC communications were to be squarely centered on such a rate. The IOER rate, in my view, also has limitations because it is only applicable to the banking system, a shrinking fraction of the financial intermediation sector in the United States. This leaves the overnight reverse repo rate, with its broader system of counterparties, as the most promising candidate for the label of policy rate.

The scenarios outlined in the staff analysis suggesting how the overnight RRP rate might be set in conjunction with the IOER rate seemed reasonable to me. I would be open to making some reference to the federal funds rate, but obliquely and in a way that makes it clear that this particular short-term rate does not today carry the importance that it once did.

The second question posed concerns the potential circuit breakers to prevent what might be thought of as excessive take-up in the overnight reverse repo program during periods of financial stress. After reviewing the memo on this topic, I would be willing to support, at least initially, an aggregate cap that would adjust dynamically according to relatively slowly changing macroeconomic conditions. My sense on this is that, should a period of severe financial stress arise in which financial firms are turning to the overnight reverse repo program aggressively, we are probably going to want to allow the cap to be breached to respond to the crisis—and in this respect, I agree with the comments just made by Governor Tarullo that these are not credible caps. But a cap would allow that decision to be made at the time. The decision to move the cap could be made then, at the time, by the Committee and would send a signal that the Committee does not expect extraordinary usage in ordinary times.

One of the most serious issues with the overnight reverse repo program—and here again, I'm agreeing with Governor Tarullo's comments that he just made—may be the signal being sent by the Fed to nonbank counterparties that they will now be treated almost like banks but without the regulatory apparatus that banks otherwise have. Strictly speaking, we are saying no such thing. But if the impression is created, market pricing can be affected nevertheless. This aspect of the facility bears careful watching as we go forward. So I would describe this as a medium-term to long-term industrial organization issue, as opposed to the operational issues that we have been discussing so far.

The third question involves reinvestment of principal on securities holdings. The Committee laid out ending reinvestment as a preliminary step before raising the policy rate in the exit principles of the spring of 2011. I'd prefer that we retain this step in the exit principles. In my view, it is a relatively mild way to begin the removal of policy accommodation. Certainly, the staff simulations seem to bear this out, to the extent we have reasonable models of these effects. The Committee has wanted to get back to a more normal-size balance sheet, and the end of reinvestments would provide a relatively mild way to begin to accomplish that task. Even those on the Committee who may be comfortable with a relatively large balance sheet probably do not desire the $4 trillion–plus size that we have now.

Among other risks, we will eventually have to pay very large sums to the largest banks in the United States, as well as large foreign banks, through IOER. I remain concerned that this is potentially a political loser for the Fed when this time arrives. For these reasons, I think we need to get on with ending reinvestment and reducing the size of the balance sheet when we have the opportunity. Without the step of ending reinvestments first, in my view, there will be even more pressure on the date of policy rate liftoff, possibly pulling that date forward from when it would otherwise occur.

Also, I would be open to more graduated or managed approaches to ending reinvestment should the Committee wish to go in that direction. We talked a little bit about that in the question-and-answer session earlier. So I think it could be done—instead of just saying, "End reinvestment," you could do it in a way that said, "We want the balance sheet to go down at a certain pace." And I think that would be fine.

The fourth question concerns the idea of an expanded definition of the federal funds rate. In answer to the first question just now, I noted that a definitionally revamped overnight bank funding rate may not behave well in a time of financial stress, possibly because of developments outside the United States, according to a staff memo. This seems to suggest to me that we would not want to go in this direction. The definitionally-revamped overnight bank funding rate would behave well when it does not matter—that is, when fed funds and Eurodollar transactions occur at the same price—and may behave poorly when it does matter—that is, in times of stress. If this is the case, why do it? Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. This is our third crack at crafting an exit strategy. The second proposed exit strategy looked quite different than the first. This announcement is likely to be quite different than the first or the second.

That we have changed our strategy as the size of our balance sheet and economic circumstances have changed is quite reasonable. However, our communication of strategies that were highly dependent on future circumstances was not as effective as we might have liked. That should provide a significant caution as we consider our future strategy and accompanying communications.

There are many questions we cannot know the answer to until we have begun the process of normalization. For example, we do not know how strong the gravitational pull of interest on excess reserves will be on market interest rates as we raise the IOER rate or as we face periods of financial turbulence. We do not know the size of the take-up of our reverse repo facility, both as we raise rates and as institutions like government money market funds adjust to the new facility. Nor do we know the extent to which counterparties will flock to our facility during periods of financial turbulence, or how much the use of our reverse repo facility might reduce the willingness to lend to the private sector during periods of financial turbulence.

This facility works primarily through money market funds. The SEC is considering significant regulatory changes to money market funds. The money market fund industry may go through significant change as a result of this facility and the SEC regulatory changes. And the nature of these structural changes and their effects on short-term markets are hard to predict at this time.

These are but a few questions that, I think, will be important to better understand over time. There are many others. However, uncertainty does not excuse inaction, but it is a reason to admit to ourselves and the public that this will be somewhat experimental. No central bank has exited with this balance sheet and set of instruments before.

How we proceed and what our final destination will be are likely to be influenced by what we learn along the way. If we provide too rigid a set of principles in our initial communications, we risk misleading rather than informing the public. We can, of course, only make decisions based on what we know now. But what I am counseling is building flexibility into our processes and communications, consistent with the limits of our current knowledge and with our willingness to adjust as we learn more. Our earlier set of exit announcements were necessarily constrained by our knowledge at that time, but they were received by the market as a set of relatively rigid guidelines for exit, which they probably should not and could not have been.

Turning to the questions posed to us in the memos, first, our communication strategy should be clear and simple. We should announce that we are setting the interest rate on excess reserves as our policy tool. While we should announce that we plan to initially maintain the reverse repo rate at roughly a 15 to 20 basis point discount to the rate of interest on excess reserves, we should make clear that we may alter the spread over time depending on economic circumstances and our experience using these instruments to affect short-term market interest rates.

I would be opposed to announcing we are targeting the federal funds rate, or any other market rate, until we obtain a better understanding of how the facility functions. We should gather more information from the first several tightening actions and then decide, with much fuller information than we have now, about the costs and benefits of moving from administered rates to another set of rates in our communication.

Turning to question 2, the main counterparties to this facility are government and prime money market funds. There has not been much discussion of the implications of this new facility working largely through private money market funds, particularly at a time when the SEC's regulation is in flux. In addition, money market funds are likely to make more adjustments once the parameters of our program are announced.

As for the cap alternatives, since money funds, particularly some wholesale funds, can have quite variable flows, individual caps may be complex and burdensome and during times of stress may even be perverse. For example, if wholesale investors become worried about a large fund, and there is a significant shift to another fund family, would we want credit concerns about specific fund families to lead to binding individual caps?

This could especially be an issue during periods of financial stress, when the credit reliability of a fund family could be questioned. It should also be noted that a government-only fund, while posing no credit risk, is likely to have a fixed NAV under the expected SEC proposal. This could result in government funds being particularly attractive to hot money in times of financial stress, implying many of these funds may be faced with highly variable investor flows.

Thus, I am quite concerned that individual caps have collateral problems that are poorly understood at this time. I would much prefer an aggregate cap. However, I would set it at a much higher level than was discussed in the memo. We want the cap to be binding during periods of significant stress, but we do not want it to be binding during normal periods, including the end of the quarter, the end of the year, and tax deadlines, when flows in and out of funds have the potential to be much larger than normal, particularly if this becomes an attractive vehicle for both corporate and retail investors.

I would set a large cap relative to our balance sheet that could be triggered only in quite stressful times. The whole purpose of this facility is to tighten the spread under the short-term market rates relative to the rate of interest on reserves. We want that to be binding unless there is significant financial instability, in which case the caps are binding, but we are also likely to be considering lowering significantly the reverse repo rate and, if it is likely to be of macroeconomic consequence, also the rate of interest on excess reserves.

Question number 3—our taper strategy has been gradual, consistent, and transparent. Markets appear to have found this predictability reassuring. Rates and volatility have shown little reaction to our previous meetings' decisions to taper our purchases. Learning from this experience, I would not make reinvestment discrete. Rather, I would, at the appropriate time, begin a somewhat symmetric taper of our reinvestments, reinvesting a percentage of principal repayments and reducing that percentage in a consistent and gradual way.

The hurdle for changing the tapering path for reinvestment would be similar to that for the current tapering program. That is, we would continue on that path as long as we do not experience significant, unexpected changes to our economic forecast, either up or down. In terms of when to start the reinvestment taper, I would make that dependent on the economic situation at the end of the year. We might expect a diminished reinvestment around the time of our first rate increase, but we would move that forward in time if the economy is growing unexpectedly fast and put it back in time if the economy is disappointing.

For question 4, I am in favor of publishing an expanded benchmark as an additional benchmark rate. Until we have some experience with tightening rates, I would not use the current federal funds rate, or this additional benchmark, for anything other than informational purposes.

In summary, we should proceed cautiously and flexibly. We should acknowledge that we are very likely to make changes as we learn from our initial actions. We should not make any decisions about future operating procedures or what the eventual size of our balance sheet will be until we better understand the transition.

I expect that this facility will be successful and may become our future operating procedure. Allowing the short-term interest rate decision to be separate from the balance sheet decision gives us an important tool that we may want to use in the future. In addition, there should be a broader discussion of our strategy in the context of financial stability. For example, we may find value in keeping some MBS on the balance sheet, both for adjusting interest rates in some circumstances and for signaling in the event of another housing price bubble. Having some direct effect on long rates, as well as short rates, may be useful both for achieving our dual mandate and also for addressing financial-stability concerns, as our regulatory tools have long implementation lags and are cumbersome to use effectively. However, I hope we continue to have an open mind until we better understand this facility.

Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. Kudos, again, to the Board staff for comprehensive memos and presentations. Obviously, these questions have implications for monetary control, communications, and financial stability.

To begin, I just want to reiterate my support for the areas of common ground that are listed in exhibit 1 of the handout, especially, as President Rosengren mentioned himself, the need both for flexibility in our approach over the next few years and to recognize that we will be doing a lot of learning along this path. I think we want to make sure we set up a plan that both allows for that flexibility and recognizes the need to learn along the way.

To preview my answers to the four questions, my preference is that we initially target a range for the federal funds rate. I believe that varying the interest rate on excess reserves and the reverse repo rate should be sufficient to achieve a reasonable target range—say, 25 basis points.

In terms of reverse repos and the need for caps, for financial-stability issues, I do think that aggregate quantity caps make sense as circuit breakers. I'd prefer these to be static rather than dynamic. And I support delaying the end of reinvestments until sometime after liftoff. Finally, I am for having the New York Fed publish an expanded federal funds benchmark as a new rate, not as a substitute.

So let me expand on each of these points. First, monetary control and financial stability both call for continuing to emphasize the fed funds rate during normalization. Most of the time, an administered overnight repo rate would provide similar monetary control of relevant short-term rates, but I do think targeting a market rate like the fed funds rate has an advantage, and that is that there can be times when there are idiosyncratic factors that drive the repo rate down or up, causing the spread from that repo rate to the market rate to be moved around. Going back to a principle from William Poole's 1970 article in, targeting a market rate like the federal funds rate insulates you from idiosyncratic factors that create spreads between that and the repo rate and acts as an automatic stabilizer. So that's my argument for why a market rate is better than the overnight repo rate.

In terms of communications, our lengthy briefings and discussions on this issue make it clear that normalization is already complicated enough. So, where possible, I think we've got to keep our procedures simple and familiar and make it easier for the public to understand our policies. And as I said back in April, the fed funds rate may not be perfect, but it is well known.

So to the question of a point target versus a targeted range—I strongly support a range as we start this process of normalization. A quarter-point range will provide sufficient macroeconomic control, while reducing pressure to immediately perfect our use of the IOER rate and the reverse repo facility.

Now, over time we will learn how to best control the fed funds rate with these instruments. We will also learn about how much take-up there will be on the overnight reverse repo facility. And as we get that information, and we get a finer understanding of this, we can transition to a point target at some point in the future. But to my mind, the most important thing we need to do in this early stage of normalization is to make sure that we can demonstrate to the public our confidence in our ability to control market interest rates per the requirements or per the desires or as needed for monetary policy goals. In the early stages, I really see the need to focus attention on the fact that we have an interest rate we are trying to raise for macroeconomic reasons, and we are able to do it through the facilities we have.

Turning to the second question, when it comes to circuit breakers on the overnight reverse repo facility, some sort of static cap would be simple and preferred. Dynamic caps are potentially subject to gaming and actually create some incentives for firms to use the facility more. In addition, they are hard to properly calibrate, as said in some of the earlier conversations we had today, and I also think they are just more difficult to communicate. I recommend that we let the Committee adjust the cap as needed, as we learn more about the market take-up and behavior. Again, thinking of this as the early decision, it would be to have an aggregate fixed static cap, but then as we learn more over the next six months or a year after we start this process, we could adjust that.

Third, I favor ending reinvestment sometime after liftoff. My views on this are similar to how Governor Tarullo set up that question. Stopping reinvestment six months earlier or later should have negligible economic or financial effects. This is just not a first-order policy decision in terms of the effects on the economic outlook and in terms of achievement of goals. However, ending reinvestment before liftoff, or even at the time of liftoff, could be counterproductive because markets may see this, like they did last year, as a signal of a shift in direction toward much tighter policy by the Committee.

I would rather avoid the problem of sending confusing signals by taking reinvestment off the table until we have the normalization of the funds rate well under way. In a way, I think of this as wanting to get the reinvestment decision off the front page of the paper and buried in the back of the business section, because that really is the level of effect it has on the economy. So I would not be more specific than that regarding the timing of the ending of reinvestment—there were some ideas of linking it to the interest rate or economic conditions. I do think we want to have that flexibility, for the reasons a number of people have already mentioned, to be able to make that decision based on economic conditions and financial conditions.

And when we do end reinvestment, we should keep it simple, and I would argue against trying to smooth the week-to-week or month-to-month reinvestment rates or trying to taper it. I actually think, again, this is not a first-order macro or financial event. I think what we really need to do is just execute a plan. One of the lessons I took—I guess we all take different lessons from events—was that once we started executing the taper, it went very smoothly. I don’t think that we really need to worry as much about market functioning around the ending of the reinvestment. Obviously, if there were real problems in market functioning, those should be taken into account.

Fourth, I support publishing the expanded rate that includes Eurodollar transactions as an additional rate. The rate on actual federal funds transactions, which would of course take advantage of the new FR-2420, would remain the basis of our communications, in my view. Focusing on fed funds transactions is simpler to communicate and should be fine for monetary control. And the expanded rate might be more precise but offers limited benefits at this point in terms of our monetary policy target. But, again, I am all for developing that.

Let me finish up with some broader observations linked to some comments from the previous meeting and from President Kocherlakota and President Evans earlier about learning, language, and war-gaming. We are going to learn a lot about this after we start this process. So, again, I think we should start the normalization with familiar tools and terminology, wherever possible, and later changes then can be an evolution and not a reversal.

Given that, the language we use in the revised exit principles should not lock us in unnecessarily. For example, highlighting a range for the funds rate now would provide flexibility, and we can later narrow that range to a point, if it's appropriate. In terms of future statement language, draft 3', which provides a fed funds range, could be more explicit that the reverse repo facility supports the implementation of our federal funds rate target. So rather than saying, "The Committee authorizes the Open Market Desk to execute overnight reverse repo agreements at a rate of 30 basis points," I would prefer to say something like, "Consistent with this decision"—the decision about the federal funds rate target range—"the Committee authorizes the Open Market Desk to execute the reverse repo operations."

I do think a really open question is, where do we want this spread to be—and also, getting back to Governor Tarullo's comments, how much take-up do we really want from this facility? Those, again, are things we will learn when we are actually doing it. Right now, we can maybe just guess.

And finally, as President Kocherlakota said in April, and as President Evans brought up, I do think we really need to think through or wargame some of these scenarios, and the scenarios that I think are more interesting are not like the fall of 2008. In the fall of 2008, you're cutting the funds rate to zero. You're driving all interest rates to zero. That's kind of a no-brainer from the point of view of thinking about some of these issues around market operations. So you think more about a stress situation like in the Asian financial crisis and around that time, maybe even late 2007 and early 2008, when there were runs to safe assets but we actually had a target fed funds rate that was significantly above zero. So then you start thinking about scenarios in which you are trying to maintain monetary policy control for dual-mandate reasons, at the same time that you are trying to deal with the fact that there is dislocation in the reverse repo or the Treasury market, and thinking about how these various arrangements and also how these caps could actually work.

I think that President Evans was pushing arguments along this line. And I do think we should be thinking through those, and how we expect it would work, and to what extent we would need to have monetary policy decisions changing the interest rates in addition to the actual functioning of the facilities as set up. Obviously, the big question that has come up a number of times—President Kocherlakota brought it up at the previous meeting—is the credibility or the time-inconsistency of these caps. In war-gaming this, we have to be realistic and think about how we would really behave in these stress scenarios, rather than what we would declare. I think that this is something we should just continue to discuss and think about. Thank you very much.

CHAIR YELLEN. President Kocherlakota.

MR. KOCHERLAKOTA. Thanks, Madam Chair. I have a follow-up question for President Williams. Even in the fall of 2008, if we'd had this facility, couldn't the Committee have thought about setting that rate negative? There's still an issue of being able to adjust the spread even though you're going to be driving the level down.

MR. WILLIAMS. That's absolutely right, but again, I think that maybe the more interesting scenario is when you're actually—

MR. KOCHERLAKOTA. I wasn't disagreeing with that.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. If I may, Madam Chair, I'd first like to welcome two old friends to the Committee, Stan Fischer and Lael Brainard, and I suggest that we garnish Governor Fischer's substantial new wages to pay me back for all the times he used the treadmill at the Hotel Okura and charged it to my room over in the— [Laughter] And as to Governor Brainard, I had the pleasure of working with her—actually, under her tight control—for four years during the Clinton Administration. So I want to welcome both of you.

As I mentioned in the previous meeting, we are in the process of evolution. I went back to Roosa, Volcker, Sternlight, Fisher, and now you, Simon Potter—obviously this discussion has informed this evolution enormously. I found the previous meeting and this meeting, particularly the first parts of these meetings, to be enormously informative and very, very helpful, as well as the papers that were delivered, and I do want to give credit to everybody that prepared those papers and thank them for them. But I do think we need to proceed deliberately, and I'm going to answer the questions with that in mind, bearing in mind again, as I mentioned earlier, that unlike in the old days, we in essence are only one-quarter or maybe one-fifth of the credit system, and we have to be mindful of that fact as we process these different questions.

I was captivated by and am in full agreement with Governor Tarullo's statement and also, shockingly, increasingly over time thinking more and more like President Rosengren. But to start out with question 1, I do think we ought to use the IOER rate as the principal tool to affect interest rates. I have a concern about the ON RRP program. I want to talk about that in just a second, but I do think that basically the principal tool to affect interest rates is the IOER rate.

With regard to the ON RRP program, I was affected by the discussion we had today about using it as a circuit breaker. I think that makes eminent sense. I have concerns, however—and I hope the New York Desk will forgive me—I don't mean this critically, but when, for example, we looked at exhibit 4, item number 22, and you mentioned your option was to add more counterparties of the current types, there's a little bit of a "more the merrier" tune that comes through the memo that was written in terms of the review of the counterparty framework for overnight RRP operations, and I think we have to be careful here. I think there ought to be a clear and principled dividing line between those with access to that facility and those without. We could discuss what that dividing line should be. My concern, Madam Chair, is that—and maybe this is what Governor Tarullo was saying—I don't have a sense of final dimension here. And I'm worried, given the fact that there are so many possible counterparties, and given the fact that we're one-quarter or one-fifth of the credit system, that this could grow like Topsy and maybe grow slightly out of control. We can't be all things to all people, and we have to figure out what the strict limitations and definitions are. I'm not saying we should not have RRP operations, but I personally struggle with what the order of dimension will be.

I could make a case that, if we had a clear and principled dividing line, we would include depository institutions—our traditional Fed partners—the Federal Home Loan Banks, the housing GSEs, and government money market funds. I could make a case for excluding the prime money market funds. But I am a little bit worried that if we just keep adding more, we might create something that puts us in a place of being too much a part of the market, and I just wanted to voice that honestly and frankly to the Desk and to the rest of the folks at the table.

With regard to the issue of reinvestment of principal, I think President Rosengren makes a very good point. I view that as a signaling device, and as much as we want to define forward guidance with specificity, as much as we try to define an exit principle with great specificity, as President Rosengren pointed out, we've had two goes at it before. This is very much a matter of feel.

The term "war-gaming" has been used quite a bit in today's discussion. The old way to conduct a war is, you didn't shoot until you saw the whites of the eyes of your opponents. With modern technology and modern modeling and so on, that's been affected, but I mention that only because I would feel comfortable moving the base rate up once we see the whites of the eyes of a full recovery and meeting the dual mandate. There may be a utility in using the reinvestment tool as we feel more confident, but don't quite have the absolute level of confidence we would need to raise the base rate, depending on how the economy evolves, as President Rosengren said. I don't think it makes a huge difference in terms of affecting the size of the balance sheet, but it is a signaling device. I would be in favor of keeping open the option of tapering back our repurchases—I think, President Rosengren, you used the phrase "symmetric reduction"—in order to send a signal to the market that we're increasingly confident and it's a bridge to raising the base rate. Because the other thing I feel very strongly about, and I've discussed this with you offline, Madam Chair, is that when we decide to raise the base rate, I don't want to do things in a sudden, old-fashioned way. I'd like to do it by a quarter-point or maybe less than a quarter-point at a time. So those are my feelings on the reinvestment of principal.

As to the fourth point, I am in favor of continuing to publish something very much like the current funds rate, but maybe described as the overnight bank funding rate that would capture trades in the overnight Eurodollar market. We had a little discussion there, clarified and then confused by our great legal counsel, but I'm basically arguing the case that option 1 might be the easiest thing to do from the standpoint of the transactional commitments that exist in the marketplace. And I think one of the benefits of that would be that limiting to domestic institutions and U.S. offices of foreign institutions could blunt the political criticism we might receive if there was a sense that we were providing a facility that's unduly influenced by foreign borrowing costs.

Those are my overall views, Madam Chair, and I realize they're not all that specific, but we're still feeling our way through this, and we'll get more specific as we go through time. Thank you very much.

CHAIR YELLEN. Thank you.

VICE CHAIRMAN DUDLEY. Can I ask a clarifying question?

CHAIR YELLEN. Yes.

VICE CHAIRMAN DUDLEY. So does that mean you want to have two federal funds rates, the old one and the new one?

MR. FISHER. No. I'm just saying that we would broaden the definition as suggested under option 1.

MR. POTTER. Option 1 has us printing two rates, the fed funds classic and the overnight bank funding rate. There's a little bit of confusion about that.

MR. FISHER. Thank you for the clarification.

VICE CHAIRMAN DUDLEY. I just wanted to make sure I understood what option 1 was. Okay. Thank you.

CHAIR YELLEN. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. The discussion so far has been useful and illuminating. There are many complexities and subtleties, and when presented with a number of tradeoffs in which the choice isn't clear-cut, my approach is to pose some framing questions or tests as a way to sort through the options.

My tests are, first, the probability of achieving control over short-term rates; second, where feasible, some flexibility to allow tactical adaptation as we learn; and, third, simplicity and clarity of communications. When I go through the questions I will reorder them a little bit and bunch some together.

On the question of the emphasis on the federal funds rate or administered rates, first, I expect we're going to settle on using alternate rates for both monetary control and communications purposes, and I think it's worth trying to preserve in that construct the use of the fed funds rate. I favor beginning with a target range for the federal funds rate, since it is now familiar and probably more workable in the early stages. So I favor the second of the two options presented in the staff memo. I see it as giving us the best chance of exerting control over short-term rates. If we go this way, a first order of business will be to construct statements that are as clear as possible, given all the moving parts. I think the 3' verbiage in the illustrative time of liftoff statement would meet the test of clarity and simplicity.

Now I'll go to question 4, and that is the question about publishing an expanded fed funds rate definition. I'm open to an expanded federal funds rate, including an expansion that incorporates Eurodollar transactions, along with nonbrokered fed funds transactions. At the same time I think we should aim for the most durable definition possible of the target funds rate, and that leads me to thinking that we should include in our planning the scenario in which we return to a balance sheet of a size at which reserves are relatively scarce. So I don't know if including Eurodollar transactions presents any issue in such a scenario, and this is the kind of question I think we can sort out in coming deliberations.

On question 2, about circuit breakers—I thought the staff took a mostly neutral position in the presentation of options in the memos, but on this question I thought the staff went pretty far in pushing a cap on aggregate usage paired with a uniform-price auction mechanism. I think this is a sensible place to start. Although this is perhaps not a decisive consideration, this approach strikes me as simpler and less problematic to implement in terms of IT systems adjustments, as was pointed out in the memo. Some of my other duties in the System make me attentive to such a statement. I'd like to spend more time on this question of limits and circuit breakers leading up to the July decision point, and I hope we can ask follow-up questions of the staff during the period before the next meeting.

The third question, which I'll treat as the last one, is the reinvestment question—ceasing reinvestments or taking a graduated approach. Ending reinvestments simultaneously or coincident with liftoff is clearest and conveys greater conviction, but I'm open to doing it after liftoff because I think this buys some time to observe how the first phase of tightening goes. I think the reinvestment program can be ended or wound down based on tactical considerations after the transition represented by liftoff has been accomplished. This, I think, is an area in which tactical flexibility is feasible. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Plosser.

MR. PLOSSER. Thank you, Madam Chair. I, too, want to welcome our two new governors to our group. It's delightful to have you with us, and I'm looking forward to having you as colleagues. But I also want to welcome my former colleague sitting next to me, Loretta. I sat next to Sandy for nearly eight years, and Loretta was behind me and could only whisper and send me notes when I misbehaved. And now she is close enough that she actually can kick me in the shin. [Laughter] I don't know if that's going to be a good thing or not, but I am delighted to welcome her as our colleague. I've worked with her for many years, and I just want to say, "Congratulations and welcome."

I also want to start off by thanking the staff for all their helpful memos. I think they were most extraordinary in many ways, and I was both impressed and greatly informed by them. So I want to thank them for all that.

I don't want to upset Governor Tarullo, but I'm afraid—

MR. LACKER. Nobody wants to.

MR. PLOSSER. I'm afraid I'm going to have to agree with a lot of he said. [Laughter] Now, if that forces him to recant all that—I hope not, but I actually share a lot of his views, as you'll see in my remarks. But before I address the specific questions under consideration, I'd like to state some of my general views regarding the normalization of policy.

It appears to me that a lot of our discussion recently about our exit and normalization are overly concerned with the daily volatility in overnight rates. I'm a bit uncomfortable with the extent to which these concerns are driving our policy options. Historically, volatility in the funds rate has always been an operational feature of monetary policy, and I see no compelling reason why we can't continue to accept volatility or why we should expect that that volatility will impede our ability to carry out policy consistent with our broad macroeconomic mandate.

Also, I'm reluctant to move to conducting monetary policy operations with a large set of nonbank counterparties and to essentially sidestep the legal restriction on paying interest on reserves to anyone that is not a depository institution. I fear doing so could potentially have some unpleasant political ramifications.

I also want to restate my guiding principle that any near-term tactical decisions we make should leave open the option of returning to a corridor system of some kind based on the fed funds rate or perhaps a more broadly defined interbank rate sometime in the future, which is my preferred way of conducting policy. This means I probably would not support any communication or tactical steps that suggest we prefer or will rely on other instruments to administer monetary policy on a regular or routine basis. Special facilities, such as the TDF or the overnight reverse repo facility, should be viewed and communicated as temporary and shelved when not absolutely necessary.

With that in mind, in the interim as we shrink the balance sheet, I would rely primarily on the IOER administered rate, but then I would specify a range for the funds rate as we've been doing for the past five years. It's not new anymore. In doing that, I would be inclined and even comfortable if we expanded the range of that federal funds rate—maybe it doesn't need to be 20 or 25 basis points. Maybe it can be 40 basis points. We can have a broad range initially. And then we may indicate that we would use other tools at our disposal—intentionally vague there—in the short run to ensure that the federal funds rate or our expanded definition doesn't fall below that broad range. That would keep the ON RRP a smaller facility, at least in the near term. As we gain more experience, we will find out if that works, and whether we need to employ the ON RRP rate to keep the funds rate in its target range. As we raise rates, we might be able to shrink the funds rate target range as we get more comfortable with our ability to conduct monetary policy by having the IOER rate raise rates.

As I said, I would also be comfortable with expanding or extending the definition of the effective funds rate to include Eurodollar transactions. I'll note that, in exhibit 20 from the briefing we had this morning, if you look at the period between 2010 and 2014 when there was a lot of volatility, the Eurodollar rate and the fed funds rate moved around pretty close together. There doesn't seem to be a huge disconnect between these two markets, so I'm comfortable expanding the definition of the fed funds rate in that dimension.

I think proceeding along these lines will make it easy for us to return to our corridor system that targets the domestic interbank rate. I'd also note that as a governance matter, the FOMC and the Board of Governors would need to articulate a shared understanding of how the IOER rate would be set, and how that would be set relative to the funds rate range, until such a time as we can return to an explicit funds rate target.

So I prefer this option to targeting the ON RRP rate specifically. I believe that relying on the ON RRP rate is risky. We do not know the consequences for the microeconomic structure of short-term funding markets, or who's being helped or harmed by us crowding into this market in such a big way. We are already witnessing an increase in demand from many people who wish to be counterparties. Why is that? I don't suspect they're doing it out of patriotism. I suspect there's a financial reason why they'd like to do that. So there must be financial benefits to this, and we could be artificially creating or at least in some sense encouraging a huge demand for this product.

But who are we squeezing out, and what will the consequences of that be, both intended and unintended? And what does this have to do with operating monetary policy and achieving our macroeconomic goals? As I previously mentioned, I'm very uncomfortable with the fact that we are engaging, I think, in a backdoor practice of paying interest on reserves to nondepository institutions.

Governor Tarullo made a pretty articulate argument about the financial-stability risks and implications of this facility. We don't know a lot about how it will play out, but I don't think we ought to be designing our monetary policy instruments and operating procedures and using a monetary policy instrument for financial-stability reasons—I think we're conflating those two. Even today I heard people moving back and forth between the ON RRP facility as a tool for monetary policy and as a tool to meet liquidity needs in the case of a crisis. I think we should be very careful about that.

So with respect to question 2, as I said, I am opposed to a full-allotment program for reverse repos. If we choose to use reverse repos at all as a tactical tool during a transition to a smaller balance sheet, I prefer fewer counterparties and probably aggregate caps. The size of the cap should be an FOMC decision. Simplicity would be desirable, and thus, probably, I would start with an aggregate cap that's static rather than one that's dynamic. I think our communications are hard enough without explaining how we're going to dynamically adjust some kind of cap.

I do not like the fact that the overnight reverse repo facility seems to be making it convenient for some institutions to dress up their balance sheets at the end of the quarter. I don't see that as a macroeconomic goal or role for the Federal Reserve, but this facility seems to be providing great support for at least some institutions to do that. That gives me pause to think about whether or not a counterparty cap might be appropriate as well, and I'm open to thinking further about that. Again, simplicity, I think, is going to be valuable.

I would urge us to go in a different direction. I would urge us to play down the role of the ON RRP facility as much as we can. It is a transitional facility that we will use as the balance sheet shrinks, but not in an ongoing way.

Like President Rosengren, I think it is a bit awkward at best for us to be entertaining an operating system in which money market funds are the major transmitter of monetary policy, particularly given our concerns that we have expressed both within the Committee and more publicly about the financial-stability issues surrounding money market funds. That does suggest to me that shrinking the counterparties may be the right approach—and I'd be willing to think about this further—just considering government-only money market funds as counterparties if we choose to go in that direction.

Regarding question 3, I am in favor of terminating our reinvestments in a prompt manner after the taper has ended. As many people have mentioned, the process of reducing or tapering our purchases, once we told the markets what we were going to do, has come off pretty smoothly, and I would be inclined just to keep on going. We're tapering slowly. We can continue to taper and shrink the balance sheet, and I would be open to that—in fact, I even would encourage it.

I'd also like to see some more discussion concerning the desirability of changing the maturity structure of the balance sheet. We have a highly mismatched balance sheet subject to political risk, I think, as well as credit risk of various kinds. And as some people have argued, we are in the midst of a very large carry trade right now, and we're going to have to unwind that at some point, and there will be costs to bear when we do that. I'll have some more to say about this later, but one thing that we might consider as we think about reinvestment is maybe we ought to be shifting our reinvestments into short-term Treasuries that would allow us a little more flexibility on our balance sheet as we move forward in time. That might be a step to manage our balance sheet's maturity structure and exit.

Finally, let me reiterate that I'm supportive of extending the definition of the interbank rate that we target. The funds rate and the Eurodollar rate seem to move pretty closely together. And I would encourage the staff to do some more work and give us some more data on these rates that go back a little further in time. I think it may enhance our ability to conduct monetary policy in the future. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. And thanks to the staff for excellent analysis of complex financial products and financial engineering of some of these tools.

I agree with the staff's overview assessment of the Committee's consensus position from April. When it becomes appropriate to reduce monetary accommodation, the Committee expects to employ our IOER and overnight RRP tools with a relatively wide spread between them, so that federal funds rate can be expected to trade within an indicated range.

As long as our balance sheet remains larger than in our prior policy environment, circa 2007, using the overnight RRP tool to firm up short-term money rates is a useful approach. That said, I do not favor moving to a floor system for the longer term. And even if we did, I would not favor a permanent ON RRP program, for reasons that I will expand upon shortly.

So I think it is crucial that the language announcing our use of the ON RRP program and our exit strategy should emphasize the temporary duration of this policy tool. We should be explicit about the temporary nature of our use of ON RRPs during our policy normalization period. Otherwise, market participants will assume it is here for good and make costly market structure investments. At that point, we will almost surely accept that our credibility will require us to maintain the overnight RRP program indefinitely.

In order to avoid this eventual and unplanned fait accompli outcome, we need to be explicit, now and throughout the program's use, that this is a temporary facility. Let me be clear: I worry about the complexity of this market, and I would prefer not using it at all, if that were reasonable. Over the transition period, while we renormalize our policy settings, the overnight program can be an insurance policy that helps us to hit a target for the funds rate, and that is an important benefit. As long as we take prudent actions to minimize financial instability risks over this transition period, I can see some benefits to using the program temporarily. But over the longer term, I don't see the benefits, certainly not relative to the possibly large costs of increased financial instability.

If anyone thinks there is a big payoff to having a permanent overnight RRP program, now is the time to provide that important quantitative and persuasive analysis. Maybe I'm overly risk averse, and there are actually important benefits. But I think a compelling affirmative case still needs to be made for this program to be used permanently.

As the briefing memos discuss, there is a potential for the overnight RRP program to generate financial instability problems. For example, during a period of heightened risk aversion, a full-allotment program could lead to destabilizing withdrawals of funding from money funds and other lending institutions to avoid exposure to credit instruments with even modest credit risk. To address these risks, the memos discussed aggregate caps, individual caps, dynamic and flexible caps, and other circuit breakers. These discussions did an unusually good job of convincing me that this new financial instrument is much too complicated. We just don't know how it's going to interact with other short-term funding markets during times of stress.

For a temporary implementation of this program, I would favor an aggregate static cap for simplicity. Before we find ourselves endgamed with a permanent overnight RRP instrument for monetary policy, we simply need more analysis of how such an interest rate tool would affect our policy effectiveness during normal times under various stress scenarios—that is, during normal times when the funds rate is 4 percent or more, but we face a stress scenario.

Obviously, I am focusing a lot of my attention on the possibility that this program will be around 5 or 10 years from now. My misgivings mean that I have to know one heck of a lot more about the effectiveness of this new policy tool, its social value, and its use as a new financial product before I can imagine undertaking actions today that would likely lead to it becoming a permanent operational fixture.

In the absence of a strong and compelling case for a longer-term floor system, I favor only a temporary use of this program. At the time we invoke our normalization strategy, we should authorize its use either for one year or until a date in the future when we estimate our SOMA balance sheet will approximately return to normal, and no longer than that.

Now, let me turn to reinvestments. I prefer changing our strategy so that we continue reinvesting maturing proceeds until well after we begin our interest rate tightening. Given the long duration of our SOMA portfolio, I don't believe there is a material change in the degree of accommodation that is provided under the various timing possibilities for reinvestments. I think signaling our policy intentions is simpler and cleaner if we reduce the list of policy watch variables to just the interest rate liftoff decision itself.

Putting this all together for the sake of being clear about my preferred approach, here is how I could see the FOMC policy statement emerging. Key ingredients are found in paragraph 3 of the illustrative liftoff policy statement example in the planning memo. At the appropriate time, I would state that the Committee decided to increase its target funds rate to 0.25 percent. But due to large excess reserves during our extended policy normalization period, the effective funds rate may range from 15 to 40 basis points, perhaps. So this is like paragraph 3 but with a target federal funds rate and an expected trading range. Basically, we announce the target funds rate, and we admit upfront that during the normalization process trading may occur in the range around the target. Now, I have heard all the conversation so far, and it strikes me that a range is what is going to be the consensus for the funds rate. So that is okay. In this case, I am okay with using the existing language in paragraph 3 on the Committee authorizing the overnight RRP rate to be within a range of 15 to 25 basis points and setting the IOER rate to 40 basis points. However, I would hope that IOER alone could do most of the tightening work for us, and I would favor starting out with the overnight RRP rate at 15 basis points and not being that anxious to increase it if the funds rate trades a little below 25 basis points. Of course, if the funds rate was persistently far below 25 basis points, we could raise the overnight rate somewhat.

Let me add that I have not come to a firm view about whether we should target an expanded version of the funds rate that includes Eurodollars. I am open to arguments from the technical experts.

Finally, let me conclude by saying that I think it's obvious that engineering a smooth increase in short-term policy rates with our enormous balance sheet will be fraught with temporary obstacles and challenges. I think we need to be very explicit in accepting that at various times we will see markets both overreact and underreact to our policy-tightening moves. It's going to happen. Let's not compound the challenges of our task with an unrealistic expectation that policy adjustment will go 100 percent as we draw it up on the board. Let's deal with the known unknowns as best we can and react as prudently as possible when the unknown unknowns arise. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I generally support what the Chair referred to at the outset as the centrist approach for liftoff and for the early stages of normalization, of managing short-term rates with IOER pulling up from above and the ON RRP facility available to provide a floor and push up from below, if needed. Today, IOER is at 25 basis points, federal funds are trading around 10 basis points, and the ON RRP rate is set at 5 basis points. So this really just means moving the whole structure upward as the Committee tightens policy, and it ought to give the Committee a reasonable level of control over short-term rates. Of course, that remains to be seen.

It also seems likely—and I take it as a given for purposes of this discussion—that the Committee will support development of an improved measure for the federal funds rate based on the FR-2420 data and including Eurodollar transactions. And I assume—I had assumed, anyway—that if we go to the trouble of creating this rate, and then choose to target a federal funds rate, that is the one we would target. I would find it odd that we would do all the work to create this thing and put it out there and then not have the confidence to target it, but instead target the old one. I'm not sure how we would explain that. So that's going to be my assumption for this purpose.

I also have to say that I share the discomfort with the potential for the RRP facility to get very large very quickly. For me, the facility is just a tool to provide a floor for rates, and it need not be a perfect floor. Nothing more. As I said at the last meeting, I have been thinking that it could be small and tailored for that limited purpose.

Really, though, the question that has been raised is, is that possible? If you go back to what's discussed in the memo, a facility that is sized off a trailing one-week average of usage volume with a $300 billion cushion could grow enormously very quickly, obviously. And even if you lengthened the averaging period and lowered the surge capacity, it still could get very large, and the effect on industry structures would be unpredictable at best. I also don't know that there is any real answer to the fact that the caps would come under huge pressure in a crisis—I would characterize them as speed bumps, others have called them circuit breakers—and that the market will see that in advance and plan on it.

So I have those concerns, and from the standpoint of the counterparties, I would prefer to choose the first option, which is to say, let's wait to make decisions about counterparties until there is significantly more discussion on how we can create an ON RRP facility that will do what we need it to do, but not threaten to become something that we really don't want—that I don't want, let's say.

Within that general framework, with a role for IOER, for the federal funds rate, and for the ON RRP facility, there are some choices to be made, and the first is whether to target the improved federal funds rate as either a point or a range or, instead, to target short-term rates. The options are there in paragraphs 3, 3', and 3", and—no surprise—my desire would be to use the ON RRP facility only as needed, and that pushes me in the direction of 3'.

I would echo what President Evans was perhaps suggesting, though—that a point target with expected volatility around it kind of approaches a range in the limit. And also, in these formulations, in 3 and 3', the communication is around the federal funds rate, and the tools are there as supporting characters. In option 3", the communication is very different and is really focused on the administered rates, and the general level of short-term rates, including the federal funds rate, is kind of an afterthought. Let me say that I find it a plausible idea to target the general level of short-term rates including the federal funds rate, but I don't like the idea of featuring the administered rates as the primary actors in the play, if you will. And I would say that I do like the idea of thinking of IOER as the principal tool.

The second issue is whether to continue to publish the old federal funds rate alongside the new and improved version or to just publish the improved version and call it the federal funds rate, and take the old federal funds rate off the market, put it out to pasture—pick your metaphor—but have it out there in case we need it later. My preference is what I would call the one-rate solution, which is to publish the new rate and call it the federal funds rate. The work of the LIBOR reform effort covers some of these same issues, and maybe it can shed some light by analogy.

The LIBOR reform effort has included a Market Participants Group established by the Official Sector Steering Committee (OSSC) of the FSB and led by Darrell Duffie, a well-known academic, and it included financial market participants of all different varieties. Noting the current state of play in the federal funds market, the Market Participants Group said that "it would hesitate to recommend the federal funds rate as a reference rate without an improved fixing." And one critical test that the federal funds rate is at risk of not meeting the standards for a reference rate is that principle 7 of the IOSCO benchmark principles requires that a benchmark be anchored in real transactions in an active market. In addition, the LIBOR Market Participants Group recommended—and the OSSC agrees—that the definition of LIBOR should be broadened to include a wider range of transactions and counterparties, and that it be anchored in real transactions. And this is kind of a direct parallel to federal funds reform. Market participants did not prefer an option that kept the old LIBOR alive and created a new rate with these improved characteristics. Instead, they preferred a rate that is called LIBOR, but that is no longer limited to London or to interbank lending, and it's not an offered rate either [laughter] but, rather, is anchored in real transactions.

I don't say this is dispositive, but it suggests to me that market participants have concerns about the federal funds rate as a reliable benchmark and would probably like to see it reformed, which I believe would mean changing the definition of the federal funds rate, rather than creating a new rate and naming it something else. In addition, I don't really think it's less confusing or easier for market participants to have two rates out there. I don't know how you explain that. It's just a level of complexity that I don't think we need.

The other issue we talked about earlier is the contract frustration issue, which, as I mentioned, I don't see as a serious concern and shouldn't be the thing that pushes us around in this issue. So where that leaves me is, I favor one rate to be called the federal funds rate. It will include Eurodollars and the FR-2420 transactions.

Turning to the second question from the appendix, as I mentioned, I'm less sure that circuit breakers can be successful in limiting the size and effect of the facility over time. But, nonetheless, this is how I would make the tradeoffs. I'd like an aggregate cap with a single-price auction to allocate capacity if the cap is hit. I'd like that cap to be rigid. I think I'd like it to be static. I'd like X, which is to say the surge capacity, to be low—no more than $50 billion. And I would allow indulgences for quarter-end and other scheduled events like that. I don't think I would see those as reasons to trip the surge capacity. I would look more for changes in capacity.

Finally, moving to reinvestment, I've got several concerns about ceasing reinvestments soon after the taper ends. First, I think this could correctly be seen as the beginning of tightening, and there is a risk of a market reaction that might actually have the effect of pushing out the liftoff date. Now, I don't know that, but let me say that after the last two major decisions it is very hard for me to feel like I have a lot of confidence in predicting how the market would take this signal. If you look back to, for example, the June meeting last year, I think people pretty widely underestimated the market reaction. Then comes the actual taper at the end of the year, and I will say I overestimated what would happen. I think that taper was clearly well justified on the economics, but not at all expected by the market. But who thought that the stock market would close up 300 points? So, I would say, same lesson, different sign, in both cases. But in any case, there is the possibility of a market reaction that might push out the liftoff date.

Second, even if that doesn't happen, to me the highest priority when it is time to tighten policy is to get away from the effective lower bound. And so for any given amount of tightening, using both tools by definition means that we'll be raising rates less.

Third, I think that using both tools at the same time can be confusing.

And, finally, I am concerned that terminating our reinvestments in MBS, which amount to a substantial part of projected gross issuance, could well flow through into higher mortgage rates, albeit probably at a modest amount, and I just don't think that higher mortgage rates are what we need right now in the economy. For that reason, I am open to the idea of smoothing the taper. I also think that the idea of creating an agreed path for the taper is a good one. I don't know that I have a great answer on that one.

Finally, I would prefer to stop reinvestments well after liftoff, and I would avoid hard and complex triggers. One approach would be to state an intention to hold the balance sheet stable at least until the target rate is, for example, 1 percent, which feels like about the end of 2015 in that case. Or you could take a softer approach and defer to Committee judgment as to when is the appropriate time. But I do think it would be helpful to take it off the table for now, focus on raising rates and getting away from the zero lower bound, and return to it near the end of 2015. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. It's probably appropriate for me to begin with the issue of reinvestment. As I noted in a speech last month, I think there are some compelling reasons for ending reinvestments sometime after liftoff of short-term rates rather than before or coincident with liftoff.

In my mind, ending reinvestments later, after liftoff, serves four purposes. First, it lessens the risk of foreshortening the entire tightening process. If we were to end reinvestments before liftoff, then the end of reinvestments would be viewed as the beginning of the tightening process. That runs the risk of both raising long-term rates, especially to the extent that people emphasize flows rather than stocks, and also raising the expected trajectory of short-term rates because it would pull forward people's expectations in terms of the probability of liftoff, and the timing of liftoff would be pulled forward in time. Thus, I think ending reinvestments first could lead to a significant tightening of financial conditions that might be more than we desire or anticipate. That could disrupt the economic expansion, and that could actually delay the liftoff of short-term interest rates. Similarly, if we end reinvestment and commence liftoff together, the effect could be greater than we anticipate, and if it was greater than we desired, it might be awkward, if we're doing both together, to then reverse course. I also think separating the two decisions reduces the risk of an overly-large market response.

Second, because ending reinvestments first could conceivably delay liftoff in certain states of the world, it is inconsistent with our goal of getting off the zero lower bound as soon as possible in order to regain monetary policy flexibility. It seems to me that getting off the zero lower bound as soon as possible, consistent with our dual-mandate objectives, should be a goal of policy, as that would provide greater flexibility in terms of responding to future shocks.

Third, I think delaying the end of reinvestments also should simplify our communications as we lift off. There will be one moving part—short-term interest rates—rather than two. Also, if we're adjusting both short-term rates and the size of the balance sheet at the same time, I think it would be more difficult for us to assess what the particular effect is of each instrument.

And, fourth, ending reinvestments later also strikes me as a better risk-management strategy. Let's compare two scenarios: reinvestments end before liftoff versus the end of reinvestments is delayed until after liftoff. Now, assume that, in these two scenarios, the economy subsequently disappoints. In the first case, when we end reinvestments first, we might have to reverse course. In the second case, ending reinvestments later, disappointment about the outlook would cause expectations about the end of reinvestments to be pushed out. That would keep the balance sheet larger for longer, and that would act as an automatic stabilizer in terms of supporting economic activity, which I think would be desirable.

In terms of how to specify the end of reinvestments, my original thinking was maybe to specify a level of interest rates as a threshold or a trigger, but after talking to the Vice Chairman—not myself, but Stan—I concluded that retaining some flexibility was a better approach. So I would favor general language to the effect that reinvestment is expected to continue until short-term interest rates are raised significantly above zero and the FOMC is significantly closer to meeting its dual-mandate objectives. I'm not wedded to any particular language, but I think keeping it relatively vague so we have some flexibility makes more sense. So, Stan, you did convince me.

In terms of ending reinvestments all at once or more gradually, I think that depends on timing and circumstances. If you were to adjust reinvestment in 2015, you probably would end it outright because the amount of maturing agency MBS is pretty modest, about $20 billion per month. But if the end of reinvestment doesn't occur until 2016, then you're talking about a much bigger end, and so in that case you might want to taper it because you're not really sure what such a large end might mean. I also think the particular circumstances of the economy at the time would be very important. So I don't think we have to really foreshadow exactly how we would do it at this point in time.

The second issue I want to focus on is the federal funds rate. Here I have a strong preference for revamping how we calculate the effective funds rate, adding the overnight Eurodollar borrowing as part of the calculation, and I want to substitute this new methodology for the current effective federal funds rate rather than having a new rate and an old rate. I favor moving to a single improved rate.

As Governor Powell has pointed out, moving to a single improved rate helps us considerably with the federal funds rate as a reference rate. If we make the switch, then we have a rate that's more robust that trillions of dollars of derivatives contracts reference. If we keep the old rate and have a new rate, we still have this problem that we have all of these derivative contracts referencing this old, infirm rate. I think we found with LIBOR that there's a tremendous amount of inertia. Everyone knows LIBOR is a troubled reference rate, yet people are still using LIBOR in all of their derivatives contracts. So I would prefer to avoid the problem of forcing the transition to the new reference rate by just actually giving people an improved reference rate, and then it happens simultaneously and we're done with that problem.

I view the benefits of forcing the switch as large, relative to the risks of contract frustration. My reading is that the contract frustration risks are very low because most contracts simply say the effective federal funds rate is what the Federal Reserve says the effective federal funds rate is. And, second, in terms of the substance, the new rate will be very close. Over the past four years, it averages less than 1 basis point difference from the old federal funds rate. So both in terms of the legal reading but also in terms of the difference in the two rates, it seems like just moving to the new rate makes the most sense.

With respect to the issue that changing to the new rate will make it hard down the road to move back to the old definition of the federal funds rate—I heard people express that as a concern once our balance sheet normalizes—I think this exaggerates the degree of difficulty of going back to the old federal funds rate sometime in the future. If the federal funds rate market deepens again as our balance sheet normalizes, I think it wouldn't be that hard to move back to the old definition and just explain that we're now moving back to the old definition because the funds market is much deeper now. It's a much better reference rate. It's much less idiosyncratic. And so we're moving back for those reasons. I don't think that constrains us very much.

The third issue I want to discuss is the issue of our target. My own view is that we should be targeting the general level of money market rates rather than the federal funds rate. The federal funds rate has gotten pretty idiosyncratic. I'm with Governor Fischer on this—why are we holding onto this thing as a vestige of times past when what we really care about in terms of setting monetary policy is setting the general level of money market rates to actually influence financial market conditions? So I would prefer to emphasize the general level of money market rates—and we could keep the federal funds rate around, you know, we don't have to throw it out, but I would emphasize general money market rates. I think I'd prefer that over actually emphasizing the IOER rate or the overnight RRP rate, because those are administered rates.

One thing I do want to avoid, though, is having the Desk try to pin the federal funds rate to a particular level and moving the overnight RRP and IOER rates around on a day-to-day basis. I don't really see the benefit, in terms of affecting financial conditions, of small movements of these administered rates just to try to pin the federal funds rate to a particular rate. I think that what we really have to emphasize here is the control of financial market conditions, and so the simplest regime that generates good control of financial market conditions is what I'm for. So that means a range for general money market rates, and as long as the rates stay within that range, then I wouldn't see that you'd need to adjust the administered rates except when you're trying to implement a policy change.

The fourth issue is with respect to caps on the overnight RRP facility. I think the staff made it very clear there are lots of ways to do it. My emphasis would be on having caps that do not bind in peacetime, or noncrisis periods, but bind in wartime—crisis periods when we want to limit the inflow into the overnight RRP facility, to limit the upward spikes in riskier money market rates. I want a regime that's well designed for the most common case, peacetime, rather than overengineered in a way that creates unnecessary frictions in peacetime just to be slightly better in wartime situations that might never occur.

I think we're overemphasizing, a little bit, the risk of this future financial crisis, and I don't want to design a very complex mechanism that only is relevant on one day out of 1,000 days. It just seems sort of backward. In my mind, an ideal regime would have no caps in peacetime, except for a high overall limit that you would never expect to reach, and then in wartime a system of caps that was automatically triggered by market conditions when stress conditions developed.

In other words, what I'd prefer to have is an arrangement in which the caps automatically get triggered by a spread in interest rates. So if the spread between risky rates and risk-free rates widens, the caps automatically come into place. Now, I know the staff hasn't proposed this. It's probably too complicated to be easily realized. You'd always have the risk that you might not be sure that the caps would be forthcoming in all circumstances. I would encourage the staff to consider whether a regime like this was feasible, but I'm going to confine my remaining comments to the construct as outlined in the staff memo.

I would generally be pretty indifferent between individual caps and aggregate caps. It seems like the staff nailed the distinction. Individual caps have the benefit of certainty for the investor. The aggregate caps have the value that you get the pooling advantage, and so they're more efficient in that sense. I get the sense from reading the staff's report that they lean in the direction of aggregate caps. I certainly get a sense around the table that we as a collective group lean in favor of aggregate caps. So I'm perfectly happy to go with the sense of the Committee and go with an aggregate cap.

Finally, I have just a few thoughts on the whole issue of the overnight RRP facility, which has gotten a lot of comments today. I think the consensus around the table, as I hear it, is that we want to use the overnight RRP facility to establish a floor on rates to enhance our credibility in terms of monetary policy control, but we want to keep it pretty small in terms of its footprint in the market. And so that implies that we're going to have to keep the spread relatively wide to limit take-up. My view is that a spread of 20 or even 30 basis points would probably be effective in terms of setting a floor and maintaining monetary policy control. I think if we did that we could be pretty comfortable that we weren't going to get a facility that was large in some sense. I don't view, in the context of the U.S. financial system, a facility that is $200 billion or $300 billion as large. I don't know what the total amount of financial assets outstanding in the United States is, but it's probably $60 trillion. So if you had a facility that was $200 billion, I think that would be not large but pretty trivial in the context of the U.S. economy.

Also, I think we should make no commitment to making it permanent, but I would prefer not to make a commitment to making it temporary, either. I would just keep it open. I think we're going to learn by having this facility in place, and maybe it will work better, in more miraculous ways, than we anticipate, or maybe it will work worse, and I don't think anything we say today is really going to bind future Committees. And so I think I'd keep it open and not lean one way or the other in terms of what's going to happen over the longer term. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. Like others, I found the discussion from April and again today to be very helpful, and I remain open to considering this mix of tools as we go through normalization. I am very comfortable with how the Chair has described a centrist approach in thinking about this.

I do think, though, that we'll need to be clearer about our intentions regarding the ultimate size of the balance sheet. When I look at the draft that the staff included of possible revised policy normalization principles, the phrase that indicates we will hold no more securities than necessary to implement monetary policy efficiently and effectively is in brackets, which suggests it's an issue that we're going to need to discuss. My own view remains generally consistent with the 2011 principles that we affirmed just last year, which say that we intend to eventually hold no more securities than needed and reduce reserves to the smallest levels consistent with the efficient implementation of policy.

One aspect of the normalization discussion and this use of overnight RRPs that makes me uncomfortable, as others have noted, is the substantially larger footprint we could have outside of the banking system, and I would align myself with Governor Tarullo's views and counsel in this regard. Transacting directly with nonbank counterparties raises concerns about where we would draw the line, and while money market funds seem a natural boundary today, I could see over time that this pressure around fairness could grow and cause us to consider insurance companies, nonfinancial corporations, and pension funds as direct counterparties. So, although as a practical matter the footprint may need to expand in the near term, I think steps to reduce the size of our balance sheet should remain a central tenet of our normalization strategy.

To address the specific questions, in terms of the federal funds rate, returning the balance sheet to its pre-crisis levels relative to GDP with a small amount of excess reserves calls, I think, for maintaining a role for the federal funds rate throughout the normalization process. At the same time, control of overnight rates will require, at least for a time, the use of an ON RRP facility.

In terms of communications, I think continued reference to the federal funds rate is appropriate even though it may not serve as the primary tool during the early stages following liftoff. As a practical matter, the ON RRP rate will need to serve that purpose given the size of our balance sheet and the use of IOER, but I would prefer to take an approach that maintains a wide spread in relation to the IOER rate.

I also support the development of an expanded federal funds rate, though I would prefer that we move cautiously before adopting it as any kind of formal target of policy.

Regarding circuit breakers, I am comfortable with aggregate caps, with a market-based pricing mechanism designed to become activated when the cap is reached. However, again, I think a smaller balance sheet will naturally take us in this direction, and so, for that reason, I think we should remain focused on steps to reduce that balance sheet.

And, finally, regarding reinvestment policy, it seems to me that the economy has not disappointed relative to our expectations last June when we reaffirmed the plan to cease reinvestments prior to liftoff. If you remember, last June, the midpoint of our SEPs projected headline PCE inflation to be 1 percent in 2013 and the unemployment rate to be 7¼ percent. Of course, unemployment fell more quickly, and inflation was above these projections, and given subsequent improvement in the unemployment rate and increased inflation, I don't see a compelling reason to deviate from the plan of ceasing reinvestments prior to liftoff. However, given that the primary dealer survey shows market expectations have shifted, we might consider redirecting maturing Treasury and MBS securities into shorter-dated Treasury securities. That would allow us to maintain an elevated level of the balance sheet, but also provide for a more rapid runoff after liftoff.

CHAIR YELLEN. Could I just ask a question? Did you say that last June we had reiterated something about ceasing reinvestments?

MS. GEORGE. We affirmed the broad principles around our 2011—

CHAIR YELLEN. But not the specifics around that. We said—

MR. POTTER. That's right. The tactics—in the press conference, it was clear that they were sort of suspended.

MS. GEORGE. And without distinguishing which were principles and which were tactics, the sequencing I saw as being the broad outlines of the principles that we had laid out in that exit strategy of 2011.

VICE CHAIRMAN DUDLEY. The Chairman, though, explicitly said something about agency MBS being—

CHAIR YELLEN. I believe the Chairman said we would not sell MBS, and I think he said eventually we would have a smaller balance sheet, but that other aspects of it were up for reconsideration.

VICE CHAIRMAN DUDLEY. Right. If I remember correctly, Chairman Bernanke was very explicit that the sense of the Committee was not to sell the agency MBS.

CHAIR YELLEN. Absolutely.

MS. GEORGE. But he didn't take off the table that we would stop reinvestments.

MR. LACKER. He didn't disavow anything else in that statement.

VICE CHAIRMAN DUDLEY. You're correct.

[Simultaneous conversation]

CHAIR YELLEN. He didn't avow it. He said we need to reconsider many aspects of the exit principles. They were essentially no longer—

VICE CHAIRMAN DUDLEY. The way market participants read it is that these principles were sort of in suspension.

CHAIR YELLEN. Yes.

MS. GEORGE. Well, I believe we used the word "affirm" around broad principles in our statement, noting that many of the details might be reconsidered.

MR. POTTER. But it depends what a "detail" is, I guess.

CHAIR YELLEN. Okay. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. I appreciate the opportunity of joining this august group. Of course, as the Chair noted, I have attended quite a few of these meetings during my career, but up to now that was as a policy adviser, not as a policymaker. As if there were any doubt, preparing for this meeting underscored the fact that while the physical distance from my former chair behind President Plosser to my current seat beside him is only a couple of feet, the real distance is far greater. So I'm looking forward to contributing what I can to the discussions and formulation of monetary policy, to learning from all of you, and to working with you in my new role.

To that end, I want to add my thanks to the staff for the very helpful memos this time and last time on normalization. It was a heroic task to find the common ground in the discussion at the previous meeting, but you did it. And I found the memos helped both me and my staff focus on the open issues.

Now, in thinking through the issues, it became clear to me that the communications surrounding the choices we make about normalization are going to be nearly as important, if not equally important, as the economics behind the choices. In many cases, there is going to be a tradeoff. The more complex methods of conducting policy might afford tighter control of interest rates, but they are going to be considerably more difficult to explain to the public, which in my view mitigates the benefits of more complicated methods.

It also seems clear that there is going to have to be learning by doing. Although we have been testing our tools, which is prudent, the testing is, by necessity, small and in an environment in which we haven't been raising interest rates. There are going to be surprises along the way. I am confident we will be able to raise interest rates with our tools, but precisely how much control of interest rates our tools provide, or how much we want to achieve as we begin raising rates, is unknowable until we are doing it. So I think we need to be guided by experience as we implement the transition back to more-normal policymaking.

These considerations make me think it's better to start with simpler methods, and then, as we gain more experience and we find those methods aren't working quite the way we'd like, we can add complexity. As a contingency, I think we need to be prepared to use the full range of our tools, including term deposits and asset sales as needed.

Turning to the questions, on question 1, my preference is that we communicate the stance of policy in terms of a range for the federal funds rate, or an expanded measure of it, rather than by administered rates. Communicating in terms of market rates rather than administered rates makes clear that it's the effect of monetary policy on market interest rates and the transmission of those to the economy that's important. While we can trivially hit an IOER rate target, since we set the IOER rate, this doesn't solve the problem of what IOER target will produce the effect on the economy that we are seeking.

Another reason I favor communication based on a target funds rate range is that it will provide continuity as we transition from the period of normalization into a longer-run framework in which policy is formulated in terms of a fed funds rate target or similar market rate. Such a framework is my preference at this point. That said, I realize there are measurement challenges with the federal funds rate as currently formulated. With little trading in the market, the rate can be idiosyncratic and could be decoupled from other market rates. So I'm open to thinking about an expanded version that would take into account a broader set of trades like Eurodollar transactions. But if we go in that direction, I think it's going to be important for us to explain carefully why we are doing it, and to explain this earlier rather than later, along the suggested time frame in the memo. We certainly need to do it before liftoff to avoid the appearance that we are redefining the target just because we failed to hit it, which would undermine our credibility.

I prefer setting a range for the funds rate target at this point and communicating that we will be using IOER and ON RRP as the tools to support achieving that target range. We can add term deposits or asset sales if we find we need more control over market rates. I note that we are currently formulating policy using a target range rather than a point target. The public has accepted it. And the economic benefit of hitting a point target would seem to be swamped by the potential credibility issues posed if we consistently missed the point target, and by the complexity or size of operations that might be needed to hit the point target. So I don't see any advantage at this point of moving back from a range to a point target, especially at the early stage of normalization. We can always narrow the range as normalization proceeds and the balance sheet is reduced to a size that gives us more control over the rate.

On question 2, regarding the overnight RRP program, I do have some concerns about the full-allotment facility. Even aside from the financial-stability concerns during times of financial stress, during normal times a full-allotment facility would decrease the potential for a revival of the funds market over the longer run. And I think it will be very difficult to turn back once we go to a large-scale facility. In addition, such a facility implies a sizable expansion of implementation of policy through nonbank counterparties, including money market mutual funds, whose accounting rules we have criticized. So my preference would be to limit the size of the program and avoid committing at this point to a permanent ON RRP facility.

I would also favor imposing aggregate caps that would be binding more often than not, even in normal times, but particularly as we start the normalization process. Such a binding limit on the size during normal times could have an additional benefit during times of financial stress—namely, having seen binding size limits during normal times, market participants may view any circuit breakers we choose to impose to limit inflows during times of financial stress as being more credible. And then they might make contingency plans for binding caps and rely less on the RRPs.

On question 3, given the estimated effects, it probably doesn't make that much difference economically whether reinvestments are simply stopped or gradually reduced once a decision is announced. Regarding timing relative to the first rate increase, the exit-strategy principles of June 2011 indicated the Committee would likely first stop buying assets, then stop reinvesting, and then begin raising interest rates. And I guess there is a certain salience to that given that the size of the balance sheet is related to the degree of accommodation. But that timing presents a communications challenge. I think it would be hard to announce an end to reinvestments without bringing forward market expectations of liftoff. The cessation of reinvestments would essentially be the first tightening move, if it came before liftoff. And since my preference would be to use interest rates as our main policy tool, I would prefer to end reinvestments either at the time of the first increase in short-term interest rates or, if the other participants preferred, after the first rate increase.

On question 4, as I indicated earlier, I'm open to thinking about an expanded version of the funds rate. But if we do redefine it, it's going to be important to explain why we are doing it and to do it well before liftoff. Coming into the meeting, I didn't have strong feelings about whether to rename the expanded rate the funds rate or to publish two rates, but I found Governor Powell's and Vice Chairman Dudley's discussion persuasive that it may be better just to publish one rate. I would prefer that we base the expanded rate on the FR-2420 data when those data become available to avoid the perception that we are targeting borrowing costs associated with foreign entities or money market mutual funds.

Let me end with a final thought. Clear communications are an essential ingredient in a smooth transition process. Our communications need to be as clear as possible about what methods we plan to use and why. They also need to convey the idea that, as we gain experience through the normalization process, we are going to make adjustments to the mix of our tools as needed in order to achieve our mandated goals. As I said, the communications issues are not trivial.

To help, I think we might consider asking the staff to issue a working paper that lays out some of the normalization considerations. This could be similar to the working-paper primer the Board staff issued early last year about projections for the Federal Reserve's balance sheet and income. As a Reserve Bank staffer, I found it helpful to refer people to this paper when they had questions. Of course, such a working paper would not replace any official communications by the Committee and the Chair, but it might be a useful way to convey the idea that we are aware there are different approaches and several considerations when selecting an approach to normalization, and that adjustments could very well be necessary as we proceed. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lacker.

MR. LACKER. Thank you, Madam Chair. First, a couple of general remarks. After listening carefully to the rich discussion at our previous meeting and digesting a rich array of memos for this meeting, I remain unconvinced that we are going to need an overnight RRP program to ensure market rates rise when we raise the interest rate on excess reserves and the funds rate target.

We rely on some obvious arbitrage relationships for the vast majority of the links in the chain of economic relationships that make up the monetary policy transmission mechanism. And I don't see any reason why arbitrage isn't going to work to keep the RP rate aligned with interbank rates like the IOER rate and the fed funds rate, and the staff hasn't really explained a theory about why that wouldn't happen, at least to my knowledge.

Moreover, I think routine use at a scale like what we've seen runs the risk of inducing significant restructuring of money markets, a concern many have alluded to here. I think flows into the ON RRP facility are going to be potentially unpredictable both in normal times and in times of stress, as Governor Tarullo has emphasized. I don't think we are close to understanding them. I'd point to one question that remains open. The staff, particularly in New York, documented shifts in funding in the sense of cash lending that seemed to be a response to our program. What is happening on the collateral financing side remains a mystery, and there doesn't seem to have been much staff work into where the collateral that might otherwise have been financed by the money market funds that are lending to us now is being financed or held.

Accordingly, I would prefer to use an overnight RRP facility only as a temporary contingency program. In my view, we should start raising rates the usual way. We should raise the interest rate on excess reserves by 15 or 25 basis points—so, take it to 40 or 50 basis points. We should raise the upper end of the range of the target federal funds rate accordingly to either 40 or 50 basis points. We should leave the overnight RRP rate at 5 or maybe 10 basis points—maybe increase it 5 basis points. And when we did that, we would say that we may increase the ON RRP rate at future meetings. We'd leave ourselves open with that option. We would just leave that on the table. Now, we will learn in short order whether the obvious arbitrage relationship is effective or not. If it is, we can keep the overnight RRP rate at a deep backstop of 50, maybe 75 basis points below the IOER rate. And the concerns everyone has about an excessively large program will be answered. It will be a relatively small backstop, just in case it's necessary.

So what if that doesn't happen? What if the RP rate doesn't rise—that's the possibility to think about. Well, at the next meeting, we raise the overnight RRP rate to 20 basis points below the IOER rate. For our macroeconomic objectives, our mandate objectives, the delay is going to be inconsequential. I don't think one meeting, in terms of the liftoff date, is going to matter much one way or another. The big risk is what I'd call the egg-on-the-face risk. I don't think Bill English used this term, but this is the idea that we announce we are tightening conditions, and some market conditions don't tighten. Well, I don't think D-Day is the right way to approach this first increase. If we held it in suspense, made it a big surprise, and then attacked financial markets with overwhelming force—I don't think that's the way to do it. [Laughter] Instead, we could do something a little more modest. We could just say we are making an adjustment in preparation for a plan to raise interest rates and adjust financial conditions. We could do it without saying, "This is the big day, everybody." When I was a kid, we'd get the TV and we'd watch John Glenn lift off and everything—T would get to zero, and the rocket would light up, but it would just stay there for 5 or 10 seconds before it started moving up. [Laughter]. I think we'll get the rocket up.

If we do this, I think we'll learn pretty quickly whether we need a big-scale program, a medium-scale program, or what. And given everyone's discomfort around here with a big program, I think we'd want to do the learning sooner rather than later. Let's get our learning done right at the beginning, and it's just going to take one move and we'll figure it out. So that's just a general comment.

Let me grind my way through the questions here. On the question about how we communicate, given the configuration toward which I think we are going to head—IOER and a target federal funds rate that is anchored at the top by the IOER rate of, say, 25 basis points—there is an equivalence between describing things in terms of IOER and describing things in terms of the funds rate. We can even describe it in terms of the discount rate, for that matter.

But I think the logical thing, given the governance reality that the Committee controls the funds rate target, is that we continue to describe policy in terms of the funds rate or some suitably defined interest rate and let the IOER rate be set by the Board in a related action. That formulation has worked very well for the discount rate, and I think we should continue doing that.

On the question about a point versus a range, unless the range gets much smaller, I think we should stick with a range. Later on, when reserves get smaller, we can shift to a point. I'd be against stating a target in terms of general money market rates. And I'd just remind you of a bit of history: We started targeting the funds rate because of controversy surrounding the accountability of the System Open Market Account manager and disputes about whether they were faithfully executing the charge we had given them.

VICE CHAIRMAN DUDLEY. I trust the System Open Market Account manager. [Laughter]

MR. LACKER. With all due respect—There's an important element of what are we asking them to do, how do we know they're doing what we have asked them to do, and so on, so I think it is important to keep a specific range that we can monitor.

On the question about circuit breakers, I don't think circuit breakers on a fixed rate, full-allotment overnight RRP program are capable of addressing the financial-stability issues that some have raised in this context. If investors want to flee a particular counterparty, or a particular class of counterparties, depriving them of the option of Federal Reserve Bank overnight RRP investments is hardly going to stop them. They have short-term Treasury securities. They have money market funds. They've got bank deposits. And that is just in the United States. Indeed, most of the bank runs in 2008 were from one bank to another or from one counterparty to another in the same asset class. So I just don't think this is worth troubling ourselves about.

Now, on the other hand, I do think we should limit the size of the program, if we're going down that road, and so I think we should impose an explicit quantitative limit on the size of the program, if only because of the finite size of our balance sheet. I mean, if we go to full allotment, it would raise questions, what do we do if we get everybody showing up, and running an auction like that described under option 2? In our earlier discussion, we had a really interesting exchange about interest rates. Stopping out at the cap and then having an auction that drives interest rates down—this would be a mechanism to reduce the rate of return on ON RRPs in order to discourage people from shifting into them. The obvious question is, why don't we just reduce interest rates if we don't want investors fleeing the assets they're in? That's what we usually do in a crisis anyway. So I'm not sure that's germane here.

On the question about reinvestment, I'm in President George's camp of viewing elements of the exit strategy that we articulated in 2011 that have not been specifically refuted as standing as implicit commitments of ours. We indicated that we'd begin normalization by ending reinvestments and only later raising interest rates. I think the macroeconomic implications of whether we start running off our portfolio several months before or several months after we start raising rates are likely to be negligible. And I think that the staff's analysis supported the idea that this is not terribly consequential. But I do think it would erode our credibility to fail to follow through on the guidance we provided several years ago. Forward guidance is really central to how we conduct policy these days. I would think that at the margin we would always be reluctant to renege on past statements. I think, as a general principle, there ought to be something at stake. And to me, the macroeconomic difference doesn't seem to be worth it. It just seems like there is little to gain there.

On the question about an expanded federal funds rate, I came in having been left with the impression by some staff memo—I can't remember which one—that there were enough legal differences between federal funds and Eurodollars to make it important to establish a new rate, but Governor Powell and Vice Chairman Dudley seemed persuasive about those issues, so I could easily be persuaded that we go with a single new rate.

I have two final thoughts. The staff has spent an enormous amount of time and effort on these memos, and I greatly appreciate all the time and energy they have devoted to this. We have spent a great deal of time on this as well.

VICE CHAIRMAN DUDLEY. Not as much as they have.

MR. LACKER. First, there's a sense in which the memos have been focused on a narrow perspective. The issues we're talking about—should the central bank offer moneylike liabilities to counterparties outside the banking industry—this goes back a couple of centuries to the debates about the banking school and the currency school, 100 percent reserves, narrow banking, and the like, and there is a broader debate here and a broader set of economic issues about how central banks should be structured that we haven't really touched on.

Second—and this is my last thought—I'm sure there are market participants who are dying to know about the operational mechanics of our exit. But the closer I get to September, the more I think that the operational mechanics are not what most Americans want to know about our exit strategy. I think they are interested in when it's going to happen. I think they will believe us when we say it depends. But I think they are going to want to know what it depends on—is it the level of resource utilization? Is it the rate of change of resource utilization, or consumption, or output, or the like? How does inflation figure in? Does inflation have to get high first, or are we going to nip incipient pressures in the bud?

I worry that the time we are spending on the mechanics of our exit are detracting from useful work that we could and perhaps should be devoting to the macroeconomics of our exit. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. I'd like to start by echoing your welcome to Governor Fischer, Governor Brainard, and President Mester. As you said, Madam Chair, I look forward to working with all of you and learning from you. One thing I have already learned is that the name "Fisher" is surprisingly popular among central bankers. Look at our Committee. Look at the Monetary Policy Committee of the Bank of England. I'm tempted to say that "Fisher" is to central banking as "Williams" is to NBA basketball, but perhaps that stretches it too far. [Laughter]

In my remarks I am going to have three themes. The first is that we haven't seen much analysis concerning the dual-mandate benefits of the overnight RRP facility. And my own assessment, in the absence of that analysis, is that the dual-mandate benefits of the facility are likely to be small. In contrast, as some around the table have already alluded to, I think that there are very likely to be big effects on the industrial organization of short-term funding markets. It's hard to predict what those effects will be, but I think it is safe to say that they might well be large. Those two considerations together give rise to a sense of uneasiness for me about this decision being taken by this Committee—whether or not this decision is rightly seen as being one that is in the purview of the FOMC. I'm not talking in a legal sense, but more in the sense of appropriateness.

Let me turn to my dual-mandate point first. This will echo some of the remarks that President Lacker made last time. In the absence of the overnight RRP facility, there will of course be gaps between short-term market interest rates and the interest rate being paid on excess reserves. As President Lacker emphasized in our previous meeting and mentioned again today, the forces of arbitrage are going to serve to keep those gaps finite and well defined.

Some admittedly simple calculations by the Federal Reserve Bank of Minneapolis staff support President Lacker's point. Those calculations suggest that a bank borrowing federal funds and investing in reserves could earn a risk-free return of more than 7 percent if that spread between the IOER rate and the fed funds rate reached 40 basis points. This is taking into account things like the bank leverage ratio and the FDIC assessment fee. It's worth emphasizing that the calculations suggest that the arbitrage would be even more effective if the System were to exempt bank reserves from the 4 percent floor imposed on bank leverage.

I talked about a 40 basis point spread being consistent with a risk-free rate of return of 7 percent. Using the overnight RRP facility actively could close this gap further. But this is really a question about the benefits, I think. How much would our standard measures of quadratic loss, in terms of deviations from our inflation and employment goals, rise if there were a gap of 40, 50, or 60 basis points from the IOER rate and other short-term funding rates, as opposed to the gap of, say, 20 basis points that Governor Tarullo mentioned? I will repeat this, just to try to be as clear as I can be: If we just used IOER and did not have the overnight RRP facility, I would anticipate gaps that could be as large as 40, 50, or 60 basis points emerging between the IOER rate and other short-term funding rates. How would that magnitude of gaps affect the quadratic loss in terms of our macroeconomic objectives relative to a smaller gap of, say, 20 basis points?

As far as I know, we haven't seen any specific staff work on this point. My own assessment, in the absence of that work, is that the increase in quadratic loss would be de minimis. And this again goes back to a point that President Lacker made at our previous meeting. Making monetary policy is not about hitting a particular target for some short-term interest rate. Making monetary policy is about influencing the public's beliefs about the evolution of financial conditions over the next few years. And I believe that we can just as effectively communicate this information through changes in a single administered rate like the IOER rate as opposed to changes in the target, or target range, for a market short-term interest rate—or as opposed to changes in multiple administered rates. And this belief is supported through the experience of other central banks that use different operating procedures.

So that is on the benefit side. What about on the cost side? I think it's very hard for us to know the ultimate effect of this facility on the industrial organization of short-term funding markets. And we can say we'll start small, but I think there will be a lot of demands on the outside from other counterparties that want to have access. I think the fairness criterion that the Desk has suggested using is going to force us to expand this. It's really hard for us to predict how the structure of money market funds will change and what that change will mean for the funding of other financial institutions. We could use the best modeling and analysis available between now and September, but I think even with that, the answer to this question is going to be highly uncertain.

So we've got limited dual-mandate benefits, and then big-time effects on financial markets. My last comment, then, along these lines concerns the role of the Congress and the public in making decisions about this facility. The way we operate is, we deliberate in secret without much in the way of direct oversight or input from the public. And I think that form of decisionmaking is well designed and appropriately designed to prevent political considerations from influencing the course of monetary policy. Should we be using that same closed-door process to reshape the structure of the financial industry in possibly very fundamental ways—especially in the absence of being able to point to very convincing and compelling dual-mandate benefits?

The Congress originally granted us the power to pay interest on reserves to depository institutions after deliberating for at least three years—probably those of you who know the history can say it was much longer than that, but I'll say for at least three years. Should the Congress not have a say in whether we can essentially pay interest on reserves to other financial entities? At a minimum, it would seem to me that representatives of the public should be able to provide public input on the potential effect of this potentially far-reaching decision.

So those are my general comments. I see the dual-mandate benefits of this facility as small in the absence of a more detailed analysis, and I see these costs on the industry structure side as being such that it is sort of outside the purview of our usual kinds of decisionmaking in this closed-door forum.

Let me turn to a couple of the questions. I thought that Governor Fischer's line of comments about the fed funds rate were very apt. And to quote a Ninth District resident, "There is no need to go back to making monetary policy like it's 1999." [Laughter] That's a quote from Prince, for those of you who are not tracking the Ninth District closely. You know, we were all much younger in 1999. Everything was a lot better in 1999. But that doesn't mean we have to make monetary policy that way.

To get serious about this, I think we can communicate effectively about the evolution of financial conditions through a single administered rate, the rate of interest on excess reserves.

Governor Tarullo raised a great way of thinking about this. I think we should just be monitoring short-term interest rates. They are just one more indicator among a host of other indicators we can keep track of and we can be responsive to. If we thought short-term interest rates were too low, for some reason, relative to what we're trying to achieve, we could raise the rate of interest on excess reserves. Actually, Governor Stein raised this way of thinking about things with respect to long-term interest rates. This is just extending his thinking to short-term interest rates.

The other point I wanted to comment on has to do with reinvestment. I thought there was a great conversation about this. I was drawn to Vice Chairman Dudley's language, which was more flexible, for the exit-strategy principles. If you wanted a set of principles to enunciate in September, I thought Vice Chairman Dudley was right—we should be flexible in that. When it actually comes to the time of trying to communicate something more specific about the likely path of the balance sheet, I liked Governor Powell's language, which actually might also have been Vice Chairman Dudley's at some other point. But in any event, I thought it was a very nice idea that the change in our reinvestments will begin when the fed funds rate gets to 1 percent. After that, I think that we should have a deterministic path for the balance sheet, under which it evolves slowly over time. So that would mean smoothing out paydowns due to reinvestments and Treasury fluctuations. We think of the balance sheet as exerting force in terms of our policy, so it makes sense for us to be thinking about a deterministic path for the balance sheet, and then using the IOER rate as our main policy tool.

Thank you, Madam Chair. I have been relatively lengthy in my remarks, but I will not commit, as Governor Tarullo did, to making my future remarks short.

CHAIR YELLEN. Thank you for that. Governor Fischer.

MR. FISCHER. Thanks very much, Madam Chair. We all benefited from the excellent staff work and preparation of papers. I benefited even more than most of you, because I was force fed [laughter] this diet of papers, and it was very, very helpful. I almost understand some of the issues now.

I was required to read the transcript of last time's discussion, and it was impressive, actually. It was very serious. It was even interesting. [Laughter] And I thought it was at a high level. I thought the staff uncharacteristically made a mistake in this list of five possibilities, because when there are three you know which one to go for. This time you had to choose between three in the middle, options 2, 3, and 4. It couldn't possibly be 1 or 5. So we got to options 2 and 3, and options 2 and 3 barely differ. In option 2, the policy rate is a market or administered rate. I think it should say "or rates." And in option 3, the federal funds rate is how you describe the policy. I'm not sure that it's a policy rate, but we'll come to that in a minute.

Now, as I first heard about this, I thought what we had was a corridor system in which the IOER rate was the top of the corridor and the ON RRP rate was the bottom of the corridor. But, if so, it's a very complex one, because in most corridor systems the upper rate is the borrowing rate from the central bank and the lower rate is the deposit rate at the central bank. And here the upper rate is the deposit rate— [Laughter] This almost sounds like the difference between Britain and the United States—up is down and down is up, and things like that, on most issues.

But the difference arises primarily from the fact that the U.S. banks are not currently active in the federal funds market. At least that's how I understand this issue. And that really brings us to an issue that bothers a lot of people, including me, and that issue—it was put too strongly as, is it our job to enable nonbanks to indirectly receive interest payments from the Fed? And while President Kocherlakota raised very valid issues, I think the answer is, it would be preferable if that didn't happen and we didn't have to go to the Congress for a discussion on this issue, which would probably end up with us getting a triple mandate or something else. You don't go to the Congress lightly, in any case. It does seem to me really problematic that we would be spreading seigniorage much more widely than we want to, and we need to think about that.

Before I answer the questions, I just want to raise three issues. First of all, how confident are we that we can run this system smoothly and successfully? Who was on the other side—this is a question for Simon and the people on the Desk—who was on the other side of the reverse repos all the time? Was it American money market funds? Was it European banks, as I was originally told? Who was it, and how robust is the behavior of this system?

Second, a related question: A lot of people have been in favor of the IOER-only system—don't bother with the ON RRP program, and just hope that the federal funds rate would trade close to the IOER rate. I think that might happen when there are very few reserves in the system, but it probably wouldn't happen right now. But it would be interesting if we could have from the staff their view on whether there is any prospect of such a system succeeding. If so, it would deal with a lot of problems that some people have with using the federal funds rate.

The third issue—and this is one that bothers me more generally, but it applies also in this context—is that I am much less fond of trying to fix a deterministic path for what we are going to do two or three years down the road. I don't think we know. We can say what we think today we are going to do two or three years down the road. But if I look back at the 2011 exit-strategy principles, they are all about the federal funds rate. Well, now we are considering whether to make that the way we do monetary policy. And if we watch what happened to the British with their forward guidance, which didn't hold up, I don't see that they have suffered a huge loss in credibility as of now, but that may have to do with the fact that the person who changed it wasn't the person who said it. And it may be more complicated for us. So I would prefer to retain some more flexibility, and I'll come to that in a moment.

Let me try to answer these questions. The first one is, during normalization, do you want to communicate the stance of policy primarily by targeting the federal funds rate or by emphasizing administered rates? Well, I would like to do it by targeting the federal funds rate. As Bill English said, that system seemed to work fairly well. But it doesn't seem to be something we could do right now. We would have to go to at least the IOER rate and, I think, the overnight reverse repo rate.

By the way, I have a suggestion that President Lockhart would like. ON-blank-RRP is a very long name for something. I think if you wrote "ONRRP," without a blank, you would save paper [laughter] and you'd save ink. I'm not volunteering to join your committee, but may I propose that as a possibility?

If we continue to target the federal funds rate—well, that's one possibility—should it be a point target or a target range? From what I understand now, if we made it a point target, we'd miss it significantly. If we wouldn't, then I don't know why we're not doing it now and why we don't just go with that. Everything I've read suggests we would have trouble hitting it, so I think a target range would be preferable.

If we communicate the stance of policy using the overnight RRP and IOER rates, we should, I think, refer to the federal funds rate for the reason that the public knows about it. It has the attraction that as we get to a much smaller size of the balance sheet, we could probably run this system operating via the banks, and we'd solve the issue of spreading the seigniorage around too widely.

In terms of the circuit breakers, you don't want those to be so tough that you can't act as lender of last resort in a crisis. And we're all thinking that everybody wants to pour their money into the United States. It has happened that everybody wanted to get their money out of here sometimes. And we have really got to think about keeping those caps flexible because they are caps on what we can do with our portfolio. I think we need to retain that flexibility, and that would certainly involve interest rate movements, and we'd have to be ready to move interest rates.

Should there be limits on the size of the overnight program? Yes, because if we got close to the size of the portfolio, we'd be well into an area in which we would be operating with no knowledge of how the system would work, and we really need a constraint on allowing ourselves to get anywhere close to that point.

On the reinvestment of principal, when I wrote this the other day, I said, "By the way, what is the circumstance under which we would run off the size of the portfolio before raising the short rate?" Having listened to the discussion, I think we shouldn't, and that we should raise the rate first and then start thinking about the size of the portfolio.

I don't know that we should try to fix a date for that. I think we need to retain flexibility, both on the composition of the portfolio and on the timing of beginning to run it off. And on the composition, somebody already mentioned the real estate problem. Real estate is much weaker now than we thought it would be, and I expect it is going to straighten out. If it doesn't straighten out, I don't think we want to be selling off MBS at the time that we have decided we should be beginning to reduce the size of the portfolio.

A final thought—if the Fed constructs this index of the federal funds rate and the Eurodollar rate, then we have really got ourselves into a case in which we're targeting a rate which we don't have a heck of a lot of influence over, and we're relying on the market keeping them together. Sometimes those arbitrages work, and then sometimes some strange thing happens and they break. So I think we should say we target a measure like that, but I would prefer to actually publish the federal funds rate. I think the Eurodollar rate is pretty far from us. It looks like it has been tight for quite a while, but it doesn't feel to me, given all the things that influence Eurodollars, that we can rely on that. Thanks, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Well, first of all, Madam Chair, it is delightful to be here, and I look forward to working with all of you. I want to compliment the staff on their analysis, which I found very informative. Unfortunately, I wasn't able to have exposure to this very excellent analysis until yesterday [laughter], and in light of that, and of the very consequential nature of the questions on the table, I am going to reserve my comments until the next meeting.

I'll tip my hand a little bit, particularly in response to President Kocherlakota's comments, and just say I would put a priority on demonstrating credibly to the markets that the Fed is going to be able to exercise effective control over financial conditions in the very unprecedented circumstances in which we find ourselves. But I will reserve comment on the more detailed questions about exactly what that means until next time.

CHAIR YELLEN. Thank you. Okay. We've come to the conclusion of our discussion on normalization, and I suggest we take a very short break. Since it's my job to crack the whip, why don't I say 10 minutes—after having given you an incredibly generous lunch break. [Laughter]

[Coffee break]

CHAIR YELLEN. Thanks to everybody for an excellent discussion. I think we did succeed in further narrowing the range of possibilities here, and we will try to come back to you with something that we think maybe represents where we might go in a consensus set of exit principles that we can discuss at our next meeting. Let me also make clear that the Board meeting has now concluded, so we're in an FOMC meeting. And let me turn the floor over to Jeremy Rudd for the presentation on the economic situation.

MR. RUDD.[3] Thank you. Our exhibits are in the packet titled "Material for Staff Presentation on the Economic and Financial Situation."

Your first exhibit gives an overview of near-term domestic economic developments. As shown by the leftmost blue bar in panel 1, we have cut our estimate of first-quarter real PCE growth by nearly 1 percentage point relative to the forecast that we delivered to you in last Wednesday's Tealbook. The downward revision is concentrated in spending on medical services, which the BEA had expected to jump as a result of the Affordable Care Act. In the event, the first-quarter source data that became available last week actually implied a decline in medical spending, though we still expect an increase to occur sometime this year. We expect that real PCE will accelerate over the remainder of this year, partly reflecting the anticipated step-up in medical services outlays and partly based on our read of available spending indicators—such as motor vehicle sales—and fundamentals such as wealth and income.

The incoming data on housing activity, including today's report for May, have continued to be soft. In particular, single-family housing starts—the red line in panel 2—have changed little, on net, over the past year or so. The same is true for housing permits (the black line), which provide a better gauge of the underlying trend of construction activity than starts. With little evidence that the housing sector has resumed its upward trajectory following last year's sharp rise in mortgage rates, we have made noticeable downward revisions to our projection of real residential investment growth over the remainder of the near term.

Turning to the business sector, panel 3 plots the latest data on orders and shipments of nondefense capital goods. The three-month moving averages of new orders (the red line) and shipments (the black line) have come in above our expectations; with orders running ahead of shipments, we continue to expect that growth in real spending on equipment and intangibles will rebound in the second quarter from its disappointing first-quarter pace.

Panel 4 presents the recent data on manufacturing output, including the May reading that was released yesterday. As shown in the inset box, factory output posted a solid gain in May following swings in earlier months that we attribute to the effects

[3] The materials used by Mr. Rudd and Ms. Wilson are appended to this transcript (appendix 3).

of unusually severe winter weather. Smoothing through some of this monthly volatility, the chart plots the three-month moving average of manufacturing IP. As you can see, the average pace of recent gains has been about the same as what we have seen over the past few years; assuming a similar rate of increase in June, manufacturing output is on track to rise at an annual rate of 5¾ percent in the second quarter.

Panel 5 summarizes our near-term outlook. After folding in the retail sales, services, and government spending data that we received after the June Tealbook closed, we project that real GDP—line 1—will rise 4¼ percent at an annual rate in the current quarter following a 2 percent decline in the first quarter. Part of the rationale for this projected second-quarter rebound is that the first-quarter drop in GDP was led by unexpectedly steep declines in inventory investment and exports—two spending categories that carry little information for the future level of GDP. In addition, as Jeremy Nalewaik discussed in his pre-FOMC briefing yesterday, other indicators of real activity give us reason to question the first-quarter output estimate.

As another way of assessing the implications of the incoming data, the solid line in panel 6 shows forecasts for near-term real GDP growth derived from our suite of factor models. Starting from the published first-quarter figure, the model projections imply a sizable rebound in growth, with an average pace in the second and third quarters that is not markedly different from the staff forecast (the dashed line).

Your next exhibit summarizes the medium-term outlook. I will focus here on comparisons between the June Tealbook and our forecast from last December, both because December was the date of the last chart show and because the past six months have seen us significantly rethink our supply-side assumptions. As reflected in panel 1, relative to December, we have lowered 2014 and 2015 GDP growth by ½ percentage point and have lowered 2016 growth by ¼ percentage point. The factors contributing to these revisions are listed in panel 2; specifically, upward revisions to wealth and some momentum from stronger-than-expected output growth last year have added a little to projected GDP growth, while a higher exchange value of the dollar has reduced projected growth.

However, the largest cumulative revision to the medium-term outlook comes from the last item on the list—namely, the sizable reduction we have made to projected potential output growth since December. As you know, these revisions to potential reflect changes that we have made to our supply-side assumptions that allow us to better explain the joint behavior of the unemployment rate and actual output through the lens of Okun's law. Over the forecast period, we typically pass the bulk of any potential output revision through to aggregate demand on the grounds that it will affect households' permanent income growth and firms' expected sales growth. In quantitative terms, therefore, the downward revisions that we have made to projected potential GDP growth from 2014 to 2016—which are summarized in panel 3—explain the lion's share of the reduction in our forecast for actual GDP over this period.

Turning to some of the components of spending, our current expected contour for real PCE growth—shown by the gray bars in panel 4—has been revised a little lower in 2015 and 2016 in response to the downward revisions to potential. Similarly, we now have a flatter contour of business investment growth—panel 5—and largely for the same reason.

We have made a more noticeable downward revision to our outlook for residential investment relative to December (panel 6). We still believe that the projected continued improvement in the broader economy implies that the longer-term fundamentals for the housing sector are sound. However, the puzzling weakness we have seen in housing construction in recent quarters has led us to significantly delay our anticipated recovery in residential investment.

As we discussed in the Tealbook, this round we made some small but important changes to our longer-term outlook; specifically, we reduced both longer-run potential output growth and the long-run equilibrium real federal funds rate by ¼ percentage point relative to our previous assumptions. These changes had little net influence on the medium-term output forecast, as the boost from lower real long-maturity yields was basically offset by the effect of lower real growth prospects.

Your third exhibit gives an overview of the labor market. The two employment reports that we received over the intermeeting period suggest that conditions in the labor market have been improving at a slightly faster pace than we anticipated in April. As shown in panel 1, total nonfarm payroll growth (the solid line) averaged 235,000 jobs per month over the three months ending in May, 30,000 more than we had expected. The unemployment rate—shown in the inset box—came in at 6.3 percent in both April and May, ¼ percentage point below our April Tealbook forecast.

The black line in panel 2 gives our medium-term outlook for the unemployment rate, while the red line gives our December Tealbook projection. Relative to December, the expected path of the unemployment rate is ½ percentage point lower, on average, over the 2014 to 2016 period; as we have made only small revisions to our estimate of the natural rate—the green line—over this period, the downward revision to our unemployment rate forecast mostly yields a narrower projected unemployment gap. Indeed, by the end of 2016, the unemployment rate is expected to be slightly below our estimate of the natural rate.

As of May, the unemployment rate stood about 1 percentage point above our estimate of its natural rate. While we generally view the unemployment gap as the best single indicator of labor market slack, we also examine a number of other indicators to try to assess the overall degree of labor underutilization in the economy. For example, as panel 3 shows, the labor force participation rate remains noticeably below our estimate of its trend; moreover, there has been little net progress in closing the gap between actual and trend participation since the first half of last year. Panel 4 combines the information in the unemployment and participation rate gaps by comparing the employment-to-population ratio with the staff's estimate of its trend, which is in turn derived from our estimates of the natural rate and trend participation. On this basis, the employment-to-population ratio is currently about 1¼ percentage points below its trend.

Another measure of underutilization—the share of those employed who are working part time for economic reasons—is plotted by the black line in panel 5. This series has retraced less than half of its run-up over the last recession and, as a comparison with the blue line shows, remains above the level that is implied by its historical relationship with the unemployment gap. Finally, panel 6 plots three measures of wage inflation, which we would expect to increase in a tight labor market. After declining during the recession, wage inflation appears thus far to have stayed relatively subdued.

Taken as a whole, we see these and other pieces of evidence as suggesting that a significant margin of slack remains in the labor market.

Your final exhibit discusses the outlook for price inflation. As shown in the table in panel 1, the data we had in hand for the June Tealbook point to second-quarter PCE inflation that is a little higher than we expected in April. This morning we received the CPI for May, which again surprised us to the upside, with larger-than-expected increases in the food, energy, and core components. For food, we believe that the supply disruptions that have recently boosted consumer food prices are likely to be temporary. For core inflation, much of the surprise has been in categories from which we take little signal for future inflation. Incorporating today's CPI release, the May PPI data we received last Friday, and recent oil price developments, we now project total PCE inflation of 2.3 percent in the current quarter and 1.9 percent next quarter; our updated forecast for core PCE inflation is 1.9 percent in the second quarter and 1.6 percent in the third quarter.

Median longer-term inflation expectations from the preliminary June Michigan survey (the black line in panel 2) remain within the range seen over the past several years, while 10-year expectations from the second-quarter SPF (the blue line) were flat at 2 percent for a sixth consecutive quarter.

Turning to the medium-term inflation outlook, since the December Tealbook, we have made essentially no change to our forecast for total PCE inflation (panel 3) or core inflation (panel 4) in the outyears of the projection despite a narrower projected margin of slack. This is because we have also slightly revised down our estimate of the level of PCE inflation that would obtain in the absence of economic slack and other shocks and if the current level of longer-run inflation expectations were maintained. Specifically, for the June projection, we decided to lower our judgmental estimate of this level, which we have dubbed "underlying inflation," from 1.9 percent to 1¾ percent. Some of the empirical evidence that informed this decision—which was reviewed at greater length in a memorandum by Deb Lindner that was sent to the Committee earlier this month—is summarized in panel 5. As can be seen from the first column of figures, point estimates of underlying core PCE inflation from the reduced-form Phillips curves that the staff uses in the judgmental forecast (lines 1 and 2) and stochastic trends from various other time-series models (lines 3 through 5) currently run from 1.3 to 1.8 percent. As the second column of figures indicates, these point estimates are not tied down with much precision. Nevertheless, we felt that a small reduction in our judgmental estimate of underlying inflation would result in a more balanced inflation forecast. As shown in panel 6, which decomposes the determinants of our medium-term core inflation contour, because we assume that longer-run inflation expectations will remain unchanged over the medium term, we expect core inflation to move up toward this underlying pace—the blue bars—as the contribution of slack—the red bars—and other influences gradually diminishes. After the medium term, we project that, in order to bring inflation back to its 2 percent longer-run objective, you will need to push the unemployment rate below its natural rate for several years, thereby inducing longer-run inflation expectations to edge higher.

Beth Anne will now continue our presentation.

MS. WILSON. Not to diminish the excitement of this moment, but, as presented in the top lines in exhibit 5, the contour of our forecast for total foreign growth is almost completely unchanged from the April Tealbook. After a relatively robust performance in the second half of last year, GDP growth turned sharply south, barely surpassing 2 percent in the first quarter. As panel 2 shows, this decline was concentrated in the emerging market economies (EMEs).

We continue to view the first-quarter drop as a pothole rather than a slippery slope and now have some evidence to back that up. As seen in the black line of panel 3, after falling precipitously in the first quarter, EME exports bounced back in April, led by China and in line with a pickup in U.S. imports. Another source of first-quarter weakness was the high-tech sector, and recent indicators, including high-tech export orders for Taiwan (the green line), also point to recovery.

In China, supportive macroeconomic policies as well as trade seem to be lifting growth this quarter, as evidenced by a turnaround in industrial production (panel 4). We have Chinese growth (line 3 of the table) climbing further in the second half and moderating thereafter. Our baseline assumes that Chinese authorities are able to suppress financial excesses while maintaining growth near 7 percent. But this path is far from certain. Over the past few years, as the economy has decelerated, we have wrestled with where the new normal is for China, and the weak first-quarter figure may indicate a slower underlying pace of growth than we’ve assumed. In addition, we are carefully watching the property sector, in which a sharp deceleration in house prices (panel 5) and a falloff in sales (not shown) may presage a sustained downturn in housing investment or, worse, significant financial stress.

Latin America continues to disappoint. In Mexico (line 5 of the table), any nascent benefits of the government’s well-intentioned long-term structural reforms have been overshadowed by near-term tax hikes and a collapse in construction. We assume the Mexican malaise began to lift this quarter. Indeed, consumer confidence (the red line in panel 6) has snapped back, and a surprise interest rate cut by the Bank of Mexico last week should provide support. In contrast, in Brazil, it's still more stumble than samba. Years of overregulation, underinvestment, and inefficient government spending have left the country in desperate need of structural and fiscal reform. Consumer confidence (the orange line in panel 6) plunges on, and inflation (not shown) remains stubbornly high. We have penciled in a modest pickup (line 6 of the table), but Brazil will need to play a beautiful game in many arenas to avoid further disappointment.

Finally, as we pass the first anniversary of the "taper tantrum," it bears noting that financial conditions (panel 7) have improved for most EMEs since the turn of the year, with credit spreads falling, capital inflows returning, and currencies (not shown) strengthening. This is positive for EME growth, but we can't always count on investors' reach for yield overcoming their fear of vulnerabilities. Bouts of renewed financial stress down the road, perhaps as advanced economies normalize monetary policy, would not be surprising.

I would add that besides emerging market stresses, another risk to the outlook is the deepening conflict in Iraq. Although oil prices are up only $3 per barrel since last week, they could go much higher if the conflict is not contained.

Turning to exhibit 6 and the outlook for the advanced foreign economies (AFEs), we have aggregate growth (line 1) holding at a steady and above-potential pace of 2¼ percent. The path looks unexciting, but it may require some pretty bold monetary policies in Japan and the euro area to achieve. In Japan, central bank holdings (shown in panel 2) now amount to 50 percent of GDP and are expected to rise to nearly 75 percent by the end of 2015. As seen in line 2 of the table, smoothing through the wiggles caused by tax hikes this year and next, we expect this monetary support to help sustain Japanese growth at near 1 percent.

Accommodative monetary policy is also the talk of the euro area. As Lorie discussed, the ECB took a number of steps this month to bolster recovery. These moves were motivated by conditions that still look shaky. In particular, first-quarter GDP growth (line 3 of the table) was below 1 percent, and, as panel 3 illustrates, a number of countries posted negative growth. Moreover, bank lending (shown in panel 4) has yet to perk up. While the unemployment rate for Germany (the blue line in panel 5) has reached historic lows, unemployment rates elsewhere remain supremely and stubbornly elevated. Divergent unemployment rates have not resulted in divergent inflation rates (shown in panel 6). Inflation for Germany has been falling alongside that of the other countries, not only contributing to overall euro-area disinflation, but also limiting the ability of the peripheral economies to gain competitiveness. Accordingly, we forecast only a gradual firming in output and a rise in inflation to 1½ percent by the end of 2016—a forecast that has been revised up just a touch on the latest ECB announcements.

As shown in panel 1 of exhibit 7, we expect policy rates in both Japan and the euro area to remain near zero throughout the forecast period, whereas policy normalization is expected to start in the United Kingdom and Canada over the next year or so. Even for the United Kingdom and Canada, we expect that policy rates at the end of 2016 will be well below pre-crisis levels, despite the expectation that inflation (shown in panel 2) will be near target and output gaps (panel 3) closed.

Over the next two and a half years, we still see a number of headwinds to AFE growth that depress equilibrium interest rates and help motivate relatively accommodative monetary policy. First, as seen in panel 4, in most AFEs, fiscal policy will continue to hinder growth. Second, there remains some need for further post-crisis financial healing. In particular, corporate spreads (panel 5) are still elevated, as are household debt levels (panel 6). Finally, for most AFEs, investment (panel 7) plunged in the wake of the financial crisis and, as measured relative to pre-crisis peaks, continues to be depressed.

Moreover, as discussed in your next exhibit and earlier by Lorie, markets appear to be betting that, after these headwinds fade, very low interest rates will persist. Since January, 10-year yields (panel 1) have declined across the advanced economies, driven by expectations of lower rates in the longer run—shown by the 1-year forward rates 9 years ahead in panel 2. As outlined in the bullets in panel 3, against the backdrop of rising concerns over "secular stagnation," market participants and policymakers have speculated that the fall in long-term rates may reflect, among many factors, a reassessment of long-run potential growth in these economies and, consequently, a decline in the equilibrium interest rate that prevails in the long run.

As was raised in the Tealbook box "Changes to the Longer-Run Outlook in the United States," we see U.S. potential growth (the red line in panel 4) averaging 2 percent over the next decade or so, down from 3 percent between 1997 and 2005. The staff estimates that this decline in potential growth will, all else being equal, engender a decline in the value of the real equilibrium interest rate compared with pre-crisis levels.

However, as also raised in the Tealbook box, two international factors mitigate the size of the downward revision to rates. First, in an open economy setting, equilibrium interest rates in the United States may be affected not just by domestic potential output growth, but also by equilibrium interest rates and potential growth in the rest of the world. In contrast to the United States, total foreign potential growth (the black line in panel 4) is projected to be higher in the coming decade than in pre-crisis years, a factor that could support foreign and U.S. interest rates in the period ahead. Interestingly, this shift up in growth occurs despite the fact that, over the next decade, potential growth in the AFEs (the blue line in panel 5) remains below its pre-crisis pace and EME potential growth is expected to steadily decline. Offsetting these declines, however, as seen in panel 6, is the fact that the share of world GDP represented by the EMEs is rising over time, increasing the weight of these faster-growing economies in total foreign potential growth.

The second factor mitigating a decline in the U.S. equilibrium interest rate is discussed in the bullets of your last exhibit. Before the global financial crisis, especially in the mid-2000s, countries with large current account surpluses (panel 2) were exporting their savings to advanced economies, particularly the United States, which ran current account deficits. These flows from the "savings glut countries"—China, Japan, other emerging Asian economies, and the oil exporters—put downward pressure on U.S. interest rates. For the period ahead, we anticipate that the negative pressure on U.S. interest rates from these economies will ease from its peak immediately prior to the global financial crisis. For starters, our projection of declining oil prices (shown in panel 3) implies that the current account surpluses of the oil exporters are likely to narrow. In addition, we anticipate that the Asian economies will rebalance some toward domestic demand, leading to an appreciation of their exchange rates (as indicated by the projected fall in the dollar against the EME currencies, the green line in panel 4) and a diminution of their current account surpluses.

An alternative simulation in the Tealbook explores the implications for U.S. output and policy rates should EMEs promote greater rebalancing away from export-led growth. In particular, in this scenario EME growth is assumed to be 2 percentage points higher than baseline in the next two years, driven by stronger domestic demand and with the authorities allowing their currencies to rise in response. The higher growth and more appreciated currencies of the EMEs reduce the U.S. net export deficit as a share of GDP (panel 5) and boost U.S. GDP (not shown). This leads to a federal funds rate path (the red line in panel 6) that rises more rapidly after liftoff and remains more elevated even after U.S. GDP has returned to baseline, as higher net exports are offset by lower U.S. domestic demand. These results, although illustrative, do suggest that actions by the emerging market economies to achieve stronger and more balanced growth would raise U.S. output and interest rates.

MS. WEI.[4] I will be referring to the packet labeled "Material for Briefing on the Summary of Economic Projections."

Exhibit 1 shows the broad trajectories of your forecasts for key economic variables under the assumption of appropriate monetary policy. The top panel shows a modest slowdown in real GDP growth this year followed by a notable pickup in 2015. Subsequently, in 2016, real GDP growth begins to move back toward its longer-run rate. Your projections for the unemployment rate, shown in the second panel, decline gradually over the forecast period and, by the fourth quarter of 2016, reach levels that most of you view as broadly in line with your individual judgments of the longer-run normal rate of unemployment. The bottom two panels show inflation gradually rising over the next few years, although almost all of you see it remaining at or below the Committee's 2 percent objective throughout the period.

Exhibit 2 compares your current projections with those in the March Summary of Economic Projections and the March Tealbook. As shown in the top panel, you revised down your forecasts for real GDP growth in 2014 but left forecasts for the remainder of the projection period largely unchanged. The downward revision to GDP growth in 2014 is the result of your incorporating the unexpectedly weak first

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

quarter that was viewed as likely to be transitory. Indeed, all of you continue to anticipate that real GDP will increase at a rate of 3 percent or better in the second half of this year. As shown in the second panel, nearly all of you made a modest downward revision to your projected path for the unemployment rate this year and next, noting the greater-than-expected decline in the unemployment rate in recent months. Moving to the bottom two panels, a number of you marked up a bit your total PCE inflation forecasts for 2014, but the central tendencies over the projection period are similar to those in March. The Tealbook forecast for economic growth is slightly above the upper end of your central tendencies for 2014 and 2016, but at or slightly below the lower end of your central tendencies for 2015 and in the longer run. The Tealbook projections for the unemployment rate and for inflation are at or slightly below the lower end of your central tendencies throughout the projection period.

Exhibit 3 provides an overview of your assessments of the appropriate path for the target federal funds rate. As shown in the top panel, most of you continue to think that it will be appropriate to begin raising the federal funds rate in 2015. The middle panel of the exhibit provides your current assessments of the appropriate level of the target federal funds rate at the end of each year of the forecast period and over the longer run. Although your expectations about the year in which it will be appropriate for the federal funds rate to leave the effective lower bound are little changed, a few of you marked up your target funds rates over the projection period, while a couple marked them down: The median funds rate projection now stands at 1.13 percent in 2015 and 2.50 percent in 2016, compared with 1 percent and 2.25 percent, respectively, in your March projections. The mean projections also rose, albeit by less, from 1.11 percent to 1.18 percent in 2015 and from 2.42 percent to 2.53 percent in 2016. The distribution of projections for the funds rate at the end of 2016 widened out a bit, with the range now from 0.5 to 4.25 percent.

A substantial majority of you judged that the appropriate level of the federal funds rate at the end of 2016 will still be at least 100 basis points below your assessment of its longer-run normal level. For some of you, the low level of the federal funds rate at that time was associated with an assessment that inflation would remain well below your 2 percent objective at the end of 2016. In contrast, another five of you saw the funds rate at the end of 2016 as still significantly below despite your forecasts that the unemployment rate would be within 0.2 percentage point of your projections for its long-run normal level and that inflation would be at or above 1.8 percent at that time. These participants cited a combination of a lower equilibrium real rate, continuing headwinds from the financial crisis and recession, and a desire to raise the federal funds rate at a gradual pace after liftoff as explanations for the still-low level of the projected federal funds rate at the end of 2016. A couple of you also mentioned measures of labor market slack that may take longer to return to their normal levels than the unemployment rate. Compared with March, six projections now show lower values for the longer-run federal funds rate, with a lower potential growth rate cited as the contributing factor for half of those revisions. As a result, the median longer-run rate shifted down to 3.75 percent from 4 percent in March.

With regard to securities purchases, most of you indicated that your assessment of appropriate policy was in line with the assumption in the Tealbook baseline forecast, which has purchases continuing to slow in measured steps and concluding before the end of this year. Two of you thought it appropriate to reduce the pace of purchases more rapidly and end the purchase program somewhat sooner than assumed in the Tealbook.

Exhibit 4 depicts the economic conditions that you anticipate at the end of the year in which you judge that it will be appropriate to raise the federal funds rate above its effective lower bound. Because liftoff likely won't occur at year-end, the chart shown is only illustrative of the market conditions around the time of liftoff. Your projections for the unemployment rate at the end of the year of liftoff range from about 5 to 5¾ percent, with a median near 5½ percent, while your inflation projections are clustered between 1½ and 2 percent, with a median of about 1¾ percent. For the 12 participants who view it as appropriate to first raise the target for the federal funds rate in 2015 (shown by the white diamonds), all project that the unemployment rate at the end of the year will be below 6 percent, and all but 1 judge that inflation will be at or below the Committee's longer-run objective of 2 percent.

The final exhibit reviews your assessments of the uncertainty and risks surrounding your economic projections. As shown in the figures to the left, most of you judge the current level of uncertainty about real GDP growth, unemployment, and inflation to be broadly similar to the average level of the past 20 years. As shown in the top two panels in the column on the right, as in March, most of you judge the risks to real GDP growth and unemployment to be broadly balanced, but four of you now see the risks to real GDP growth as weighted to the downside, two more than in March. As shown in the bottom two panels in the right-hand column, the majority of you continue to see the risks to inflation as balanced. Those of you who saw risks to growth or inflation as weighted to the downside noted concerns about the limited ability of monetary policy at the zero lower bound to respond to negative shocks to the economy as well as external economic and geopolitical risks.

Thank you. That concludes the staff presentations.

CHAIR YELLEN. Thank you. Questions for the staff? President Lacker.

MR. LACKER. Thank you, Madam Chair. I have a question for Jeremy Rudd, and it's about your underlying inflation forecast. First, I really appreciate Deb Lindner's memo—and not just because we were classmates at Wisconsin.

MR. RUDD. That's why we had her write the memo.

MR. LACKER. That may work. [Laughter] It showed a lot about the ingredients of your thinking, and that's really beneficial to us. You have an exhibit 4, and, in panel 5, you've got your estimates of underlying inflation. In her memo, it's page 7—there's a figure 4 that shows, I think, some of the same things. You've got these statistical models of stochastic trends. You've got the Stock-Watson unobserved components−stochastic volatility model, the Cogley-Sargent model, and this time-varying parameter−stochastic volatility VAR. In figure 4, it's pretty clear that those estimates jump off from the fourth quarter of 2013. They're estimated on data through the fourth quarter of 2013, and they take off from there. Some are just straight lines from there, and some gradually go up a little.

Now, that's the natural property of these things because, just as a matter of arithmetic, if you're forecasting the future and you've got this unobserved trend, the last data observation is the most important one. It's at least as important as any other, and, in most cases, it's more important than any other single observation. So there's an intuitive reason why the most recent data are more informative. But I noticed that your forecast for core inflation for the second quarter of this year is higher. I think that in the Tealbook, it was 1.8 percent. But did you say that you're now thinking 1.9 percent, having seen the CPI data?

MR. RUDD. For Q2 or Q3? For Q2, it's 1.9 percent for core PCE.

MR. LACKER. All right—1.9 percent for Q2. Now, I realize that your underlying inflation is a judgmental assessment. I respect that. You described it as informed by these statistical trend estimation mechanisms. But if that forecast for Q2 comes true and you re-estimated those trends using data through Q2, wouldn't they jump off from Q2's core inflation rate of 1.9 percent? They might trend down a little, but wouldn't they all be higher than the estimates that you show in Deb Lindner's memo?

MR. RUDD. In figure 4 in her memo, showing forecasts, although the forecasts are jumping off of the current inflation rate, some of the trends are going to be less susceptible to influence by the last observation. So in some sense, I think what you're alluding to is that when you've got one-sided estimates at the end of your sample, you worry that those observations are more influential.

I think that in most of these cases, the trends probably wouldn't change all that much, and what will happen is that the inflation forecast will still converge to some of these trends from a different jumping-off point. You can see it in the sense that, in Deb's figure 4, we're below the trends and we're converging up to the trends. It's not that the trend has been pulled down unduly. Rather, it's that we're converging up to these trends from a lower level. And if we started from a higher level, we'd probably converge from a little bit higher. In particular, the time-varying parameter–stochastic-volatility VAR is going to be least susceptible. That trend looks extremely flat over the period that we think expectations were anchored—over the past 15 or so years.

MR. LACKER. Is that in figure 4?

MR. RUDD. No, that's not, because it's hard to do forecasts off of that model. It's a complicated model to run. So for a whole host of reasons, we didn't do it. But the trend estimates in panel 5 of the briefing, which was actually taken from the memo, are different from the forecasts that are shown in figure 4.

The last point I'd make is that the two Phillips curve models that we show here aren't going to change much at all. Those are keyed off of survey measures of expectations, which haven't changed. We basically forecast those as a random walk process. So the survey measures are constant at their current level, which has been pretty much the same for a fairly long time—plus or minus one-tenth for the Michigan measure. Those estimates aren't really going to change, given the current observation, and we'd probably get a pretty similar forecast a few years out—that is, what we got from 2013:Q4.

MR. LACKER. Well, let me just make sure I understand. These statistical models, holding aside the Phillips curve models, would all go up, right?

MR. RUDD. Models 3 through 5, say, in the panel.

MR. LACKER. If you re-estimated them through Q2, all of the estimates would go up.

MR. RUDD. Well, the trend estimates may or may not change very much.

MR. LACKER. I didn't ask how much. I asked whether they'd go up. None of them would go down. They'd all go up, right?

MR. RUDD. The time-varying parameter–stochastic-volatility VAR might not change much at all. The Stock-Watson model is very close to an accelerationist model but with a very long lag right now, so that might actually pick up a tiny bit. For the Cogley-Sargent model, I don't know, because that model allows for possibly sluggish deviations from its trend, and it could interpret a surprise as being a relatively transitory movement away from the trend. The trend itself might be better anchored than in, say, the Stock-Watson model. So I think, in order of precedence, Stock-Watson is going to react the most, and the time-varying parameter/stochastic-volatility VAR is probably going to react the least.

MR. LACKER. The Stock-Watson model's trend looks like a random walk. The forecast is right where it is now.

MR. RUDD. The forecast is basically a random walk.

MR. LACKER. Right. So it would go up the whole way, right? It would go up to 1.9 percent or close to it.

MR. RUDD. No, if the trend doesn't change, what will happen is, it will reverse a lot of the current shock in the next quarter and then keep going at the trend. The idea is that the Stock-Watson model sees most shocks nowadays to inflation as basically transitory shocks that are reversed very quickly, and so it would probably pass through some of that and reverse some of the shock pretty quickly. The trend itself is not necessarily going to move very much. That's more like a very long moving average. The current data will only have a tiny influence.

MR. LACKER. No, I understand. I understand. So the question is your underlying inflation in the memo sounded like it was based on this stuff, and I'm wondering—you were sort of silent on whether your forecast for second-quarter inflation, which takes on board some high-frequency observations that aren't a part of the analysis in Deb's memo, incorporates that or not. If Q2 comes true, will you revise up your underlying inflation forecast?

MR. RUDD. Probably not, because we think that, ultimately, what drives that object is inflation expectations, and we don't have evidence that longer-run inflation expectations have moved. We think that changes in underlying inflation as we've defined it are basically driven by changes in longer-term inflation expectations. And those, we think, are still pretty anchored. So in our staff forecast, we would probably keep our 1¾ percent assumption and then see what the dynamics of the model implied for our response to the Q2 data.

MR. LACKER. Thank you.

MR. WILCOX. I would interject only the rather obvious observation that, relative to the estimates that are provided by our suite of models, we put our judgmental assumption pretty close to the upper end of the envelope of those estimates. So I think if those estimates moved up, we wouldn't feel much compulsion to adjust up our judgmental assumption.

MR. RUDD. Let me reiterate as well that figure 4 in the memo is not the trends. It's the forecasts that are generated by models that have these underlying trends.

MR. LACKER. Right.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Yes, just to follow up on this, though, one thing about inflation expectations is, you're using survey measures. Why not use TIPS-based measures? I'd prefer five-year TIPS. I think we can control inflation over a period of five years.

MR. RUDD. In the memo, there was a discussion about that, and, in the previous memo that we sent to the Committee in January about the staff's inflation framework, we talked about that as well. More broadly, some of the forecasts that you get of inflation from financial-market-based measures—I think Deb cites one in her note—also imply that inflation is not coming back.

MR. BULLARD. But they shift around more than—especially the Michigan survey, which has been misforecasting inflation for more than two decades.

MR. RUDD. I think the problem we have with the financial-market-based measures is that, first of all, they don't extend through long samples. So it's hard to build a model around them. And, second, weird things can happen in Treasury markets that make those estimates move in ways that we probably wouldn't attribute to inflation expectations. When people actually back out inflation expectations from those measures, they often do so with reference to things like the Blue Chip or the SPF or some other measure of inflation expectations to tie down the component of movements in the financial-market-based measures that they think is really and truly reflecting inflation expectations as opposed to other things.

MR. BULLARD. Well, I'd prefer you switch. The Michigan measure has been off for decades.

MR. RUDD. The model does pretty well, though—the model based on the Michigan survey has actually done pretty well at forecasting inflation.

MR. WILCOX. President Bullard, it's true that the level of inflation expectations has been off. If you forgive a constant, that survey measure, the median expectation of longer-term inflation expectations, actually does quite well.

MR. BULLARD. I didn't get that out of the memo. I don't have the memo in front of me.

MR. RUDD. That's actually the adjustment that's being made to get the point estimate that's backed out of the models. The same is true for the SPF. One of the points that Deb makes in the memo is that the SPF, to the extent that it did well over recent history—the last decade or so—it was lucky. It was because, basically, they didn't see the oil price shock coming.

MR. BULLARD. Okay. Here's TIPS from your memo—2.5 percent over the period up to 2004:Q1. Actual headline CPI was 2.5 percent. In 2009:Q1, TIPS said 2.7 percent. Actual headline was 2.6 percent. So it was right on the button both times. It did get it wrong for 2014:Q1, but that includes the period of the crisis. Headline CPI came in at 2.1 percent. TIPS said 2.7 percent. It's been superaccurate. It's CPI based. So you'd have to adjust to get to PCE.

I have another question on this. On the decomposition of core PCE inflation, what always gets me—and we've talked about this picture before—is the huge fraction of the forecast that's coming from this underlying inflation measure is really practically the entire picture here. So how should I interpret that? If inflation comes in at 1.9 percent and we've got underlying inflation at 1.75 percent, then should I say that we've got above-normal or above-trend inflation, or am I supposed to compare it with 2 percent, which is the Committee's official target?

MR. RUDD. In our judgment, you should be comparing it with 1.75 percent. We think 1¾ percent is the underlying rate of inflation, and that this is a relatively well-anchored level around which other influences like slack or supply shocks can—

MR. BULLARD. Okay. So 2 percent is above. I'm interpreting this to be, 1.75 percent is the new 2 percent.

MR. RUDD. Well, as we pointed out in the Tealbook extension, if you want to get to 2 percent, you'll have to do something. Right now, we think that if you want to get inflation to 2 percent, you're going to have to push the unemployment rate below the natural rate for an extended period and prove to people that you're serious about 2 percent.

MR. BULLARD. Well, are you saying that the credibility of the Committee is eroding, and that, therefore, the world now expects only 1¾ percent from the Committee?

MR. RUDD. It's not clear they ever expected 2 percent. It's not clear they really even know what the PCE is, for one thing. [Laughter]

MR. BULLARD. I suppose a lot of things aren't clear, but you do have inflation expectations here and, for instance, the SPF is right at 2 percent.

MR. RUDD. Well, but the SPF is saying 2 percent over the next 10 years. If you back out what the SPF is saying for the 5-year-forward period—in other words, 5 years down the line, what it says about the next 5 years—it's above 2 percent, and it has been ever since the 10-year average has been 2 percent. It's never been 2 percent for 5 years, 5 years forward, which suggests to me that you have to be a little careful about interpreting even the SPF's 2 percent.

MR. BULLARD. Okay. But I'd be willing to interpret that over a 5-year period. I think we can control inflation over a 5-year period. If the market doesn't expect 2 percent, then maybe we're not doing our job.

MR. WILCOX. Indeed, I think that's a version of what we're saying: The proposition underlying this memo is that it could perfectly well be the case that inflation expectations are anchored. It doesn't need to be the case that they're anchored at 2 percent. And, as best we can tell, the burden of evidence leans slightly toward inflation expectations being anchored at a modestly lower rate of inflation. That's the statement that's being made.

MR. FISCHER. David, where were inflation expectations before 2008?

MR. RUDD. Inflation expectations have basically been pretty stable since the late 1990s. There's only one small hint that things were coming a bit unglued around 2008 in the Michigan survey, when, at the apotheosis of the run-up in oil prices and other commodity prices right before the crash, there was a hint of evidence that maybe long-run expectations were starting to react slightly. I should point out that these are longer-term expectations. Short-term expectations from the Michigan survey go all over the place.

MR. FISCHER. When there was the economic collapse, nothing happened to expected inflation at the beginning of 2009?

MR. WILCOX. Not to speak of.

MR. RUDD. That's the remarkable thing. One of the things that led us to conclude—and I was a very grudging convert to this view—that inflation expectations were extremely well anchored was that, in the face of the 2007 to 2009 recession—one of the deepest recessions we'd ever seen, with massive swings in commodity prices and a big increase in unemployment that we think was cyclical—longer-term inflation expectations didn't budge. There's almost no movement in the survey measures that we look at.

MR. BULLARD. Okay. Again, the survey-based measures don't change. If you look at the TIPS-based measures, they were very tight before the crisis—2-year; 5-year; 5-year, 5-year forward; and 10-year. They're all very tight around 2 percent or maybe even a little higher. They blew out during the crisis. People didn't know what to think. They did come back together after the crisis, but there was a lot of variance—a lot more than there was before the crisis—and that's never really gone away completely. So I would say the character of inflation expectations was damaged somewhat during the crisis, although, generally speaking, it was pretty stable.

MR. RUDD. I'd have to worry about things that happened in financial markets in that period, too, though.

MR. BULLARD. Only during the period of the crisis itself, but then you're talking about a couple of years afterward when—

MR. RUDD. Well, we had the European crisis leading to flight-to-safety flows and things that were affecting Treasury markets in ways that, again, make me worried about using these TIPS-based measures.

MR. BULLARD. These are normal shocks—

MR. POTTER. The inflation compensation measures have been remarkably stable for the past year or so. The last time they moved a lot was probably September 2012, in reaction to things that we did.

MR. RUDD. And we're definitely not arguing about that. As David said, we still think inflation expectations are anchored. That's a fundamental cornerstone of our forecast. The question is, what are they anchored to? That's where it gets a lot harder for us to back out something specific.

MR. BULLARD. I think it's a fundamental issue, because what you're really saying is that, to get inflation to 2 percent, you've got to shift longer-term expectations somehow. And I don’t think the Committee is even thinking about that. The discussions I’ve heard, anyway, have not really talked in those terms since September 2012, when we undertook QE3.

MR. WILCOX. I’m not convinced that there’s a real issue here, but, to have recourse to facts, I direct you to page 26 in the data sheets in the back of the Tealbook volume, which shows both inflation compensation from TIPS, down in the lower panel, and the survey-based measures, in the upper-left panel. What is shown there is that the 5- to 10-year-ahead inflation compensation measure has been running consistently above 2 percent. That’s for CPI. And, consistent with Jeremy’s description, the median 5- to 10-year Michigan survey, in the upper-left panel, has just been remarkably flat, I would say, since the late 1990s.

MR. LACKER. Madam Chair? Inflation itself has averaged closer to 2 percent than 1¾ percent over the past 20 years, as I recall. Is that your understanding of the PCE?

MR. RUDD. Headline inflation.

MR. LACKER. An average of 2 percent. We’ve got all of these expectations measures, which you say indicate strong anchoring of inflation. Actual inflation has averaged 2 percent, and you think it’s anchored to 1¾ percent.

MR. RUDD. Well, for two reasons. One is, when we put those measures into our models of core inflation, we don’t find that they’re saying the underlying inflation rate is 2 percent. One of the things Deb talked about at some length in the memo is that, if you think the SPF got it right, it looked as though the SPF was just wrong about the oil shocks. They were behind the curve, as were futures markets, and so they didn’t really anticipate shocks that occurred that boosted actual inflation. When we put these measures into our core inflation models—that’s what the first two models in panel 5 of exhibit 4 are doing—they spit out levels of inflation—underlying inflation, as we’ve called it—that are lower than 2 percent. In other words, looking at the historical behavior of inflation, the historical behavior of supply shocks, the historical behavior of slack, and the historical behavior of these survey-based expectations measures, the survey-based measures have been consistent with inflation rates, in the absence of those other factors, that aren't equal to 2 percent—even the SPF, whose reported level over the next 10 years is given as 2 percent.

You have to be careful, too, about evaluating that forecast. That's a 10-year-ahead forecast. We're not really evaluating how well that did 10 years later. We're just saying, over some longish average period, what happened, but we haven't really done the exercise of saying we've looked to evaluate how well the SPF did 10 years ahead. What we did do is to back out what they're saying between years 5 and 10, and there you don't get 2 percent, which I think is interesting.

MR. LACKER. This thing about the oil shock last decade has always confused me. Let's say it's unexpected, the SPF is consistent with 1.75 percent, and it's just been chance that we've gotten 2 percent instead of 1.75 percent—it's this extra factor, right?

MR. RUDD. 1.75 percent for core.

MR. LACKER. Right.

CHAIR YELLEN. Let's—

VICE CHAIRMAN DUDLEY Move on. [Laughter]

CHAIR YELLEN. President Kocherlakota, did you have a—

MR. KOCHERLAKOTA. I had a two-hander. I'd like to ask a quick question. As a result of the Lindner memo, the staff has lowered its measure of underlying inflation from 1.9 percent to 1.75 percent. I haven't been keeping track of where it was before it was 1.9 percent. If I go back, say, two years, what was the staff's measure of underlying inflation?

MR. RUDD. We changed it around the time of the last big revision of the NIPA statistics because it looked as though average inflation over history, because of the new methodologies the BEA was using, was down one-tenth. I can't remember the exact date though.

MR. KOCHERLAKOTA. Yes. So it was at that time. It went from 2 percent down to 1.9 percent.

MR. RUDD. Then in January, I believe, when we sent the inflation memo forward to the FOMC, Mr. Wilcox briefed, and I remember there was a kerfuffle about 1.9 percent.

MR. KOCHERLAKOTA. Right. Okay. Thank you very much.

CHAIR YELLEN. President Williams, did you have a question?

MR. WILLIAMS. I did. And, unbelievably, it's on the same subject. [Laughter] We've actually thought about and discussed this at length, so I really do want to just very briefly comment on this and not on the issues that have already been mentioned. But this is a serious issue. Your forecast now tells us that we have to create a substantial and sustained overshoot of maximum employment to reach our 2 percent goal. So it is consequential. This is a bigger issue than just one-tenth in a forecast. When you say it's—let me just finish—in the actual anchoring of inflation, you've got to get that anchor back up. We should think seriously about how we interpret this in terms of what it means for policy over the next few years.

I actually thought Deb's memo was really interesting. I thought it was a great box on a contrarian risk to the forecast. But I wasn't convinced at all by the analysis—the points have already been made. Inflation over the past two years has been almost exactly 2.0 percent. SPF is exactly at 2 percent for the 10-year ahead. And if you really get into thinking about what's a good measure of underlying inflation, why not look at the Dallas Fed trimmed mean? That's 2 percent over the past 15 years. So there's something about how you're starting from core and building up—I've been in the Fed a long time, and I've done these inflation models myself, and I know this is not the only way to think about this. If you go from the top down, the FOMC has committed to a 2 percent inflation objective. It's not serendipity that we've gotten 2 percent. You could think of this as our goal. The fact that inflation ex food and energy runs under 2 percent is a reflection that, given the relative price movements over the past 15 years, you had to have core be below 2 percent.

Again, I look at the Dallas Fed trimmed mean and some other measures of underlying inflation, and they're not nearly that different. So I guess my challenge to you is to maybe distance yourself a little bit from just building up core and then saying relative prices must be flat over the next 10 years. Think about this analysis from a different perspective. Again, I thought the analysis was good and interesting. It's important, and I'm not quibbling over the facts in the models. But it is consequential, and it's worthy of further discussion and analysis—but not necessarily right now. [Laughter]

MR. WILCOX. We recognize that it's consequential. We discussed all of those factors that you raise. I would be the first to acknowledge that the confidence intervals encompass a wide range of possibilities. But, in the end, after having argued about this at great length ourselves as well, we came to the judgment that the weight of the evidence was a little more in favor of a resting point for inflation that was a bit south of 2. I wouldn't want to put up a harder front than that, but I felt that we owed it to you to reflect that judgment on our part.

MR. WILLIAMS. Well, the good news is, I finally heard Jeremy Rudd, after some 15 years, say that he has embraced the anchoring of inflation expectations.

MR. KOCHERLAKOTA. Just not at 2. [Laughter]

MR. WILCOX. President Williams, consider the following thought experiment. As to the sanctity of 2 percent, if the Committee were, for whatever reason, to announce that your objective had been revised from 2 to 2½ percent, one could introspect about what the effects of that would be. A consequence and implication, a corollary of the perspective that we've taken, is that you might not get all of the way from, say, 2 to 2½ just on the basis of words alone, and that you might need to back that up with some actual behavior. That's the basic proposition. Now, if one takes the view that, through communication alone, you could get wage and price setters, who are actual flesh-and-blood people engaged in the acts of setting wages and prices, to conform their behavior to your announcement without running the economy a little hotter for a period of time, then you could take the view that 2 percent itself is a natural attractor. That informs my judgment that it's entirely plausible for inflation expectations right now to be anchored at something that's just a little different from what the Committee has in mind as its objective.

CHAIR YELLEN. Okay. We will probably continue to discuss this, I think it's fair to say. Why don't we begin our go-round? We're probably going to break around 6:00 for dinner, so if we could get through a reasonable amount of this, it would be good. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. Even with the assumed strong second quarter, real GDP growth for the first half of this year has been quite disappointing. My December submission expected growth for 2014 of 3.1 percent, and I now expect 2014 real GDP growth of only 2.1 percent.

While some of this can be attributed to temporary factors, from bad weather to unusual trade and inventory patterns, I am concerned that the economy is proving to be weaker than I had previously expected. Several sectors of the economy explain my reduced optimism for this year. For example, over the past six months, I have lowered my forecast for residential investment and business fixed investment, even for the second half of this year. The scars from the recession appear to be causing more cautious behavior by both households and firms than I expected earlier, so I am now expecting less of a rebound in residential investment and business investment than we would normally forecast as the economy improves.

I also remain concerned about slack in the labor market. I assume that some of the labor market slack reflected in the unusually wide spread been the U-6 and U-3 measures of unemployment implies that the U-3 unemployment rate will be less responsive than normal to the pickup in growth I anticipate for the remainder of this recovery. Specifically, I have in mind that, as we approach full employment, more of the workers marginally attached to the labor force and working part time for economic reasons will return to the labor market as full-time employees. In fact, I was a bit surprised that the unemployment rate remained at 6.3 percent in May and did not reverse some of the decline from the previous employment report.

The labor force participation rate continues to be a bit of a puzzle. Throughout the recession and the early recovery, even the more pessimistic projections for labor force participation have missed on the upside. Like the staff, I have lowered my estimate of the steady-state labor force participation rate because of the continued one-sided misses, but I will need more evidence about the reason for this decline, particularly in the 25-to-34 age group, before I lower my steady-state estimate to reflect the more recent developments in participation. My suspicion that some of the recent drop in the rate of labor force participation is overstated provides another reason why I do not expect to see the unemployment rate fall quite as quickly as we might otherwise have expected as real GDP grows faster than potential.

Given my forecast of slower 2014 growth and a less responsive unemployment rate, I now expect to reach my estimate of full employment of 5¼ percent in early 2017. Given the low inflation rate and my view that we should not be lifting off interest rates until full employment is clearly in our forecast horizon, I expect the liftoff to occur in early 2016.

I end my comments with a little trepidation about discussing the Deb Lindner model. One interpretation of her data analysis is that inflation expectations have gradually slipped down because of unemployment systematically being above our target, and inflation being well below our target, since the Great Recession began. Thus, contrary to the concerns of some about unanchored expectations on the upside, our systematic and persistent inflation outcomes below our 2 percent target are in danger of unanchoring expectations on the downside. This would occur at a time when Europe is increasingly concerned about deflation and Japan has been forced to take drastic actions to increase inflation expectations.

Should the results in this memo continue to be borne out by the data, the result is that we will need to overshoot full employment in order to bring long-run expectations back to target and then to drive realized inflation to our 2 percent inflation target. This has implications for the timing of our liftoff of short-term rates that we will be discussing tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. Thank you, Madam Chair. As to the dots in the economic projections, I regret to inform you that I am in the central tendency for GDP growth, the unemployment rate, and headline and core inflation in every year and in the long run. And I am not the dot that expects that the fed funds rate will be raised in 2014. I am fourth highest in 2015 and third highest in 2016. I do expect the federal funds rate to reach 4 percent in my lifetime, however, even though I’m older than Ben Bernanke.

As for the Eleventh District—in response to Governor Fischer's question during the break—one statistic says it all: Payroll employment last month grew at 5.7 percent, led by energy, professional business services, and construction. Manufacturing in this quarter has grown faster than in the first quarter. Service-sector growth has picked up. Single-family and multifamily housing starts rose, as did existing home sales, in April. The inventory of unsold homes in the entire state of Texas is 3.6 months. In Dallas, Houston, and Austin, it's 2.6 months or less. Unemployment fell to 5.2 percent, its lowest level since September 2000. When you look at our District economy, you have to separate out deep South Texas, which has dodgy data. If you take that out of the unemployment statistic, we're 5 percent for the state.

Wage pressures are rising in every single sector. We actually took a special survey in May, asking about this and employment conditions. Seventy percent of the respondents reported problems finding qualified workers, citing a lack of hard and soft skills as well as an insufficient number of applicants. Ninety-eight percent of hospitals so reported, as did 90 percent of car dealers; 80 percent of hotels, restaurants, and bars; 80 percent of those needing administrative and supportive services; and 60 percent of food manufacturers.

These shortages are drawing large numbers of immigrants. As I reported at the last meeting of the Federal Open Market Committee, the number of employable people in Texas—that is, the denominator to our unemployment statistic—has grown 10.3 percent since 2008, whereas for the nation ex Texas, it's grown 0.3 percent. Still, the state's unemployment rate is approaching 5 percent.

Nationally, I don't find much change among my interlocutors. For the purposes of Governor Fischer and Governor Brainard, I do take my own survey of roughly 50 CEOs and 1 CFO around the country, leaders of small, medium, and large companies, both public and private. I also watch carefully the data that we collect at the Dallas Fed. Generally, my interlocutors are optimistic about the condition of the United States despite uniform concern about what they call counterleadership from the Congress of the United States and from the executive. The rails are back to 2006 levels. Advanced bookings for the airlines are up 7 percent. And, in most of the large businesses at least, the emphasis remains on financial engineering while preparing what I have referred to before in these meetings as their growth muscle—that is, rebuilding the managerial capacity for top-line growth someday rather than managing to cost and expense containment and margin enhancement.

The reach of technology continues to amaze me. I'll give you the most extreme example that I just came across, which is a metal-bending firm in Florida with $200 million a year in revenue created by three employees. This is a firm that makes garden furniture out of steel and metal products. There is one $300,000 engineer that comes in and programs the robot in the morning, and then there are two sweepers who sweep up the shavings at the end of the day. They're paid $10 an hour. I asked the operator of the facility—that is, the manager in charge of it—what would happen if those $10-an-hour workers increase their wage to $12 an hour, and the response was, "We will replace them with robots at $12 an hour." This is very worrisome to me, Madam Chair. We have hollowed out the middle-income quartiles in our country, and I don't believe that monetary policy is effective in addressing that issue. Nonetheless, my interlocutors confirm what we see in the data. That is, payroll data continue at a steady pace. Nonfarm payrolls grew 282,000 in April and 217,000 in May, which is the average for the year. If that pace continues, payroll gains will be 2.56 million, which will make for the best year for payroll gains since 1999.

My interlocutors report greater incidence of capable workers leaving for other jobs, greater turnover in keeping with the recent quit-ratio reports. Just last week, as far as large companies are concerned, the Business Roundtable met, and 80 percent of their members expect top-line growth over the next six months, 44 percent expect to increase cap-ex, and 43 percent expect to increase their hiring. So there is positive momentum in the economy.

Regarding small businesses, as you know and as I reported at previous meetings, I like to look at the telephonic companies, in particular, in terms of their activity with small businesses and what they're providing. For five months in a row, they've had upticks, and you're seeing this confirmed by the surveys of small businesses.

As far as negative factors are concerned, first, even before the election in Virginia, all the defense and other large lobbying firms—one of my favorites to talk to is Anheuser-Busch InBev because no congressperson will resist a beer vendor—were predicting that the Ryan–Murray budget agreement was evaporating, and all expressed fears, even before the Cantor election, that sequestration would kick back in. That is worrisome because, thus far, we have not been experiencing much fiscal drag since that agreement was reached. Second, almost everybody I talked to is negative on China. For example, J.C. Penney used to derive 80 percent of their production from China. Now it's 18 percent. They've priced themselves out of the market.

Looking ahead, the balance of risks, if anything favors an acceleration in GDP—and, again, respectful disagreement to my colleague from Boston, with whom I recently agreed on almost everything, much to his embarrassment. I think that's important because, however disappointing and uneven output growth may have been over the course of the recovery and recently, the unemployment rate has so far declined with remarkable consistency, falling by just shy of 1 percentage point per year. With real growth prospects improving, the probability is high that, one year from now, the unemployment rate will be within the central tendency of SEP natural rate estimates.

On the inflation front, research that suggests that the unemployment rate has lost its usefulness as an indicator of near-term wage and price pressures is not compelling to me. The modest increase that we've seen in wage inflation so far in this recovery is completely consistent with past experience. We can expect significantly faster wage increases as the unemployment rate moves down. Again, we're seeing a little microcosm of that in my District.

The trimmed mean PCE inflation measure, which President Williams kindly referred to, captures medium-term headline inflation trends, I believe, better than the conventional PCE inflation measure and responds to changes in unemployment as well as to the level of unemployment. Thanks partly to this effect, my inflation projection rises to 2 percent in 2016 and, particularly if we adopt the suggestion in Deb's memo—I'll come to this in just a minute—to above 2 percent thereafter.

Now, I'm convinced that, in the near term, inflation responds to changes in slack as well as the level of slack. For these reasons, I see inflation rising further over time and more quickly than does the Tealbook. At the same time, I believe that increases in the unemployment rate are very difficult to contain once they begin. It's proven nearly impossible historically for policymakers to nudge the unemployment rate upward to restrain inflation. An implication is that the risks to mis-estimating slack are asymmetric, and it's substantially more dangerous, in our view at the Dallas Fed, to overestimate slack than to underestimate it. I think—and I may be wrong here—the models used by the Board staff do not appear to recognize the nonlinearity in the economy's dynamics.

I go back to the work by Neftçi in 1984. It almost seems as though every five years after that, more work was done on this issue. Basically, he shows that the unemployment rate tends to drift downward gradually but to increase rapidly. I conclude that one does not want to overshoot the full-employment unemployment rate willy-nilly, because after crossing that threshold it becomes nearly impossible to tap on the brakes without engineering a recession.

Again, I thought Deb's memo was excellent. Woody Allen used to say that the most felicitous words in the English language were not "I love you" but, instead, "It is benign." But in the monetary lexicon, the most dangerous words I've read recently, David, were at the end of your memo, which says that, "in order for the Committee to achieve its 2 percent objective, a period of some overshooting of full resource utilization may be required." To me, Madam Chair, that evokes Arthur Burns. But I admit, having served in the Carter Administration, that I bear deep scars, and I may be too sensitive to that matter. Thank you, Madam Chair.

CHAIR YELLEN. Thank you, President Fisher. President Plosser.

MR. PLOSSER. Thank you, Madam Chair. Economic activity in the Third District continues to grow at or slightly above its longer-term trend, and many business contacts remain optimistic. Bank lending has shown improvement, particularly C&I loans. Auto sales for the month of May were termed "phenomenal" by one of our contacts. With the exception of the three MSAs in southern New Jersey, all of our MSAs report unemployment rates below 6 percent.

In Philadelphia's Business Outlook Survey, indexes of general activity, new orders, and shipments all remain solidly in positive territory. The latest survey, which is to be released this Thursday and remains confidential until then, shows that the general activity index improved in June to 17.8 from a reading of 15.4 in May. The index has remained positive for four consecutive months following the winter freeze in February. Further, the future activity index—that is, the expected activity index for six months ahead—rose sharply by 14.6 points and now stands at 52. Historically, this future index actually has predictive content for the current index six months ahead, and so it's a very positive reading. In addition, regional manufacturers reported a sharp increase in prices paid but a slight decline in prices received. The prices paid index was 35 in June, up from 23 in May, and expectations for future price increases, both paid and received, in the second half of the year rose and are at elevated levels. The employment index in the BOS improved again in June, and the future measure increased as well. Also, the workweek increased, as did the future workweek.

As in the nation as a whole, we are seeing growth in the construction of multifamily housing units, but single-family housing remains soft. Permits for single-family homes declined for the third straight month in April. Thus, the weakness in single-family construction in the region may be related to more than just the severe weather. Factors such as the suitability of building lots or an overhang of student loans may be partially responsible. I think it may also reflect the changing trend in housing preferences. Young people may be driving housing toward multi-unit rentals and condos near urban centers, forgoing the house in the suburbs and the associated long commutes.

Realtors in my District confirm this trend. This may be related to the trend to have children later, maybe the desire to bike to work, and so forth. The demographic reality of a growing number of retiring baby boomers who are empty nesters seeking to downsize and move into smaller urban units may also be contributing to this trend. Thus, too much focus and consternation over single-family housing and those construction numbers may be somewhat misplaced given the possibility of the changing dynamics of the housing market.

On the nonresidential side, activity remains somewhat weak. Our contacts appear to be optimistic, and, in the Philadelphia region, as I've reported before, there are several very large projects about to break ground in Center City.

Overall economic activity reflects steady, if unremarkable, growth in the District, and my contacts are optimistic about a continuing pickup in activity in the coming months.

My medium-term outlook for the national economy remains fairly upbeat. The incoming data appear consistent with my outlook that growth will be about 3 percent, which is a bit above trend, over the remainder of this year and next before returning to its steady state of about 2.4 percent in 2016.

Labor markets continue to improve steadily. Payrolls rose 217,000 in May, and this is the fourth consecutive month that payroll growth has been above 200,000. The unemployment rate remained steady at 6.3 percent in May. The continued low labor force participation rate has been a contributing factor. The declining participation rate over recent years appears to be mostly due to demographic factors as well as an increase in retirements, disability claims, and other such things. These factors suggest that there will not be a strong bounceback in the participation rate. I expect the unemployment rate to continue its decline and fall below 6 percent to about 5.8 percent by the end of this year and to 5.6 percent by the end of 2015 through 2016—5.6 percent is roughly my guess of the steady-state natural rate.

I would add that other aspects of the labor market are also improving. Long-term unemployment is falling. The U-6 unemployment rate is falling. Wage growth has firmed a bit, and new claims for unemployment insurance are at pre-recession levels.

Inflation appears to be moving up, with the three-month core PCE increasing 1.8 percent. It's a bit early to tell whether this will be sustained and continue for the rest of the year, but it's still trending upward at this point toward the Committee's target. Anecdotal evidence and information I've received from our business contacts, including the BOS, seem to indicate that inflation is firming and no longer weakening. All told, I see inflation moving back to target, perhaps a bit faster than I did in my previous forecasts and considerably faster than in the Tealbook.

In my view, economic performance and the outlook indicate that it's appropriate not only to continue to reduce the pace of asset purchases, with the program ending this fall, but also to begin contemplating ending the reinvestment of our principal payments—at least some portion of it—and to start the process of normalizing the balance sheet. I expect we will need to begin raising the funds rate sooner than is implied by our previous statement language and perhaps as early as the fourth quarter of this year.

Now, I say that because my path for appropriate policy, as I fill out the SEP, is informed by the rules described in the Tealbook. For example, if you look at the rules described in the Tealbook B, and drop the highest one and the lowest one, the rate implied by these rules suggests a fed funds rate of about 1 percent by the end of this year. Let me hastily add: Don't confuse this 1 percent with my forecast of what this Committee is likely to do. As, I think, President Kocherlakota informed us—maybe it was the last time or the time before that—don't confuse my forecast with reality. [Laughter] On the other hand, this is an exercise, as we all recall, about what each of us thinks appropriate policy is, and, again, my appropriate policy is informed by the rules that we look at.

The economy is showing good signs of resilience. Solid employment gains, coupled with reduced drag from fiscal policy and household deleveraging, make it conceivable that growth could come in stronger than we are currently forecasting, and rates may have to rise faster than our current assessment. Should we choose to ignore this ongoing progress toward our goals and continue our policy of keeping the real funds rate in negative territory as we approach these goals, I believe we will run real risks of having to raise rates much faster in the future than we are likely to prefer. This could result in a very disruptive exit or, perhaps, a much higher rate of inflation. It would return us and this Committee to the old "go–stop" policies of the past that we know can result in instability and unnecessary and inefficient volatility. 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. Business contacts continue to suggest that underlying demand remains reasonably strong, and that the outlook for the second half of 2014 is for relatively good performance.

The District continues to add jobs but at a somewhat slower pace than in the nation as a whole. The District unemployment rate measured across metropolitan statistical areas stands at 6.8 percent on the most recent reading, somewhat elevated when compared with the nation as a whole. Nevertheless, the rate has been falling, and business contacts expect further labor market improvement in the months ahead.

During the intermeeting period, I've been concerned about the first-quarter reading on U.S. GDP growth, which was initially weaker than expected and has since been revised down substantially. I think I share this concern with President Rosengren, who noted it in his comments earlier. I asked my staff how often we see quarters of negative GDP growth in the middle of an expansion, and the answer I got was, very rarely in the post-1984 experience. This made me worry that this Committee, as well as nearly all financial market participants, might be overemphasizing the special factors/inventory/weather narrative concerning Q1 GDP growth. I asked my business contacts specifically whether they saw marked improvement in the current quarter and whether they expected improved business conditions in the second half of this year. The response was quite clear that business leaders saw the first quarter as an aberration and had plans and expectations for relatively strong economic performance through the rest of the year. In this respect, I agree. I guess I got the same reading as President Fisher did from his contacts. Maybe I called all of the same people. [Laughter] There's no control for that around here.

Accordingly, in my forecast, I have penciled in a relatively rapid real GDP growth of over 3 percent for the current quarter, during the second half of 2014, and through 2015. In tandem with this outlook, I expect unemployment to continue to decline, averaging 5.8 percent by the fourth quarter of this year. I tried to get to the lowest number on the Committee, but I see that Charlie Plosser tied me on this dimension.

I interpret the continuing declines in unemployment as indicative of a clearly improving labor market. My reading of the literature on labor force participation leads me to view the participation rate as on a long-term, demographically driven decline since 2000 that will likely leave the rate below 60 percent a decade from now. I see it as unlikely that this secular decline will be interrupted in a lasting way in the medium term. For this reason, I continue to forecast relatively rapid declines in the unemployment rate, and I continue to interpret those declines as indicating improvement in labor market conditions. This interpretation of unemployment declines is consistent with the payroll jobs numbers, which have averaged better than 200,000 per month since the Committee began the open-ended asset purchase program in September 2012, more than 18 months ago. Similarly, hours worked year to date in 2014 are up about 4 percent, almost double the year-to-date figure last year at this time.

Furthermore, I see an end-of-year unemployment level around 5.8 percent as actually below the medium-term natural level of unemployment, which I have at 6 percent. My view on this issue is that the U.S. labor market was likely badly damaged during the past five years and, furthermore, has well-known and lasting structural problems, suggesting that the natural level of unemployment is higher today than it has been in recent decades. Accordingly, my forecast this round calls for inflation to continue to rise through 2014 and to exceed the inflation target of 2 percent by the end of 2015. Specifically, both core and headline inflation are forecast to be 2.4 percent by the end of 2015 on a year-over-year basis. You heard it here first, as I told you last time. I believe that I am in a small minority among SEP participants in making this forecast—possibly a minority of one. But the empirical models we use to generate baseline forecasts consistently predict oscillatory rather than monotonic convergence of inflation to the inflation target from current levels, given the current level of the policy rate. We have simply taken this empirical summary of historical experience at face value and incorporated it into our near-term forecast of inflation with only modest judgmental adjustment.

Globally, I see continuing stabilization and modest growth in the euro area as helpful to U.S. macroeconomic performance. Inflation is disturbingly low in the euro area, and inflation expectations by some metrics have begun to sink well below the ECB’s stated inflation target. Market-based measures of German inflation expectations, for instance, suggest that markets view German inflation of less than 1 percent as a likely outcome over the next five years. My view is that the ECB should be able to hit its inflation target of 2 percent over a period as long as five years, and I have at times advocated that Europe should be more open to undertaking a quantitative easing program similar to ours in an attempt to move inflation back toward target.

I attended the recent ECB conference in Sintra, Portugal, during the intermeeting period. Be careful, Kansas City—they are gunning for us. They're trying to create a conference equivalent to or better than Jackson Hole. At the Sintra conference, the discussion of unconventional monetary policy was paramount. The Governing Council stopped short of full-blown QE a few days later, but my interpretation is that the ECB's willingness to contemplate aggressive, unconventional monetary policy has been the key factor driving the global bond rally during the first half of 2014. All else being equal, this rally should help U.S. macroeconomic prospects, and I fed that into the optimistic cyclical dynamics I described earlier.

If the economy continues to move in the direction I'm describing during 2014, the Committee may have to rethink its baseline scenarios for policy tightening. However, I would be reluctant at this point to advocate a rethink until we receive hard evidence that the scenario I'm describing is actually playing out. In particular, I would feel more confident that economic developments are proceeding along this line once we have the Q2 GDP report and the associated jobs numbers fully in the bag. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lacker.

MR. LACKER. Thank you, Madam Chair. Anecdotal reports in the Fifth Federal Reserve District are very similar to what we heard prior to the last meeting. They indicate continued moderate growth overall, but with significant variations across the region. One director observed that the conditions seem to depend on whether you are above or below what people call the "sweet tea" line. This is an imaginary boundary that runs east to west through southern Virginia, somewhat south of Richmond and north of the North Carolina border. If you order iced tea and you aren't asked what kind you'd like, above the line, the default is unsweetened tea, and, below the line, the default is sweetened. [Laughter] Similarly, if you're asking about economic conditions above the sweet-tea line, reports tend to be quite discouraging, while prospects are much brighter below the line. However, I'm not sure this says anything about the causal effects of drinking sweet tea. Weakness north of the sweet-tea line seems to reflect the fallout of declining federal spending on the Washington, D.C., metropolitan area and the Hampton Roads metropolitan area, and the depressed coal market in West Virginia. The Carolinas, though, are seeing a pickup in loan growth and investment. A banker in South Carolina, for example, says they've seen increased business optimism this year and organic loan growth reflecting expansion-related investments. In North Carolina, bankers said that credit quality is getting better and better.

Turning to the national outlook, some changes in the Tealbook brought the staff's forecast closer to my own projection. The estimate of the long-run growth rate of real GDP has been lowered ¼ percentage point, the forecast for growth in residential investment this year has been reduced 3½ percentage points, and the forecast for this year's growth in nonresidential structures has been cut 3¼ percentage points.

My own projection has not materially changed since our March submission, aside from lowering GDP growth and raising inflation in the first half as a result of the significant new data we've received since then. There were times over the intermeeting period when I was tempted to make a meaningful upward revision to my projection for consumer spending, which would have pushed my GDP projection higher. The temptation was based on the fact that consumption came in pretty strong for the fourth quarter. It seemed on track for similar gains earlier this year despite the weather. But recent reports on health-care expenditures and retail sales paint a different picture, making the strength in fourth-quarter consumption growth look more temporary than permanent. So I don't see household spending picking up much momentum in the second half of this year.

I'm also less optimistic than the Tealbook about the outlook for residential investment. Five years on from the recession, that experience seems to have left a large segment of the population much less inclined to make major housing investments than in previous expansions. Like President Plosser, I view this as less a cyclical phenomenon than a fairly fundamental structural shift in the housing market. People are bound to place greater weight now on the possibility of large declines in home values and in their ability to repay. On top of that, tightening credit availability reduces financing opportunities and provides another good reason for caution in household financial planning. In addition, there remains a substantial overhang of homes associated with foreclosures or seriously delinquent mortgages. So my sense is that the sluggishness in single-family starts will be fairly persistent, and that a burst of residential investment—like that in the Tealbook, albeit delayed—is relatively unlikely.

The other difference I'd highlight concerns inflation. I really appreciated, as I said, the latest memo providing details of the staff's thinking on inflation forecasts, but I'm not completely convinced that it will take so long for inflation to get to 2 percent. President Williams raised some excellent points about interpreting relative price changes and the approach of relying so heavily on core for underlying inflation trends.

I think the firmer inflation readings we've seen of late raise for me the serious likelihood that inflation has bottomed out in this current little dip we've seen, and that we're going to see reasonable progress toward our 2 percent target this year. And, while the staff rightly argues against putting excessive weight on the most recent observations, surely the optimal weight is greater than zero. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. I'll start with feedback from Sixth District contacts. We call them "inter-Lockhart-ors." [Laughter]

In general, business activity appears to have strengthened after the first quarter, and sentiment remains positive. Consumer spending continues to rise. Spending on autos and the associated production activity of plants in the Southeast are particularly robust. A director on the manufacturing side believes auto assembly plants are operating at or near capacity.

Most of our banker contacts say that loan demand is improving. Pipelines are pretty strong. But demand varies considerably by loan category and geography. Commercial lending is picking up across the District. Line utilization is rising, but mortgage refinance is low, and purchase mortgage application activity is mixed.

The relative weakness of the housing sector is getting a lot of attention, so we focused some effort on that sector with District contacts. The sales activity picture is mixed across the Sixth District, with Miami, for example, enjoying a boom driven by foreign investors; with southern Louisiana also being very active, underpinned by energy-sector employment; and with home sales and construction in an otherwise solidly performing Tennessee being characterized as soft.

We heard many explanations for the softening real estate sales, but no common theme emerged. High student debt burdens of young people and a bifurcated employment market recovery are thought to be weighing on household formation and first-time buyer demand. Constrained access to financing for lot development and rising construction costs were cited as restraints on residential construction. I think the sector bears close monitoring. Neither our contacts nor our sector specialists in the Atlanta Fed put forth a firm opinion on whether the softness is temporary or likely persistent.

Now let me comment on my outlook and how it compares with the Tealbook. It appears quite likely that the final reading on first-quarter GDP growth will show a large negative number. This pushed me in the recent forecast submission to lower once again my 2014 growth estimate. If the first quarter comes in as the current tracking estimates indicate, I don't expect that the economy will post much more than a 2 percent increase for the year.

I'll insert the good news here. My very public, at least in this body, over–under bet made last summer with David Wilcox on the growth rate of the next year and a half is really looking good. I took the "under" on 3 percent. I have not yet pre-spent my winnings, but I may spend the dollar soon to help the economy just a little.

MR. WILCOX. You have a dollar in escrow, President Lockhart. [Laughter]

MR. LOCKHART. Like so many others, I'm viewing the first quarter as a transitory event heavily influenced by weather. So I'm focused more on the run rate evidenced in this and subsequent quarters than on the full-year 2014 arithmetic. I continue to believe that the current run rate is a bit above 3 percent. In that view, my forecast aligns with the Tealbook. Our soundings in the District this cycle yielded a couple of points that are supporting evidence. We surveyed a panel of 562 small businesses on their credit conditions. The survey showed notable improvement compared with recent earlier surveys in the proportion of firms reporting that they're receiving all or most of the financing they have requested. Large corporate contacts hinted at a thawing of their attitude toward capital investment or expansion. I don't want to make too much of these indicators, but they're consistent with what I interpret to be, on net, a positive stream of data suggesting a run rate of 3 percent or better.

The question of the amount of remaining labor market slack will be central, obviously, to our policy deliberations in coming meetings as we think about the timing of liftoff. My team in Atlanta is increasingly concentrating our attention on the PTER group. We're coming to the view that the improving but still-elevated level of involuntary part-time employment is very important to the question of how much slack remains and helps explain the weakness of wage pressures. Evidence of wage growth and, more generally, continuing firming of prices, with measures approaching our 2 percent target, will be pivotal in my thinking about when to start tightening.

Next I'll comment on the risk to my outlook. I'm treating the risks to all of the elements in the SEP submission as basically in balance. The five alternative scenarios in the Tealbook are a good representation of the range of possibilities. I took special note of the Tealbook's downward adjustment to potential and the staff's inclusion of the "No Room to Grow" scenario. At the moment, I'm agnostic on the debate around potential, but I think evidence provided by wage and price data will be telling in solving the puzzle.

Finally, I'd like to draw the attention of Nellie, Andreas, and the Committee to one particular financial-stability risk in the very near term that should literally be on our screens. In June 1974, 40 years ago, the Bundesbank allowed Bankhaus Herstatt to fail. On their last day of operation, the bank's Frankfurt office did not complete clearing payment instructions because, according to lore, the staff left early to watch a World Cup match. [Laughter] The world financial system almost cratered, but West Germany did win the World Cup. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. The basic contours of my outlook have not changed much since April. Like almost everyone else, we expect a bounce back in the second quarter, followed by growth somewhat above 3 percent in the second half. This trajectory seems consistent with the reports from my directors and other business interlocutors. Basically, the reports continue to be positive, though not bubbling over with enthusiasm.

In general, businesses are expecting healthy gains in sales and production over the remainder of the year. According to some, these higher sales should spill over into some higher investment as well. For example, at a recent manufacturing roundtable in Chicago, there was increased talk of stronger capital expansion plans. Roundtable participants primarily represent small and medium-sized manufacturers. Most of the firms planning to build additional capacity had close ties to the auto industry or energy-related infrastructure.

Our private equity and insurance contacts also were relatively optimistic about the prospects for the nonfinancial companies and their portfolios. Notably, one mentioned that they are starting to see earnings coming from growth in top-line revenues as opposed to aggressive cost cutting.

Although my contacts generally were optimistic, no one was expecting a breakout in activity as we move through the year. Indeed, for me, it continues to be much easier to list downside risks to the outlook than to list upside propellants. For example, the likely large downward revision to first-quarter consumer spending based on the quarterly census service-sector data and the ho-hum retail sales report for May suggest that the momentum in household spending may not be quite as strong as we’ve assumed. Downside risks to housing remain, particularly as credit conditions still appear to be restrictive. And the global economy continues to face strong challenges, so there's also reason to be cautious about international growth. Nevertheless, I expect growth over the next 18 months to be around a 3 percent pace.

Turning to inflation, recent data have moved year-over-year rates off their lows. This is a welcome development, but, even with today's CPI data, I don't see it as a sure sign that inflation is headed back to target at a reasonable pace. First, I haven't increased my 2014 inflation projection since the March SEP. I had 1½ percent then, and I still do. The only difference is that in March, it was mostly a hope that we would get there. Now it's in one month's data. This is a good development but not a reason to raise my forecast.

Second, all of our analytics in Chicago continue to point to below-target inflation over the medium term. Our affine term structure model with inflation factors continues to see three-year-ahead inflation expectations below 2 percent this year and over the next four years—that is, through 2018, three years ahead. We've done a lot of work over the past year on our Chicago Fed DSGE model. It now has more robust and reasonable inflation dynamics, and these result in an inflation projection that remains below 2 percent for the next several years. My business contacts also show little worry about inflation. They consistently note a lack of cost pressures either from wages or from materials or other inputs. Indeed, the weak wage growth we continue to see certainly is an important sign of low inflationary pressures.

Third, there is the notable Deb Lindner Board memo on the role of inflation expectations in the Tealbook forecast. That analysis suggests inflation will likely stabilize below our 2 percent target unless something else happens. Now, I have to take note of the fact that at some point in the discussion about this, someone said, "But inflation has been 2 percent for a number of years." That led me to look up the Tealbook data on that. If you look at total PCE inflation, in 2008, it was 1.5 percent. In 2009, it was 1.2 percent. In 2010, it was 1.3 percent. It was

2.6 percent in 2011, but then it was 1.7 percent in 2012, and, in 2013, it was 1.0 percent. Inflation has been low.

So, what could that something else be that gets us back to target? It could be some lucky break, or it could be something within our control, such as strong communications that the FOMC intends to get inflation back up to target quickly and is willing to overshoot in order to achieve our stated dual-mandate goals within a reasonable period of time. Personally, I'd rather bank on that than on luck.

In sum, my thinking about the macroeconomic backdrop for our policy decision tomorrow is about the same as it was in April. We appear to be seeing a welcome and long-overdue pickup in growth to a more solid pace, but this growth needs the continued support of highly accommodative policy in order to be sustained. And, while the recent inflation news has been in the right direction, it still appears that we're making only slow progress back toward our inflation target. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. A two-hander from Governor Fischer.

MR. FISCHER. What is the inflation rate, sir, that your people expect to be 2 percent? Is that PCE, or is that CPI?

MR. EVANS. Our target is for 2 percent. The one that was alluded to before was total PCE.

MR. FISCHER. But in your models?

MR. EVANS. Oh, in our models. Yes, we do have the PCE target. Well, we have both. We have the CPI target and PCE, and we try to take account of the wedge between them.

MR. FISCHER. Yes. The average gap is ¼ percent?

MR. RUDD. I think it's wider. It's more like 35 basis points.

MR. EVANS. Yes, 35 basis points was quoted to me the last time I asked that a couple of meetings ago.

MR. RUDD. It sounds right to me.

MR. EVANS. Yes. I defer to the inflation experts.

MR. FISCHER. Without having tried this out even on my close family, I would guess that if you asked people what the inflation rate is, it isn't the PCE—I'm saying that, if we were to ask the average American, "Do you think inflation will be 2 percent?" the person would say, "Yes." And if we asked, "Do you think inflation means the PCE?" the person would say, "The what?"

MR. EVANS. Well, the CPI is closer to 2½ percent. They're going to get it wrong. That means that we have a big job in front of us.

MR. FISCHER. Yes. Well, I don't know what 2 percent—anyway, we'll come back to this. But I think the Fed is using a rate that people don't relate to.

MR. KOCHERLAKOTA. I agree with that.

MR. EVANS. Are we likely to change that? We've ratified our longer-run policy strategy statement for monetary policy the past several years, and that's what the number is.

CHAIR YELLEN. Indeed.

MR. FISHER. Stan, there actually is a trimmed-mean PCE. It's a common family. [Laughter]

MR. LACKER. Yes, that's what they say in Texas.

CHAIR YELLEN. Okay. President Kocherlakota.

MR. KOCHERLAKOTA. Yes—thank you, Madam Chair. I'd like to spend my time talking about two related topics. The first is the memo on inflation by Deb Lindner, which I thought was excellent and was very informative. The second topic is a couple of lessons from Japan based on conversations that my policy adviser, Kei-Mu Yi, and I had with BOJ monetary policy committee members in the intermeeting period.

I thought the Lindner memo was important in two key respects. The first has to do with how it feeds into the staff outlook for inflation. The staff outlook, under their best estimate for the Committee's monetary policy reaction function, is now that inflation will return to 2 percent sometime in the early part of the next decade. Now, this forecast is not intrinsically inconsistent with our current longer-run goals statement. That statement makes no reference to any kind of time horizons. As a result, in principle, inflation could run persistently above or below 2 percent for 5, 10, or 20 years without violating our longer-run goals statement.

I will make a remark on something that President Fisher alluded to. He expressed discomfort with the idea of exceeding maximum employment and having overutilization of resources in order to move up inflation expectations, if I'm interpreting correctly. If that's a general sentiment on the Committee, then I think it's going to be very hard for us to say that long-run inflation is under our control, as we do in our longer-run goals statement. The longer-run goals statement says that we have control over long-run inflation and we decided to make that 2 percent. But if we're uncomfortable exceeding maximum employment in order to move up inflation expectations, as the staff indicated is necessary to move inflation back up to 2 percent, then we can't say that we're going to hit 2 percent, because once inflation drifts down, we're not willing to move it back up. That's something we should talk about if that's a general sentiment among Committee members.

Okay, so the first thing is that the impact of the staff outlook is very important. The second important aspect of the Lindner memo is its implication for the behavior of inflation expectations. As you'll hear, I took on board the estimates out of the econometrics models—the Cogley-Sargent and Stock-Watson models—more than I did the imputations from the SPF and Michigan surveys. The estimate of the trend component in the Cogley-Sargent and Stock-Watson models of inflation is currently less than 1½ percent. What is this telling us? This means that if people in the economy form their expectations like econometricians, inflation expectations would now be materially below target. And this, I'm worrying, would, in and of itself, put further downward pressure on inflation and inflation expectations.

The point on which I would differ, I guess, somewhat from the thinking of the staff is, when I look at survey evidence and financial market prices, I don't see any evidence of that downward drift in inflation expectations at this time. My interpretation is that, unlike the models that are learning only from the data, the public is listening to us talk—to the FOMC's communications—and we continue to be credible. Even though I agree with Governor Fischer that they don't necessarily understand what inflation rate we're talking about, they trust us that we're going to hit 2 percent on the inflation rate. We continue to be credible in that the public continues to trust our willingness and ability to deliver 2 percent inflation. I don't think we should just count on this happy situation continuing indefinitely. The staff forecast does not have inflation returning to 2 percent for more than five years. I think it's in the early part of the 2020s.

MR. WILCOX. It's late in this decade.

MR. KOCHERLAKOTA. I'm sorry—late in this decade. There will be a point at which the accumulation of hard data will trump our forecast. Personally, I counsel against waiting for hard evidence of the unmooring of inflation expectations to spring into action on the inflation front.

I’m sure that everyone around this table remembers that high inflation expectations had really become part of the American culture and psyche in the 1970s. My recent visit to Japan reminded me that the same can be true of low inflation expectations. Deputy Governor Nakaso of the Bank of Japan told me a story that powerfully illustrates this point. In the past year, the Bank of Japan gave its first nominal base pay increase since 1995. Now, I don’t want the Governors to get any ideas from this, but this was the first nominal base pay increase since 1995. There’s a special Japanese word for “base pay increase” that the deputy governor and the bank used to describe its compensation action. Of course, I don’t know that word. [Laughter] But what’s more interesting is that one of Deputy Governor Nakaso’s assistants, a young woman, came to him and asked, “What does this word mean? What are you going to do to my pay? I’ve never heard this word before.” In some sense, like Paul Volcker’s challenge, the BOJ’s challenge is not just an economic one. It’s really a cultural one, to change the backdrop of inflation expectations in their minds.

How has the Bank of Japan tried to address this challenge? As you know, the bank is pursuing an aggressive purchase program. More important, in my view, they’ve announced that the program will return inflation to 2 percent by about late 2015, and they’ve committed to take additional steps if they’re falling short of that goal.

As the charts Beth Anne talked about indicate, Japanese inflation has risen sharply in the past year from zero to around 1¼ percent. Would it have risen so rapidly if the Bank of Japan had stuck to their January 2013 announcement that it viewed an inflation rate of 2 percent over the longer run as being consistent with their mission? There’s no way to know for sure, but I believe that the 2015 deadline has been critical in their being able to make as much progress as they have on inflation.

For me, the lesson from this is, there is value in making our monetary policy objectives have a deadline—in management-speak, having them be time bounded. I'll talk about the implications of that for monetary policy in the next go-round. Thank you.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. Economic activity in the Fourth District is showing some rebound after weather-related weakness in the first quarter. Like the nation, the regional economy is steadily adding jobs at a sufficient pace to significantly reduce the unemployment rate. As of April, the four-state unemployment rate—I gained a state when I changed Districts—stood at 6 percent, lower than the nation's 6.3 percent rate and down 1 percentage point since the end of last year. The Fourth District unemployment rate calculated by my staff based on the county-level data is also down 1 percentage point this year. This represents considerable progress in the region.

Most of the business contacts I've met with since coming to Cleveland two weeks ago and that my staff has talked to over the intermeeting period expect moderate growth in the Fourth District for the period ahead. This expectation partly reflects continued gains in some of the sectors important to the District's economy, including autos and materials manufacturing.

Last week, we held a joint meeting of the boards of the Cleveland Bank and the Cincinnati and Pittsburgh Branches. Most of the directors reported they had not changed their outlook for moderate growth over the second half of the year, although a handful reported a downgrade based on the weakness seen in the first quarter. Some of the directors reported some difficulty in hiring due to a shortage of qualified workers, but perhaps no more than unusual. Others said most of the hiring they'd been doing represented the replacement of workers rather than an expansion of payrolls.

We received some welcome news on housing. A number of the bankers reported a pickup in mortgage originations in recent weeks. C&I lending has also been holding up.

At the national level, we had a poor negative reading on growth in the first quarter, but I attribute most of that weakness to bad weather. Our pattern of growth in the first half will be choppy before we return to a more normal pattern and continued moderate growth in the second half of the year.

Save for January, when the weather was very bad, employment at the national level has grown by more than 200,000 jobs per month for the year to date. And the unemployment rate has fallen 1.2 percentage points over the past year. The broader measures of unemployment that include marginally attached workers and those working part time for economic reasons also moved down.

Recently, we've been seeing some encouraging news on inflation. Although inflation is still running below the Fed's 2 percent goal, there's been some firming in recent months. Year-over-year inflation rates measured by a number of different indicators, including the Cleveland Fed's median CPI and trimmed mean CPI—which, of course, I am very partial to—all increased since the start of the year.

Now, I have the luxury of not having to compare my projections with my last projections. [Laughter] I realize that this is a one-time option, and I'm going to exercise it. I project that growth will be about 3 percent in the second half of this year and through 2016. This is somewhat above trend, which I put around 2½ percent. I note I am somewhat more optimistic about trend growth than the Tealbook, which has revised it down to 2 percent. The Board staff's judgment may prove to be right, but uncertainty around any estimate of trend growth is high. And I'm being a bit more cautious, remembering the experience of the 1990s, when, over a period of several years, many forecasters revised down trend growth estimates, only to subsequently revise them up significantly in response to strong productivity growth.

With growth above trend, I project that the unemployment rate will continue to decline, reaching 6 percent in the fourth quarter of this year; 5.7 percent by the end of 2015; and 5½ percent by the end of 2016, which I assess to be roughly the natural rate. With inflation expectations well anchored and core inflation firming, I project that inflation will gradually move back to our target over the forecast horizon.

My projections incorporate continued reductions in the pace of asset purchases, with the program ending in the fourth quarter of this year. 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. In my projection, this occurs in the first quarter of 2015. This is a quarter earlier than the Tealbook's liftoff date.

Consistent with the Committee's forward guidance, I project that, after liftoff, the fed funds rate will rise gradually over the rest of 2015, similar to a path suggested by a Taylor (1999) rule with inertia. As the expansion strengthens, I believe it will be appropriate to raise interest rates at a more rapid pace described by a less inertial Taylor (1999) rule. As a result of delaying liftoff until early in 2015 and the inertia in my monetary policy rule, by the end of 2016, the fed funds rate target is somewhat below its longer-run normal level, which I put at 3.75 percent, despite unemployment and inflation both being near their longer-run levels.

As with any forecast, there are risks. I view the risks, including a number of international risks, as broadly balanced at this time. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. The Tenth District economy continued to expand moderately since our last meeting. District employment picked up slightly in April, and four of our seven District states now have unemployment rates at or below their pre-recession average. Service and manufacturing firms both reported stronger activity in May and remained optimistic about employment growth in coming months. And, finally, drilling activity in the Tenth District increased further in May, driven by a rise in crude oil activity.

Turning to the national economy, my outlook for real growth is little changed compared with our last meeting. Like others, I expect a rebound in the second quarter from the decline we saw in the first quarter, and I have lowered the path of the unemployment rate through the end of 2015.

Looking ahead, I continue to expect above-trend growth of around 3 percent over the forecast horizon. The fundamental factors supporting this forecast are fiscal drag ending, labor markets improving, household wealth continuing to rise, and financing conditions remaining supportive of growth. The most recent NFIB survey is consistent with my view of a gradual pickup in economic activity and inflation. Small business optimism and the percentage of small businesses expecting higher real sales in the next six months are at or tied with their post-recession highs.

In terms of labor markets, the composite labor market indicators constructed by my staff continue to show improvement in the level of labor market activity, and the momentum indicator of this survey is higher than at any time in the past two decades. Key factors contributing to the high level of momentum are the growth in aggregate weekly hours and improvement in the University of Michigan's measure of expected job availability. I'm also encouraged by the increase in the job-finding rate for the short-term unemployed—which increased from 22 percent in January to more than 29 percent in May, a post-recession high—as well as the significant increase in job openings in the latest JOLTS data.

In terms of housing, one of my District contacts, who is a CEO of a large national realty firm, characterized the housing market as settling into a more traditional and sustainable growth pattern, even as she described a confluence of factors that currently affect the market. Low inventories, tight lending standards, elevated levels of student loan debt for first-time homebuyers, and a lack of new building were cited as weighing on housing. And she noted that much of the available inventory is of rather low quality. The declining share of first-time homebuyers in the market was also cited as a substantial headwind. Similar to President Plosser's observation, work by my staff has highlighted that the aging population will continue to substantially shift demand from single-family units toward multifamily.

In the face of these issues, of course, housing remains extremely affordable by historic measures. I noted that the National Association of Realtors' Housing Affordability Index shows that housing is still substantially more affordable today than at any time between 1970 and 2009. In addition, I'm encouraged that the employment-to-population ratio for 16-to-24 year-olds has been picking up over the past 12 months, which may help foster demand for first-time buyers. So, even as housing continues to face headwinds, I expect historic affordability and an improving labor market to lead to continued, though modest, gains over the forecast horizon.

Finally, turning to inflation, recent data releases show that the deceleration we saw last year has ended, and we're seeing a broad-based increase in inflation over the past few months. The NFIB survey also reports that the percentage of respondents planning on raising their average selling prices and worker compensation is at or near its post-recession high. This gives me greater confidence in my outlook for a gradual increase in inflation to reach 2 percent by the end of 2015. Thank you.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. Although the first-quarter pothole keeps getting deeper, the latest data, including the significant improvements in the labor market, confirm that the recovery remains on track. All in all, looking past the middle of this year, I made few changes to my projections for growth or inflation. I expect growth to average just above 3 percent over 2015 and 2016 and the unemployment rate to continue to decline, reaching 6 percent by the end of this year, 5.4 percent by the end of 2015, and my estimate of the natural rate, 5.2 percent, in the first half of 2016. With output and unemployment gaps narrowing, I expect inflation to gradually move back to our 2 percent longer-run target over the next few years, although slightly faster than assumed in the Tealbook.

I see the risks to my projections as roughly balanced and the magnitude of those risks as similar to that of the past 20 years. One upside risk to inflation that I think is worth mentioning in the current context is a potential for energy price increases resulting from political disruptions in Ukraine or in Iraq.

The details of my projection are found in my SEP submission. I'm participant number 2, for those who want to have something to read tonight or who can't sleep. In my baseline forecast, we miss on our mandates for inflation and employment on the same side. They're too low. There's no conflict or tradeoff regarding appropriate policy, at least in terms of our macro goals. However, recent research on inflation dynamics and long-term unemployment raises the possibility of an upside risk to this forecast for inflation. If this risk materializes, inflation could reach our target before the unemployment gap is fully closed. And that would create a short-run tradeoff for monetary policy. I'll spend the rest of my time discussing the evidence regarding this risk and the implications for policy. Not surprisingly, much of this discussion is based on a recent paper that I wrote with Glenn Rudebusch. Signed copies are also available after dinner. [Laughter]

To preview, if we face this tradeoff—and I understand there are people in this room who are not convinced by this, but you think of this as a risk—it would be optimal to temporarily overshoot on inflation by a modest amount. Such an outcome balances our price-stability and maximum-employment mandates, completely consistent with the FOMC longer-run policy goals and monetary strategy statement that we agreed to back in January 2012 and have since twice reaffirmed.

Various Committee participants have discussed the evidence regarding the influence of long-term unemployment versus short-term unemployment on inflation. My own reading of the data and research leads me to conclude that it's hard to dismiss outright the possibility that the long-term unemployed have less effect on wage and price setting than the short-term unemployed. Estimating a standard expectations-augmented Phillips curve for the period from 1960 through 2013, Glenn and I found that the short-term unemployment gap is a far more important determinant of inflation than the long-term unemployment gap. In fact, in our own model, after controlling for the short-term unemployment gap, the long-term unemployment gap provides no additional information.

Now, I recognize that some have argued that this aggregate type of analysis is sensitive to model and sample specification, and I have read those papers. But I would mention that our findings are consistent with research by Bob Gordon, by Mark Watson, and by Alan Krueger, and they use different models and samples.

Others have noted that micro studies using cross-state or cross-city variation find little differences in short- and long-term unemployment in determining inflation. I think those studies are very interesting, and I've been following that closely. I will say that these studies are themselves not immune to some criticisms, especially around identification—basically separating causation from correlation and distinguishing between macro effects and local effects. In that regard, it is interesting to me that there is actually a very well-developed literature on this subject in the United Kingdom associated with Layard, Nickell, and Manning, which did do very careful econometrics on the British data. It's a different country, but they do find results similar to those we found in the United States—that the long-term unemployed have little influence on price setting in the United Kingdom.

The way I read this evidence right now is that there's evidence on either side, and it's far from dispositive. With the short-term unemployment rate close to its historical average, we should at least be open to the possibility that inflation will move up faster than expected and be prepared to respond appropriately. In other words, this is a risk to the Tealbook baseline forecast that I thought was worth investigating.

The appropriate response to such an unexpected pickup in inflation depends, of course, on whether it also implies that we're nearing full employment. The long-term unemployed are essentially disengaged from the labor market and beyond our policy reach. So the short-term unemployment gap would also be a good measure of maximum employment. I want to say that the evidence does not support this view. First, our time-series analysis in our own paper shows that the long-term unemployment share in the United States is cyclical, suggesting that, as the economy improves, the share will return to its normal level.

Second, as I mentioned at previous meetings, the long-term unemployed are finding jobs, and the rate of reemployment has actually improved as the economy has gained strength. This implies that weak aggregate demand, rather than hysteresis or other structural factors, is behind today's elevated rate of long-term unemployment.

Finally, the long-term unemployed look similar to the short-term unemployed across key characteristics such as educational attainment, occupation, and industry, especially by comparison with past recoveries. So overall, this evidence indicates, in terms of employability, that the long-term unemployed are, in general, not that different from the short-term unemployed—other than in the duration of their joblessness. As a consequence, the total unemployment rate, rather than the short-term unemployment rate, to my mind, remains the right metric for thinking about maximum employment in our mandate.

So combined, the evidence on inflation dynamics and the employment prospects of the long-term unemployed raise the risk that the resource gap for determining near-term inflation could, in fact, be different than the one associated with maximum employment. In other words, the limited impact of the long-term unemployed on inflation creates a wedge in the dual mandate—in particular, a divergence between the policy path that satisfies our inflation mandate and the one that satisfies our full-employment mandate.

In our paper, we actually studied this using optimal policy in a simple forecasting model, and we looked at the implications of this wedge. We find that the influence of this wedge is just like a supply shock in any other model. Appropriate policy calls for balancing the objectives of price stability and full employment by allowing inflation to temporarily overshoot its target by a modest amount. With inflation rising more quickly, optimal policy is somewhat tighter than in the standard model that does not distinguish between short- and long-term unemployment. So, from the point of view of the policy implications, it's very much like a supply shock, and you can think of policy just responding to that as the inflation data confirm that that's what's going on. Thank you.

CHAIR YELLEN. Thank you. It's 6:00. I'm going to suggest we break for dinner and reconvene at 9:00 in the morning.

MR. TARULLO. Let's say 9:00 tonight. [Laughter]

CHAIR YELLEN. That's good—9:00 tonight. We could get it all done. I think 9:00 a.m. should work, and we'll finish up the economic go-round then. I'm hoping that the policy round is not too complex. Across the way, dinner will be served.

[Meeting recessed]

June 18 Session

CHAIR YELLEN. Good morning, everybody. Let's resume our economic round. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. My views, like those, I think, of most people around the table, haven't changed much since the previous meeting. We are getting the bounce in economic activity that we expected this quarter, and I think it looks mostly sustainable given the improvement in fundamentals, including the relatively strong payroll trend we have seen and supportive financial market conditions.

That said, though, I still have considerable uncertainty about what the growth rate is going to be during the second half of the year, after the bounce. The Tealbook estimate of 3½ percent annualized growth in the second half certainly seems doable, but I also wouldn't be surprised if we fell back into that 2 to 2½ percent range that we have averaged since the recovery began in 2009. Such a difference in the growth rate—say, 2½ percent versus 3½ percent—I think is important because it would be meaningful in driving the expected timing of liftoff. I'd like greater clarity about that, and what the growth trend will be in the second half before making any adjustments to our communications that change expectations about the likely timing of liftoff.

I also view the sustained decline in the unemployment rate as noteworthy. I don't think this decline tells you that much about how much slack remains in the labor market given the drop in the participation rate. But at the same time, I don't think we can ignore it altogether, as we don't know how many of these discouraged workers will return to the labor force as the labor market tightens. So, at the margin, I think the likelihood has increased that we will run out of excess slack in the labor market somewhat sooner than we had thought earlier.

Another issue pertains to headwinds. How long will they persist? In terms of housing, I was quite skeptical about the Tealbook's forecast at the beginning of the year. It showed a pretty strong recovery in housing, and I continue to believe that the housing recovery will be a slow slog.

One question is, what will happen to credit availability in terms of mortgage loans? Credit scores have become a much more important factor in driving the availability of mortgage credit. And on that point, my thinking has evolved. Earlier, I thought that credit availability would improve relatively quickly as the financial sector returned to health and housing prices recovered. But now I think that this bifurcation across FICO scores will turn out to be much more persistent. The reason for that is, I think, that the mortgage-lending decision fundamentally changed. Prior to the crisis, the security of the loan rested primarily on the house as collateral. The credit quality of the borrower was viewed as much less important, and we certainly saw that in terms of the type of people that got mortgage credit during the crisis.

This presumably made sense in a world in which housing prices typically rose, because that drove down the loan-to-value ratio and drove up the margin of protection to the lender. But I think the crisis changed all of this. Housing prices declined significantly, and people found out that the foreclosure process was painfully slow. Thus, the collateral of the house offered much less protection to the lender than had been anticipated at the time the loan was made—hence, the need to place a greater weight on the creditworthiness of the borrower. I don't think this is something that is going to change anytime soon. Now, when you put this together with the increased student loan debt burdens and higher down payment requirements, this suggests that the housing headwinds will be with us for a long time.

Finally, I'd like to pose and answer a few questions about the low level of volatility that we have seen in currency, equity, and fixed-income markets. This does cause me some concern that market participants will respond to this by taking on greater risk. That would prove problematic when volatility inevitably increases.

The first question is, why is volatility so low? As I see it, there are two broad sets of factors. First, the economy is evolving in a way close to the consensus outlook, so existing positioning doesn't need to be adjusted because the outlook hasn't changed in a material way. And, second, I think there is remarkably little disagreement about the outlook; the dispersion of the forecast is quite narrow.

The second question is, are we responsible for this low level of volatility? Well, I think we are partially responsible. Our gradual, predictable taper of our asset purchases and our forward guidance with respect to liftoff does help reduce uncertainty about the path of short-term rates, and this contributes to less volatility. That raises the question, should we do something about this if we are partly responsible for this low volatility? Well, I do think we should remind investors that the world is uncertain, and that this low volatility will inevitably end at some point in the future. We want investors to behave in a way consistent with the risks that exist and how the world might unfold in the future.

But I don't think we want to deliberately create more uncertainty about monetary policy just in order to make financial markets more volatile. That is because low volatility also contributes to rising stock prices and lower term premiums that make financial conditions more accommodative, and that is actually a goal of policy. At the zero lower bound, keeping financial conditions accommodative is what we're trying to achieve. As I see it, we're essentially incurring some increased risk on financial stability—in other words, we are generating lower volatility—in order to generate easier financial conditions and faster progress to our dual mandate objectives.

For myself, I think the tradeoff here is still favorable. Although there is increased risk-taking, leverage hasn't increased much and credit growth is sluggish. I think the impact of a sharp rise in volatility is manageable. In contrast, if we weren't at the zero lower bound, I would feel differently. Then, it wouldn't be such an attractive tradeoff. We could have more volatility and less financial-stability risk, but we could offset that impact on financial conditions by lowering short-term interest rates. In the current setup, this isn't available to us. The bottom line for me is, at the zero lower bound, you may want to damp volatility to make financial conditions easier, even though there might be some payback for this later. Thank you.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thanks very much, Madam Chair. I'd like to just say a few things about how the state of the economy looks or, rather, what questions I have about it. We have got two basic facts since last time. One is, we had an extremely weak first quarter. It seems to be getting weaker and weaker. I'm not sure whether I take any comfort from the fact that the staff says that it's not so much weather, it's exports and inventories. If that's the case, it's not an act of God, or at least only in a very complicated sense is it an act of God. [Laughter] And it means there is something happening in the economy that we really didn't quite understand; on exports, okay, that's the rest to the world, but on inventories, I'm not sure what it is. I don't take much comfort from that. I would rather it was the weather, and then we'd know it's warm now, and we're not going to have that this quarter or next quarter.

The other fact we had was the labor market seems to be continuing to do well, and I think almost everyone here thought that there would be a backup from 6.3 percent to 6.4 percent or something like that. It didn't happen. And the staff had to decide how to deal with these facts. Well, they've gone with the strong labor market and downplayed what happened in the first quarter. But at the same time we have had a major decline in expected growth because of lower potential growth. That, I understand, was something that was in the pipeline of the production function of the Division of Research and Statistics for some time, so it's not directly caused by the first quarter.

We have some key questions now. One is, how fast are we growing? Well, the outcome we get is, in the long term, less than we thought, and in the short term, not very different than what we were growing at, except for the statistical effect of having the first quarter be negative, and more and more negative so far, as time has gone by.

I think we don't know very much about the long term, and I'm going to wait before marking down long-term growth. Well, I have read the papers by Bob Gordon, and I have listened to Joel Mokyr, and I read the newspaper yesterday, and I understand there's still an argument going on in the profession, both of them based on things that are not very easy to quantify.

I am mindful of the work by Reinhart and Rogoff and the fact that recessions accompanied by financial crises are longer and deeper. Despite all the noise about their empirical work, I think that fact is pretty well established. I don't know that we have finished seeing the impact of that financial crisis on the growth rate, so I haven't made up my mind about whether we're heading for secular semistagnation or just looking at a fairly long disturbance.

The second question is, what will happen to fiscal policy? Well, it is not going to become very expansionary, but we may get a little bit out of state and local governments if the economy begins to expand more rapidly, as is the forecast.

The third question is, how fast is the labor market approaching full employment? Well, it's certainly faster than we expected. And it's interesting, if you look at the behavior of both the short-term and the long-term unemployed, they are both coming down. Long-term unemployment took a turn and is also coming down, and that's part, presumably, of the ongoing equilibration of the labor market. That means that productivity must be growing less fast than we thought, except for the participation rate declining.

The fourth question is, how fast are wages rising? This relates to inflation. They are rising very slowly, but I don't think they will be growing as slowly as this when we begin growing at 3 percent or a little more, and as the unemployment rate gets close to our estimates of full employment. And if the Phillips curve is supposed to be very flat, I don't think it will stay that flat when we get closer to full employment. Now, I might be asked, on what empirical work do you base this? I haven't done that empirical work.

And, fifth, what is the outlook for inflation? It depends on wage growth and various other things, but here I want to go back to a question I raised yesterday. We are putting a lot of weight on the inflation rate not being at 2 percent. It is our inflation rate that is not at 2 percent, so we are not achieving our goals. My guess is that the public thinks we are achieving our goals, because I'm not sure they know what the inflation rate as measured by the PCE deflator is. And my guess is, if there's anything they think about it's the CPI, which is probably the best estimate of what their cost of living looks like to them.

I don't think that the small changes in the inflation rate that we calculate in using Okun's law, and everything else that we've got in the model, are really entirely relevant to how the public—and that means businesses as well as households—see the inflation rate, and I think the outlook for inflation is a little less, but—and now I come to the second point—we have this incredible uncertainty about these things, and we don't really know how to deal with it.

Vice Chairman Dudley just talked very convincingly about how to think about low volatility in the context of, nonetheless, having high uncertainty about the future. But I want to quote from the Tealbook. Apropos the real federal funds rate, the Tealbook emphasizes—this is on page 31 of Tealbook A—"the high degree of uncertainty around these estimates." First, of the long-run real federal funds rate, "70 percent confidence interval around our estimate of 1¾ percent would run from negative ¾ percent to 4¼ percent." I don't know how to think in that context of changes of ¼ percent that are possible, and so forth.

Now, trend output growth can be estimated more precisely with a standard error of just over ½ percentage point. But we should recognize, if I can quote Herb Stein, which I will do frequently in the years to come, the difference between a growth rate of 1 percent and a growth rate of 2 percent is 100 percent. And the difference between a rate of per capita growth of 1¼ percent and 1 percent, which is what we have changed to, is 20 percent. That is not small. If you think it's small, ask yourself what difference it makes over 50 years. It makes a big difference whether we're growing at 1 percent or 1¼ percent. That's a big change, and I also don't know what we should do about it.

We had a little bit of a discussion of this yesterday—I don't remember in which context, but we need to think about that. Bill has just given us an example of how to do it. The other part is very clear, and I don't think there is any ambiguity. I don't believe that the rates of uncertainty we have in the economy now are representative of the behavior of the economy, and the rates of uncertainty reflected in the VIX or something like that, are in fact the amount of uncertainty that is around.

I think that we ought to keep saying these estimates are uncertain because, if not, we will be accused of screwing up again. We will end up like Mark Carney, who was mentioned yesterday for having changed the Bank of England Monetary Policy Committee's forward guidance. Well, he is only changing because they wanted to give the impression that they knew for sure what was going to happen and when they were going to do it, and they didn't because the uncertainty is so large.

I think we've got to not use uncertainty as an excuse for not achieving what we may want to achieve, but just to say, "These are our best estimates, but there is a lot of uncertainty out there in the world. Many things can happen, and we will make responses to changes in underlying conditions, and you should expect that. This is what we think will happen." We can't say "We also know that with a probability of 99.5 percent it won't happen," but we could say that and totally confuse the public. This is something I am just throwing out because I don't know how to deal with it either. But I think we've got to figure out how to deal with it.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. A few quick points, some of which are connected. First, I subscribe to the general view many of you have already stated that the significantly increased momentum of this quarter will continue through the year, though probably at a somewhat reduced pace. In addition to the factors that have been cited by others yesterday afternoon, it is probably worth noting that cap-ex almost has to jump some this year, because there have been so many delayed investments needed to replace worn-out equipment. And from what I've read, some of that is just going to come due.

Second, though—and this is a variation on the theme sounded by Vice Chairman Dudley and Governor Fischer over the past few minutes—I find it a little hard to totally ignore Q1. I mean, subject to data revisions that would make things look a little less bad, the early part of the year wasn't a hiccup; it was more like coughing up blood. And since weather is, at most, an incomplete explanation, as Governor Fischer just pointed out, particularly for the housing slowdown, I think there is probably at least a little bit of reason for lingering concern as to whether there is some weakness underlying the recent bounceback. I think that's connected to some of the things Bill was saying.

Third, there certainly continues to be improvement in the labor market. Everybody cited it. By definition, that means there must be less slack than there was six months ago. But I think it's still hard to say just how much less slack there is. Some of the incoming data, I think, can still be read in ways that are consistent with both of the narratives we have been hearing over the past year or two or three—for example, the recent uptick in job openings has been read by some as an indication of latent mismatch problems now manifesting themselves, suggesting that there is less slack. But I think you could also read it as an indication that employers are finally moving from talking about more hiring toward taking the steps to actually do more hiring. What will ensue will be more hiring and perhaps increased employment of the long-term unemployed, whose rates of job-taking, as Stan just noted, have picked up some.

Similarly, I think the relative impact of the long-term unemployed on wages and inflation is going to continue to be hard to pin down. I will confess to not having read the new paper coauthored by President Williams. I didn't download it and read it last night, President Williams—I'm sorry—but I will. As he was describing it yesterday, I was reminded again that until this recession and recovery, short-term and long-term unemployment in the United States had essentially moved together for more than half a century. In some sense, the current situation is really the only observation we have to make judgments about the implications of long-term unemployment in a context in which it isn't changing, more or less, in lockstep with short-term unemployment. That is why I think we are going to continue to see good, thoughtful work on both sides of this issue for a while to come, and why, as I said a couple of meetings ago, I think we are just going to have to be pragmatic in making decisions.

Fourth, we have definitely seen some early signs of a pickup in wage increases, though not so much in total compensation. I believe we should all hope that this trend continues and, indeed, accelerates, since PCE increases are going to be hard to sustain at the levels that are anticipated in the Tealbook in the absence of significant increases in household income. I mean, we are not going to be able to continue to rely on wealth effects from the asset appreciation over the past year or so and the declining saving rates that we have seen over the past year or so.

Fifth, and finally, unless there is something ominous lurking in the Q1 experience, it does seem as though the biggest downside risks to the U.S. economy are foreign in origin, both economic and geopolitical. On the economic side, people have mentioned—Beth Anne did yesterday—the case of possible Chinese inability to maintain growth above 7 percent. I have also begun to wonder some about Japan, which seems to be slipping from the relatively favorable trajectory that it established last year. On the geopolitical front—this is all pretty obvious—there has been some reduction in risk of broad-based fallout from Ukraine, but it's still material. As a couple of people noted yesterday, Iraq has returned to the fore as a source of potentially substantial instability with rising effects of the type we have already seen on oil markets and beyond. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. My forecast is close to that of the Tealbook baseline, and I continue to see a good bit of slack in the economy and also the absence of strong evidence of tightness either in prices or wages or other metrics. I'd like to focus for a few minutes on conditions in the financial markets, which I see as a potential risk to this forecast.

After almost six years of highly-accommodative policy, the risks are out there and continue to build. To be specific, the risk in the near term, to me, is not that of a meltdown at the core of the system, which is much stronger and better protected than before the crisis, but rather that of a sharp correction amplified by the liquidity mismatch in the markets that would damage or halt the progress of what is still a weak economy.

As we've discussed, and I would be in agreement generally with Bill's approach to this question, but as we discussed yesterday morning with the staff, implied volatility for equities, currencies, and long- and short-term fixed income are at historically low levels around the globe and market participants have pointed to a number of explanations for that. Particularly important for me would be, along with low realized volatility and the reach for yield, the guidance that this Committee and other central banks have given, that rates will remain low for the foreseeable future. This explanation, to me, cuts across and supports all of the other explanations.

Low volatility gives a feeling of safety and encourages the taking of risks, often in the form of levered bets, and a sudden increase in volatility can also lead to a sudden flight from these positions, big price movements across financial asset classes, and a significant tightening of financial conditions. The reach for yield is also evident across fixed-income markets—for example, there has been a resumption of strong flows into emerging market bond funds, which are often regarded as the canary in the coal mine. Investors have also shown strong appetite for European spread products, including peripheral, sovereign, and bank debt.

Conditions in the leveraged finance markets in the United States and Europe are extremely loose. In the United States, leverage is high, although not quite at all-time, pre-crisis highs. Yield structures are historically weak with covenant-lite loans at an all-time high and also with less visible and more complex terms that have typically precluded, for example, the incurrence of additional debt and payments to equity holders. The share of issuance from low-rated borrowers—single-B and triple-C—is at an all-time high. Rates and spreads are also at or near historic lows. With the support of the economic environment, low rates, and no covenants to violate, defaults are low and should remain low for a while, but these trends suggest that the ultimate wave of defaults will be quite large when it does materialize.

As President Fisher raised yesterday, wholesale investors are piling into newly created CLOs, and dealers are offering them leverage to fund their investments. In this case, the investor's position is in a leveraged investment vehicle that funds leverage at the level of the corporate buyer. From an investor's standpoint, this is three levels of leverage. The point here is not to suggest that these are at all like the systemically dangerous SIVs of 2007, but more to illustrate the pressure that investors are under to find yield and the risk that they are taking.

Meanwhile, compared with the pre-crisis era, availability and provision of liquidity in the markets is less certain and more at risk of drying up exactly when it's needed. Dealer fixed-income inventories remain well below pre-crisis levels despite huge inflows into this sector since the crisis, much of it from retail investors, and many attribute this to the changed regulatory environment of the Volcker rule and the leverage ratio and stronger supervisory guidance about balance sheet risks. ETFs and other retail-oriented investment vehicles own an increasing share of less liquid fixed-income products, exposing potentially unsuspecting retail investors to large liquidity risks.

Putting these factors together, there's widespread concern that a return to higher levels of volatility and a material repricing of these assets, perhaps triggered by a central bank decision to begin raising rates, would be amplified by strong retail outflows and low liquidity. The result would be a sudden tightening in financial conditions and material real economy effects.

So what to do about it? In my view at this point, this is not particularly an argument for bringing forward rate increases, nor are there obvious regulatory tools close to hand—for example, there's a growing amount of anecdotal information that suggests that hedge funds and private-equity firms are busily building their own platforms to initiate and underwrite leverage financings as new regulations and our guidance put more pressure on regulated institutions.

It seems to me to be a task mainly for communication, on which a great deal rides. I must say I found the statement by Governor Carney of the Bank of England last week interesting in this regard. As we all know, he noted that the bank's first rate hike could happen sooner than markets currently expect, and this unexpected statement seems to have been intended to produce a reaction, which it did. Sterling rates and volatility moved up significantly. After a short delay, U.S. rates and volatility also moved up in a more muted fashion as investors digested this speech, as the U.S. is seen as being only a few months behind the Bank of England in tightening.

The Carney speech shows the sensitivity of the markets to the slightest hint of an actual rate increase, even one that is thought likely to be at least a few months off. It also shows one possible way to avoid a disconnect between market expectations and Committee intentions. I'm not recommending this for today, I'm just pointing out that it is important that we avoid such a disconnect. In my view, in the short term, Governor Carney has done us a small favor by shaking the market out of its complacency, and I just will close by saying that this issue will require close watching and perhaps eventually action along these lines. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard? [No audible response] Okay. Well, I want to thank you for a very interesting set of observations on the economic outlook. At our previous meetings I summarized some of your comments during the go-round by relating them to a few key questions that underpin our policy decisions, and with your indulgence I will employ the same approach today, relying, in fact, on questions that are close cousins to those I posed last time. The questions are the ones that we've established to continue tapering our asset purchases, namely, is the labor market continuing to improve and is progress likely to be sustainable; and second, is it reasonable to expect that inflation will return to our 2 percent objective over time?

On the question of labor market improvement, I heard broad agreement around the table that the labor market is continuing to improve. A number of you, including Presidents Fisher, Plosser, and Bullard, mentioned positive labor market developments in your own regions, and of course, the employment reports for April and May showed solid job gains nationally with the three-month averages of both total and private payroll gains now standing about 230,000 per month, which is up from about 180,000 in March.

President George and several others mentioned a wide set of labor market indicators and various indexes that you've constructed; the ones similar to the Board's labor market index likewise suggest improvement. The U-5 and U-6 are down, job openings up, the rates of hiring and quits, while still below normal levels, are gradually moving up. The prevalence of hard-to-fill jobs is rising. Household surveys suggest some improvement in confidence in the labor market, and Governor Fischer just noted that both long-term and short-term unemployment are coming down.

Of course, along with the decline in the unemployment rate, we have also seen a significant decline in the labor force participant rate, and Tealbook interprets part of that decline as cyclical. It does not interpret the full decline in U-3 as reflective of reduction in labor market slack. Several of you, including Vice Chairman Dudley, noted that you agree with this interpretation, but I did hear some skepticism around the table about this conclusion, and Presidents Plosser and Bullard both suggested that we may not, in fact, see any significant bounceback in participation. Indeed, conceivably, the decline is related to the structural phenomenon that President Fisher mentioned yesterday, namely, the disappearance of middle-class jobs. I think the evidence does suggest that a disproportionate share of job loss during the recession came in middle-paying occupations, whereas the gains since then have been tilted somewhat toward lower-paying occupations.

On the topic of how far we remain from our maximum employment goal, this is something we will surely be debating in the coming months. A number of you—including Presidents Rosengren and Lockhart, who mentioned this explicitly—see notably more slack than would be indicated by U-3 alone. This reflects the fact that an unusually large share of the work force is involuntarily underemployed, as well as the unusually large decline we've seen in labor force participation, a portion of which arguably reflects cyclical factors. These forms of shadow underemployment or unemployment are disproportionately high relative to U-3.

One implication, as President Rosengren mentioned, is that the labor force participation rate may move sideways as the labor market strengthens over the next few years. That's what Tealbook envisions, and we may, therefore, see U3 declines at a slower pace than recently.

There was some discussion of labor market shortages. President Fisher, in particular, noted increased concern in Texas with the shortage of qualified job candidates. That said, outside of a couple of regions, occupations, and sectors, several of you mentioned that there isn't much evidence of general pressure on wages and compensation. President Lockhart mentioned that part-time workers appear to be holding wage growth down. By almost all metrics, the overall movements we have seen in compensation still show little evidence of acceleration, which is consistent with substantial remaining slack. President Evans mentioned that his business contacts at this point show no concern with wage or broader cost pressures.

Moreover, the ability of firms to replace workers with labor-saving technology—and they're willing to do so if they encounter wage pressures, a phenomenon President Fisher described in his remarks—could be a further factor holding wage growth down. In fact, I personally wonder if such technological possibilities may be contributing to the tendency we've seen for quite a number of years now for real wage growth to lag productivity growth. One of my own concerns—and this is something that Governor Tarullo mentioned—is that if wage growth doesn't turn up, we may not see rapid enough income gains to support the consumer spending forecast in Tealbook. If the markup and the share of labor income in GDP do not stabilize, and if the marginal propensity to consume out of labor income exceeds that from capital income, we could easily see growth remaining stuck near 2 percent rather than gradually strengthening as in the Tealbook forecast.

On the issue of sustainability of continued labor market gains, many of you—and I think I would include in this list Presidents Mester, Williams, George, Plosser, Dudley, Fisher, Bullard, and Evans and Governor Tarullo—perhaps I've missed some—expressed an expectation that the economy will continue to grow rapidly enough to sustain labor market gains. The decline in GDP in the first quarter was surprisingly large, but many of you cited a wide range of evidence suggesting that we are in the midst of a significant rebound. Many of you, like

President George, noted a list of good reasons for aggregate demand to grow at a moderate pace in the remainder of the year. These include diminishing fiscal drag and accommodative monetary policy, rising household net worth, and generally improved balance sheets, with continued solid gains in employment.

President Lockhart and others noted signs that the credit conditions are easing. In addition, Presidents Lockhart and Evans and Governor Tarullo cited some evidence from surveys and your business contacts suggesting that investment spending should strengthen. A number of you described your impressions of business sentiment, with President Evans, I believe, describing it as good, not great, which is consistent with my own impression from recent meetings with business leaders.

Presidents Fisher, Plosser, Lacker, Lockhart, and Fisher—I said "President Fisher" twice, I apologize—

MR. TARULLO. This is going to happen a lot. [Laughter]

CHAIR YELLEN. —commented on their impressions from surveys with their contacts describing sentiment using terms like "positive," "favorable," and "solid." But several of you did comment on housing, noting that it does remain very soft. Tealbook expects a considerable pickup, but I did note comments by Vice Chairman Dudley and Presidents George, Lacker, Lockhart, and Plosser suggesting that for a host of different reasons relating to demographics, student debt, credit constraints, and supply constraints in producing housing, that the softness we have seen may be with us for quite a substantial time.

Although most of you appear to have incorporated in your forecasts an expectation that growth will pick up to an above-trend rate in the remainder of this year and next, a few of you—Presidents Rosengren and Lockhart, Governor Tarullo, Presidents Bullard and Evans, Governor

Fischer, and Vice Chairman Dudley—did sound some notes of caution here. The forecast of a return to moderate growth does remain just that. It's a forecast and not yet a reality. President Bullard noted that the quarters with negative growth are quite rare and may not, in fact, prove to be transitory, and several of you noted—President Rosengren, I think, noted this particularly—that incoming data have caused you to lower your forecast, becoming a bit more pessimistic. I personally agree that given how frequently we've been burned in the past, some degree of caution is in order until forecast turns into reality.

Turning to inflation, many of you noted the higher recent readings we've seen on core CPI and PCE inflation, including yesterday's CPI reading, and interpret that as providing positive evidence that inflation is in fact moving back up toward our goal, which is a condition we have established to continue to reduce the pace of asset purchases.

A few of you, and I would include here Presidents Plosser, Fisher, Lacker, and Bullard, expressed concerns that, absent a sufficient removal of policy accommodation, inflation could well rise above the Committee's target. Presidents Fisher and Plosser and Governor Fischer cautioned us to remember that with declining unemployment, wages may rise, pushing up inflation and leaving us behind the curve, with a few of you noting that the risks could entail a rise in inflation expectations, although Governor Fischer cautioned us that there is huge uncertainty around this forecast. But I think it's fair to say that no one at this table would like to experience a repeat of the 1970s.

President Williams noted that in recent work with Glenn Rudebusch he found evidence confirming the view of Kruger, Gordon, and others that inflation is more sensitive to short-term than to long-term unemployment. Frankly, I've personally been skeptical of this finding based, in part, on work by Board staff, and as Governor Tarullo mentioned, the increase we have seen in long-term unemployment is pretty recent and historically unique, and it could have other interpretations, such as downward nominal wage rigidity.

But I think we need to recognize that it is a possibility, and, if so, inflation could rise to mandate-consistent levels well before our full employment goal is attained. The conclusion that President Williams drew isn't that the Committee is behind the curve, but rather that the Committee may need to permit a temporary overshoot of our 2 percent inflation target to counter hysteresis, and I do think this is an important policy issue and it's one that will merit further discussion in the days ahead.

In contrast to the concerns that were expressed that inflation may rise above our target, Presidents Rosengren, Evans, and Kocherlakota focused on exactly the opposite concern, that inflation may persist below our target for a prolonged time unless we permit unemployment to overshoot our estimate of its natural rate, along the lines contemplated in Tealbook and justified by the analysis described in the Lindner memo. Under these circumstances, President Kocherlakota emphasized the risk that inflation expectations could drift down over time, as in Japan, and low inflation expectations could potentially become endemic and hard to change.

On balance, you continue to expect that, under our current policy path, inflation will gradually move up toward our 2 percent objective. Some of you mentioned, as in Tealbook, that this could require a period of running the economy above potential.

Briefly, on risks to the outlook, most of you mentioned that they seemed reasonably balanced, and the main risks I heard pertained first of all to global developments, such as slowing growth and financial-stability risks in China and the possibility that tensions in the Middle East could lead to a sharp increase in energy prices.

Also importantly, Vice Chairman Dudley and Governor Fischer and particularly Governor Powell spoke to the issue of the low level of volatility and the trends we're seeing in financial markets, some compression in credit spreads, reach for yield, and other risks to financial stability, and I absolutely agree that these are trends that are disturbing and, at a minimum, warrant monitoring. Let me come back to this in a second.

Just adding a couple of brief comments of my own. With respect to the outlook, I haven't changed my baseline forecast very much at all since our previous meeting, and I, too, see the broad range of incoming evidence as suggesting continued improvement in the labor market. That said, I agree with those who see the decline in U-3 as overstating that degree of improvement, and I particularly see a portion of the decline in the participation rate as reflecting discouragement.

With respect to the prospects for growth and continued improvement in the labor market, I frankly found recent data to be quite perplexing. At this stage, it looks like we'll see a pretty alarming decline in first-quarter GDP, and although most of the decline is due to large negative contributions from net exports and inventories, private domestic final purchases also seem to have slowed, and the most recent retail sales numbers haven't been all that encouraging either. As Governor Fischer mentioned, it's not clear we should take heart from the fact that net exports and inventories declined either. There are real crosscurrents here.

As I mentioned, I am also worried by the continued failure of real wages to grow in line with productivity. I agree with Tealbook that as the labor market tightens this trend will probably change, but I do see it as a downside risk to the outlook for consumer spending. Without denying the substantial progress the economy has made toward returning to maximum employment, these observations underscore to me the importance of remaining cautious as we approach the question of the appropriate timing for removing accommodation.

And I would also just emphasize that I, too, am concerned about developments in financial markets and the signs we may be seeing of complacency in some segments. In addition to continued general vigilance in monitoring, I think applying appropriate supervisory and regulatory measures is in order. I also do think it's important to lean against any tendency that develops in markets to view the FOMC as making any unconditional policy promises.

In other words, I think we should emphasize—and this is something that Governor Fischer emphasized, and Governor Powell and Vice Chairman Dudley also commented on—that policy is truly data-dependent. If, based on our reading of labor market conditions, inflation, and financial conditions, the outlook were to strengthen materially, policy accommodation would be removed sooner than markets might anticipate, and market participants need to be aware of this possibility.

However, I do agree with Vice Chairman Dudley that I would be reluctant to purposely say something to try to jolt expectations and to purposely raise volatility, given that we're against the zero lower bound, and that's a delicate balance, but I think it's one we need to navigate.

Let me stop there, and I think we're ready to turn to our policy round. Let me turn to Bill next for his briefing.

> MR. ENGLISH.[5] Thank you, Madam Chair. I will be referring to the handout labeled "Material for Briefing on Monetary Policy Alternatives" that was distributed this morning.
>
> As shown in the top panels of your first exhibit, despite the unexpectedly large decline in economic activity in the first quarter, the staff, the primary dealers, and your SEP contributions all still point to fairly steady declines in the unemployment rate and a gradual return of inflation toward your 2 percent goal as the economy

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

grows at a somewhat faster-than-potential rate over the next couple of years. With the economy still on track, you may see the outlook for policy as little changed.

The primary dealer economists would agree. As shown in the middle-left panel, the median dealer projection for the path of asset purchases is unchanged from April. All of the dealers are virtually certain that the Committee will reduce the pace of purchases another $10 billion at this meeting and that purchases will continue to move down in measured steps. Most dealers expect that you will cut purchases from $15 billion to zero at the October meeting, though a handful see a $10 billion reduction at that meeting, with Treasury purchases continuing at a pace of $5 billion through December. As Simon noted yesterday, there is still a fair amount of disagreement about when you will choose to end reinvestments of principal payments on SOMA holdings, but, of the dealers who answered the question, most now see the end of reinvestments coming after liftoff. Moving to the right, this timing contributes importantly to the later decline in the dealers' expectation for the size of the SOMA portfolio than in the staff forecast, which assumes that reinvestments end at the time of the first increase in the funds rate.

The bottom panels examine expectations for the path of the federal funds rate. As shown on the left, the median dealer and buy-side survey respondents made only modest changes to their outlooks for the funds rate since the April survey and continue to expect a gradual rise in short-term interest rates starting next summer. As shown to the right, the dealer survey, the staff forecast, and your SEP contributions all show a reduction in the longer-run normal level of the federal funds rate over recent months.

Turning to the alternatives for this meeting, with the medium-term economic outlook little changed, you may want to make only small changes to the statement, as in alternative B on page 6.

The first paragraph of alternative B updates the Committee's summary of recent economic developments, noting that economic activity "has rebounded in recent months," without explicit reference to the transitory decline in output during the first quarter. It is a bit more upbeat than the April statement regarding labor market developments, describing them as generally showing "further improvement" and noting that, although the unemployment rate is lower, it remains elevated. Household spending is described as rising moderately, and the statement notes a resumption in growth of business fixed investment. The only other changes to the statement are a reduction in the pace of asset purchases noted in paragraph 3. Market expectations appear to be fairly well aligned with a statement like alternative B, and consequently it would be unlikely to generate a significant reaction in asset markets.

Alternative C, page 8, may appeal to those of you who are convinced that first-quarter growth was held down almost entirely by transitory factors and that the underlying pace of economic expansion remains sufficient to eliminate labor market slack relatively quickly. You may also see the recent firming in inflation as likely to be more persistent than the staff, or may be concerned that continuing asset purchases well into the fall and keeping the funds rate at its effective lower bound well into next year could pose risks to inflation or to financial stability. These views may lead you to want to taper asset purchases more rapidly and, by doing so, signal that liftoff is likely to occur earlier than markets now expect.

Like that for alternative B, the statement for alternative C begins by indicating that economic activity has rebounded in recent months. However, it is more upbeat than alternative B in noting that labor market indicators have shown "broad further improvement," and introduces more expansive language characterizing payroll employment, as well as the unemployment rate and other measures, as indicating that "underutilization of labor resources remains." It is also more positive in its description of business fixed investment and inflation. The third paragraph announces a larger reduction in the pace of asset purchases, while the fourth suggests that there could be a similarly large reduction in the future.

A statement along the lines of alternative C would surprise investors and 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 as well. Longer-term interest rates likely would rise, equity prices fall, and the dollar appreciate.

Finally, alternative A on page 4 may appeal to policymakers who view the sequence of downward revisions to first-quarter GDP as casting doubt on whether the current rebound in economic activity marks a return to sustained above-trend economic growth, or who are concerned that inflation might not return to 2 percent anytime soon without additional monetary accommodation. Such policymakers may want to continue asset purchases at their current pace for now to await further information concerning the economic outlook, labor market conditions, and inflation; they may also want to strengthen the forward guidance.

The first and second paragraphs of alternative A are more tentative about the recent economic news and the outlook for inflation than their counterparts in alternative B. The third paragraph refers to increased uncertainty about the economic outlook as justification for a decision to maintain the current pace of purchases until more information on the outlook is available. And 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, perhaps by a considerable amount, and to 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. That completes my prepared remarks.

CHAIR YELLEN. Questions for Bill? President Kocherlakota.

MR. KOCHERLAKOTA. Yes. Thank you, Madam Chair. I had a comment and a question. The comment is that I found these charts about the median dealer purchase expectations and the expected path of the fed funds rate to be useful. It would be, I think, also informative to be presenting information about the distribution of beliefs as well. I think it would be slightly helpful in getting after some of the concerns about low volatility that we've been hearing, because you'd be getting a little bit of a picture of the distribution of beliefs in the market as well as just looking at the median. That's a comment.

The question is about the SEP. The SEP shows a slight amount of tightening. What are the staff views on how that would be interpreted by markets?

MR. ENGLISH. The so-called dot plot shows, as Min described in the briefing yesterday, a little bit higher dots. The median for 2015 was higher by 12½ basis points, and the one for 2016 by 25 basis points. I think, as we have seen in the past, those dots get a lot of attention in markets, and I think it will be read as suggesting a little bit tighter path for policy. I would expect to see some upward movement in market-based measures of expected policy, OIS or whatever, as a result of that. We will see this afternoon, but I think that's likely.

As I think Simon pointed out in his briefing, the market expectations are a little low relative to your SEP expectations. Not only are you above, but you're a little more above, and I think that, again, will push things a little higher.

MR. POTTER. The market expectations for the dots, you mean, or for—

MR. ENGLISH. Just for policy.

MR. POTTER. I think that we do ask a lot of questions about how concentrated the beliefs are. There is close to a 100 percent belief that you will reduce asset purchases by

$10 billion at this meeting There is much less certainty about when liftoff will be, though, if you ask that question.

CHAIR YELLEN. President Evans.

MR. EVANS. Related to this, would the market take any signal away from an inference that the dots are higher because existing participants have adjusted their forecast as opposed to the changing composition of the Committee, and that, by itself, could lead to shift in the dots?

MR. ENGLISH. It's hard to know what market participants will believe, but—

MR. EVANS. I'm just asking for speculation.

MR. ENGLISH. —they are certainly aware that there has been a change in composition, and I would expect them to think there is at least a reasonable probability that the change in composition has contributed to the move up in the dots.

MR. POTTER. We asked a question about the dots, and some of the answers said it's hard to work out because there are new people on the FOMC.

CHAIR YELLEN. Further questions?

VICE CHAIRMAN DUDLEY. Here's a two-hander.

CHAIR YELLEN. Yes.

VICE CHAIRMAN DUDLEY. It's not obvious, though, if the dots change because the composition changed, that it doesn't matter.

MR. ENGLISH. Oh, absolutely. No, no. I would think it would be the reverse in some sense. It would matter if they thought that, for example, the change in composition had moved the center of the Committee in a particular way. That would matter.

MR. POTTER. The big issue is, they try to put names on each dot, and that makes it harder for them to work out the particular names they might be interested in when you add people.

VICE CHAIRMAN DUDLEY. Isn't there a slight offset, Bill, too, though, because the long-term equilibrium fed funds rate has come down slightly?

MR. ENGLISH. I'm not sure if that is an offset. I guess it's an offset in terms of what should happen to longer-term rates.

VICE CHAIRMAN DUDLEY. Right. That's what I mean.

MR. ENGLISH. I don't think it's an offset in terms of what should happen to expectations through the funds rate over the next few years.

VICE CHAIRMAN DUDLEY. I agree with that.

CHAIR YELLEN. A two-hander?

MR. KOCHERLAKOTA. Yes. I just wanted to underscore the point the Vice Chairman just made. This goes to how we all talk about this publicly. Of course, you'll have the first chance, Madam Chair, to do that. I think emphasizing that this comes from composition could really lead markets at that point to be thinking that this represents a change in the Committee's reaction function. That carries with it certain risks I think.

And just to follow up on the comment I had made about the distribution. It's not just about how much a particular individual believes in the forecast he or she offers, it's also about the distribution of beliefs for the period ahead—just to clarify what I was trying to say.

MR. POTTER. Certainly.

MR. KOCHERLAKOTA. Thanks.

CHAIR YELLEN. A two-hander, President Mester.

MS. MESTER. Yes. I just wanted to offer that my interpretation is if you look at 2015 unemployment rates, that forecast has been revised down a bit. I mean, you can point to economic conditions as being a factor in sort of—

MR. ENGLISH. That's right, but inflation was also marked down. If you apply kind of a Taylor (1999) rule to the individual contributions, and look at what those might have implied about the distribution of dots in 2016, say, you can't explain the movement of the dots.

MS. MESTER. The 2015 inflation central tendency was not marked down.

MR. ENGLISH. That's right.

CHAIR YELLEN. Further questions for Bill? [No response] Seeing none, and before we begin our policy go-round, I'd like to raise an issue with you. A few of you have mentioned to me that you think the time has come to clarify for the public the likely timing of the cessation of asset purchases, assuming we stay on the path of reducing asset purchases.

In particular, assuming the economy continues to progress along the lines we are anticipating, do we intend to bring the purchase program to a close at our October meeting with a $15 billion reduction in the pace of purchases, or do we, instead, intend to make another measured $10 billion reduction in October, and bring the program to a conclusion after the December meeting with a $5 billion reduction?

Now, I have been asked this question, and several of you have mentioned to me that you have as well. I just want to say that I'm sympathetic to the view that it would be worthwhile to clarify this point sooner rather than later. I worry that the longer we wait to say something about this final step in the program, and the more we respond by saying that the Committee hasn't yet decided, the larger this will loom in the minds of investors. They may think that we see this as a very meaningful decision, and when the decision comes, it will be seen as a significant statement about our assessment of the economic outlook and the likely timing of interest rate increases, even though, in macroeconomic terms, it just is not a substantive issue at all.

I like the idea of getting our decision on this out to the public soon. One way to do this would be to include something in our statement today, and I know there are arguments in favor of such an approach. But, I confess, it is not my personal preference. I think that just adding a sentence, for example, to paragraph 4 that clarifies this, without providing any context, and in a statement that is otherwise notable for its absence of red ink, might well be read as saying something significant about our sense of the outlook. So, in today's statement, if we were to make such an addition, it will really stand out. Moreover, providing detail about the end of the purchase program could also encourage the view that our purchases are on a preset course, which I think is wrong. Using the statement to convey this information could have effects on policy expectations that I think would be unwelcome.

On the other hand, I think it's highly likely that I will get a question on this topic at the press conference this afternoon. My preference would be to actually answer that question, but I would do so in a way that provides the context that this is a decision that is not meaningful from a substantive point of view, that it does not have implications for our intentions regarding liftoff, which will hinge on our evolving expectations concerning our actual and expected progress in achieving our objectives, and that our purchases remain data-dependent.

Of course, before doing so, I absolutely want to make sure that you would be comfortable with this approach, and also to get your views on when it would be better to end the program, assuming that we do continue to reduce the pace of purchases. My personal preference would be to go with a final step-down in the pace of purchases of $15 billion at the October meeting in order to avoid having the minimal purchases that would otherwise continue through December. I think that would gain undue focus and attention, but I am completely open to your views on this question.

In your contributions during the go-round, I would appreciate it if you would indicate what your preferences are on the policy issue—namely, should the final reduction be $15 billion or $5 billion?

Also, I'd like to hear your views on the communications issue. Are you comfortable with my providing this information at the press conference, assuming the appropriate question is asked? And if, to our surprise, there is no such question, this issue could, in any case, be covered in the minutes with the appropriate context provided.

Does anyone have any particular questions on that? Otherwise, we can begin the go-round, and I'd just appreciate your comments on that.

MR. LACKER. Can we step down $25 billion in September?

MR. FISHER. Don't push it, Jeff. [Laughter]

VICE CHAIRMAN DUDLEY. It's not in the feasible set.

CHAIR YELLEN. Okay. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Madam Chair. Let me start with the proposal just raised. I strongly support the idea of providing this kind of clarification. I think that if we don't clarify the timing of the end of purchases now, I think we really run the risk, as you indicated, of allowing this very minor detail in policy being seen as a critical signal of our overall stance.

Personally, I'd prefer—and my views differ from President Lacker's on this—for this last $5 billion of purchases to take place in December rather than October. This is a very minor detail in economic terms, so I'm prepared to support the lead of the Committee as a whole on the question of timing. I'll put my vote in for December, but it's not a strong preference for me.

On the communication issue, I would prefer for this language to be included in the statement, and I will express my preference for that. That I feel a little more strongly about. I think the FOMC should really be taking ownership of policy decisions like this rather than implying that the Chair has ownership.

I thought last June was a bad precedent along these lines in terms of communication. I'm not talking just in terms of outcomes, I'm talking in terms of the decision of the Committee to not take ownership of material decisions and not have them in the statement. I'd rather not repeat that precedent. But, again, the important step, most important thing here, is to clarify this issue in some way. If your lead, Madam Chair, is to address this in the press conference, I'm prepared to support your lead on that.

Let me turn next to alternative B. I'm prepared to support alternative B as written, but I do believe it can be improved. Let me suggest a specific change. I'd like, if I could, to suggest that we add the redline language from paragraph 2 of alternative A, and that language is: "The Committee anticipates that inflation will return to 2 percent, but only gradually." I would just add that clause to paragraph 2 of alternative B.

A couple of things about this new language: First of all, I think it does actually accurately reflect the Committee's consensus outlook on inflation, as much as we can have a consensus outlook. But in terms of a change, it reflects our own staff's reassessment of underlying inflation. I think it's appropriate for the FOMC to share that reassessment with the public, so I think it's appropriate for us to make that change in the language. That would be my recommended change in the language for alternative B.

Now, let me turn to a policy change that I believe we should take up over the next two meetings. As I suggested in the previous go-round, I am highly concerned that our current approach to policy could lead to unanchored inflation expectations. Our policy is focused on reducing accommodation, and it systematically communicates to the public that the FOMC is either unwilling or unable to influence the course of inflation over the next 5 to 10 years.

This message is detrimental to the promotion of price stability and our credibility, more generally. I believe that we should be planning for the possibility of more-aggressive responses to low inflation. One such response is contained in the language of alternative A, which says that we will keep interest rates extraordinarily low at least until the one- to two-year-ahead outlook for inflation rises back to 2 percent. That is in paragraph 5 of alternative A. This language is a natural extension of our past threshold-based communications.

Now, given the lessons from the Bank of Japan that I mentioned in the prior go-round, I actually don't think this language goes far enough. With this language, the FOMC sets no real deadline for returning inflation back to 2 percent, and so it continues to suggest that it sees persistently low inflation as part of a new normal. This is what I think would be useful to work on over the next couple of meetings: How can we build deadlines into our response to persistently low inflation? I mean, we could be thinking about this. I think right now the labor market improvement is proceeding in a gratifying way, but of course this could be applied to thinking about labor market shortfalls as well.

Put another way, how can we systematically commit to providing more accommodation if inflation and the outlook for inflation does not return back to 2 percent by, say—and I'm naming a date out of nowhere—mid-2016? Now, what might those steps be? I think there are at least a couple of alternatives on the table. One is that we could commit to targeting the price level if we're committing to make up for post-2016 misses relative to target with more-aggressive future policy, or we could commit to embarking on a new asset purchase program that accelerates automatically until inflation returns to 2 percent. These are only a couple of alternatives, and I'm sure there are other approaches that would be useful.

Now, some of you may be concerned about the possible impact of these policy approaches on financial stability, and I'm sympathetic to this concern. Over the past year or so, I've suggested ways for us to take this potential impact into account in our deliberations. But I thought President Williams made a great point in a recent speech. We need to keep in mind that macroeconomic stability in general, and price stability more specifically, are really the key foundation that we can provide as a Committee for financial stability. As I discussed in the previous go-round, we should see persistently low inflation as posing significant risks to that needed price stability.

As I indicated, Governor Fischer made a couple of comments about whether we should be using the PCE or the CPI. I'm very open to reconsidering the Committee's decision to focus on the PCE. I share with him—when I talk about the inflation target, having to explain what PCE is and what CPI is—my main point is, it includes food and energy. That's basically the only thing I try to communicate—unsuccessfully, by the way.

But I think that, as a Committee, it's worth rethinking about what that would mean, but right now our communication is PCE inflation is going to be at 2 percent. That's what we consider as being consistent with maximum employment. If we run below that, that's basically saying that we think there is going to be downward pressure on inflation expectations, as we saw in our own staff's evaluation of expectations.

Madam Chair, you gave a very forceful defense of the FOMC's commitment to the 2 percent target at your first press conference. I admit that I suspect I was guilty for your having to give that defense, but it was very forceful, and I thought a very strong part of your press conference. I think that kind of rhetoric is a powerful tool for central bankers, but at the end of day, actions trump words, and we need to be ready in the very near term to take concrete steps to more effectively defend our inflation target from below. I think having a time-bounded approach to accommodation would be very helpful along those lines.

I'll close with a quick comment on the Summary of Economic Projections. President Plosser was teasing me in his go-round about my comment that my forecasts are divorced from reality. It's becoming increasingly true—I'm very amenable to what the Tealbook's forecast for inflation is, but my own forecast for inflation is based on the idea that inflation expectations have not drifted below 2 percent, because that would not be consistent with appropriate policy.

I have no way to begin to formulate a forecast that is actually based on the way I'm thinking about the economy at this point. I think treating that as a hallmark, the first point of communication for the Committee outside of this meeting is increasingly problematic. I would hope we could work together to have a better way to talk about our outlook than is being offered by the Summary of Economic Projections. Thanks, Madam Chair.

CHAIR YELLEN. Thank you. President Fisher.

MR. FISHER. Thank you, Madam Chair. With regard to your question, I agree with the suggestion you've made as to how you wish to handle this matter. My preference personally, of course, is—and I've said this in speeches publicly—that we close off this program in October with the final $15 billion, and I'm happy to hear President Kocherlakota, although he has a personal preference to put it in the statement, to have a fallback, accepting that you handle this in the press conference.

I would like to suggest that that is the best way to proceed, and I'm sure you'll handle it just right. I do think it's important to emphasize the fact that from a macroeconomic standpoint, this is not a significant factor, as you expressed. I fully support the way you suggested it be handled, and I would also say with regard to the ownership issue, the Chair speaks for the Committee, and from my standpoint as a close observer, I would say that the Chair has done a very good job of reflecting the Committee's views rather than exerting any individual views, and I know you'll continue to do so.

With regard to alternative B, I would suggest no changes. I like it the way it's written. The sentence, "the unemployment rate, though lower, remains elevated"—Bill and I have talked about this, of course, and eventually if we continue to see improvement there, we might want to migrate to the language that we have in alternative C, paragraph 1, but for now I think it's fine the way it is.

I want to conclude with a little apology here as to the way I stated myself yesterday. Just to be clear, I think I was pretty straightforward. I don't embrace the suggestion that overshooting full employment is necessary if we're to get inflation up to target. Indeed, as I said, I consider this the opposite of benign. But one thing I do at this table is I watch body language, and I ask Evan Koenig behind me to always watch the body language while I speak, and I noticed that Mr. Wilcox drew up to full seated height, which when he's seated is higher than I am when I'm standing. I may have given offense. I apologize. As you said, Madam Chair, none of us want to repeat the experience of the 1970s. I may have gone too far, and if I, watching your body language, David, if I gave you or the staff any offense with regard to that paper, I apologize.

I want to make it clear that if you look at my own SEP submissions, I actually expect inflation to be a little bit above 2 percent in 2017. My SEP forecast just had a bit of a rate overshoot, and on the unemployment side my estimate for the natural rate is 5½ percent. I don't mind a little overshoot as long as it doesn't become endemic, and I want to make that clear. But I also stress in my submission the need for tightening in 2015 and 2016 to contain that overshoot.

Now, I made a suggestion yesterday alongside of an inference made by President Rosengren, which obviously went nowhere, but I want to just spend a minute on that. This goes back to the issue of low volatility, and I'm very happy that Governor Powell has stressed financial issues. I've spoken about this very low VIX matter for quite some time, both publicly and in this forum, but the suggestion was that if the economy keeps developing in the way we see it, that a gentler form of tightening before we actually raise the base rate would be to taper down our repurchases.

The market is so complacent—for example, British interest rates are the lowest they've been since the 17th century. In our case, it's at least 50 years and perhaps longer. All of the indicators that Governor Powell mentioned I have spoken of before, and he put a little more muscle behind it, but I do think the markets are very, very tender. I'd like the Committee to consider along the lines of what I suggested, and I believe Mr. Rosengren was suggesting, that it might be a gentler form of signaling to the market that as we get more confidence, we consider tapering reinvestments. I was going to say we were seeing green shoots, but I'm not going to use that terminology ever again. We've disabused that before, but before we get to the full bloom of summer and liftoff—I don't want to leave that off the table. I'd like to keep it on the table, but I just view it against the background of financial complacency, that that might be a gentler way to tighten than actually raising the base rate until we're fully confident. As I said yesterday, I want to see the whites of the eyes of everything we wanted to see before we raise the base rate. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support alternative B as written. The minimalist approach to changing the statement makes eminent sense at a time when we are providing a gradual, transparent, and predictable path to the taper program. The weakness in the real economy in the first half of this year, coupled with our "steady as she goes" taper communications strategy, successfully avoided significant increases in interest rates or increased volatility, either of which might have further disrupted the recovery.

Exit strategies can be difficult to maneuver even with a less complicated set of tools. The lessons I take from the four predictable taperings to date, based in part on the positive market response, is that our experience with the gradual and predictable slowing in balance sheet increases may be instructive when we begin to reduce our balance sheet. To be explicit, when it becomes appropriate to reduce the size of our balance sheet, we may choose to do so gradually and predictably with the actual timing and size of tapered reductions depending on how the economy evolves.

In terms of the two questions that you posed, I am fine with ending the purchases as you suggest—$5 billion on a $4 trillion balance sheet is the definition of rounding error. As a result, I don't view it as a policy statement or a policy view. I think it's a technical adjustment. As a result, I don't think it belongs in the statement. I actually think that it should be in response to a question and more seem like an offhand remark because I think that's probably what it deserves. Thank you.

CHAIR YELLEN. President Plosser.

MR. PLOSSER. Thank you, Madam Chair. With regard to your question, Madam Chair, I agree with the following, that the $5 billion is a trivial thing, and that if you think it needs clarifying, we should clarify it. But information is information, and I do tend to lean toward

President Kocherlakota's suggestion that we could put it in the statement, that would be my preference. I don't feel hugely strongly about that, but I think that would be clearer and we could avoid some potential confusion by just saying it's a technical clarification and, if things go as we anticipate, then we expect that the last decision would be the $15 billion, and kind of leave it at that.

For today, I can support alternative B as written. The economy appears to be bouncing back from a weak first quarter and is poised to grow at least somewhat above trend over the next year to year and a half. I see no reason to deviate from our path of purchase reductions of $10 billion per meeting. But I do want to put a couple of other issues on the table that I think we need to be contemplating. I have, since we instituted it in March, expressed reservations about paragraph 6, and over time my concerns about paragraph 6 actually have increased.

As I indicated yesterday, most of the policy rules that we look at in Tealbook B, that are consistent with our past behavior indicate that we should have an earlier liftoff and a steeper path of policy than what seems to be currently conveyed by our statement language. Even if our current anticipation is that rates will rise only very gradually, we should make sure to position our communication so that we can move liftoff forward in time relative to what seems to be anticipated and move rates up more quickly if that's necessary. Otherwise, we are not being data-dependent in any systematic way. It may well be that we will be very close to both our inflation objective and our average long-term unemployment rate if not by year-end, then by early next year. And if that occurs, for me, maintaining a zero or negative real rate would be unduly accommodative, and I think that would pose substantial risks to the economy.

Even though the language in paragraph 5 indicates that the timing of liftoff will be assessed by our progress toward our objectives, which I support, I do not see us as having offered any such adjustment in our messaging or our statement that reflects the changing conditions we've seen in the economy. We are closer to our objectives than we were six months ago or a year ago, but we don't seem to have changed our language or our messaging about liftoff or about rates.

I just don't want to see us get boxed in by our language in paragraph 6. I think we need to begin working on language that will convey more of the concept of a policy reaction function, the factors that are in that reaction function, and the state-contingent nature of future policy. Paying lip service to such a reaction function while ignoring its message or signals is counterproductive. We need to be adjusting our communications and anticipated policy action consistent with the fact that we are indeed moving closer to our policy objectives for both inflation and unemployment. I didn't say we were there yet. I just said we're moving closer.

I have another concern about the language in paragraph 6, and that is the lack of specificity in conveying the economic conditions that would keep policy looser for longer. The staff did introduce a 25 basis point reduction in the long-run natural rate of interest as suggested in Tealbook A, and that does imply a neutral rate that is 25 basis points lower, if you will, at the end. But that says nothing about the pace at which we approach the steady state. Our policy rules give us the shape of that liftoff, presumably, and so the policy endpoint does not tell us much about the pace at which we would raise rates, and I think that still remains a question.

Looking at the infamous dot chart, as was already noted, many people lowered by 25 basis points their long-run equilibrium neutral rate, I guess. Actually the dot chart indicates there's also a slightly steeper path than the last time. But I do think we have to be careful, as Governor Fischer suggested. Gauging changes in long-run trends is both econometrically and conceptually very difficult to do, and I think we need to do that with great caution. And I think that we need to not only do it with caution, but also to the extent we do it, it has to be undertaken in a very disciplined, precise way so that we're happy with the implications of it moving forward and don't need to reverse and go back the other way. I think we have to be very careful about that. At this stage, I'm not inclined to want to let that change in the staff's view be reflected in my views about the long-run equilibrium rate or potential growth too much at this point.

In addition, as I've already mentioned, I think it would be prudent to begin shrinking our balance sheet before we start raising rates. We will soon have the opportunity to do so, as I alluded to yesterday. The current reinvestment rates are pretty small, $15 billion to $20 billion, and we could do so with relatively little impact on the stance of policy.

The alternative, as I suggested, if the Committee chooses not to do that, I think it could very well be prudent to reconsider our reinvestment strategy to bias our purchases in the reinvestment toward short-term Treasuries, which would also give us more flexibility with our balance sheet as we move forward. That might be an effective strategy.

Finally, the Committee has given the impression to the markets that we are unlikely to sell assets, especially MBS. I'm still of the view that this is not a good approach to policy or to our communications. If the size of our balance sheet has the effects we've long asserted, and it's providing accommodation as we claim, then maintaining a large balance sheet during the exit will require us to raise rates more and higher than we otherwise would to achieve any given stance of monetary policy.

The balance sheet and interest rate policy are intertwined. To argue otherwise undermines the credibility of our earlier messages for balance sheet policy. Why do we want to insist on an exit strategy that raises short-term rates higher and faster simply because we do not wish to sell assets? I have yet to see a careful analysis of this tradeoff and why selling wouldn't be perhaps the preferable approach. Now, there could be a story in which there are differential effects on the economy of a higher future short-term rate versus the effects on term premiums or other things that people have argued about the balance sheet, but again, I haven't seen an analysis of those challenges and the tradeoffs that are involved, and I think we need to think about that.

One of the arguments that people have, I think, is that we wanted to make sure that we didn't sell MBS because we were afraid about the housing market—that is, we wanted to make sure we continued our credit allocation policies toward housing. But, of course, what that means, if that's the way this works, is that having to raise other short-term rates faster and higher in order to accomplish the not-selling of assets and the provision of credit allocation to housing, means we are imposing higher costs on other borrowers. Why is that desirable? Why do we want to pursue that policy? I have just yet to hear a coherent case that justifies that sort of action.

I think those are some things we need to work on and need to think about both in our language and in our statements and our policy choices as we go forward. But for today, I can support alternative B as written. I have no strong objections to President Kocherlakota's suggestion of adding in that statement from alternative A, although I might have a small bias to sort of say let's take a minimalist approach at this meeting. But I do think that the suggestion has some merit because it reestablishes that the Committee is not just worried about inflation being low. We actually believe that inflation is going to get to our target. I think there's some merit to that. But I'm not convinced that now is the right meeting to put that in, but I think in the future it would be worth considering. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I have just four comments. I'll enumerate them here, and then expand on them. My first comment is that, in my opinion, the current policy path is not state-contingent enough. It is too driven by calendar considerations, along with our median forecast. I think—echoing a little bit of what Governor Fischer said—the world is more stochastic than what we have in mind as we sit here today. I'll talk about that a little bit.

Second, I think these calendar plans are driven in part by the press conference schedule. I'm going to suggest that for something like the discussion of operating procedure, perhaps an off-schedule press conference would be more appropriate. I'll talk a little bit about that.

Third, I think we also have this nagging issue of the meaning of the ending of the QE program, which you just brought up, Chair Yellen. We've got $5 billion on the table in the fall. I don't think it will be credible to say that this is a meaningful asset purchase, so I agree with you on that. I'll talk about that for just a minute.

Then I want to get back to this issue of reinvestments. For my comments on reinvestments, I'm going to put my dove feathers on, so you all have to get ready for that. And I'm going to disagree with the characterization of Vice Chairman Dudley. I think he is too hawkish on this issue, so I'll give my case for that. I think ending reinvestment is actually a buffer step—that's the way I have always viewed it. It's a buffer step between ending QE and raising the policy rate, and I think it's going to aid our communication, not harm our communication, so I'll talk about that a little bit. I think taking that buffer step out of the exit process is going to make for a much rockier ride as we get close to the date of policy liftoff. Let me just elaborate on these points a little bit.

First of all, I think current policy is not sufficiently state-contingent. It's too driven by calendar considerations. Some of you may recall that last year at this time Chairman Bernanke had a press conference. It was a raucous one. He said at that press conference that unemployment would be 7 percent by June 2014, and that QE would be ended. We are amazingly far ahead of this schedule on unemployment—we're at 6.3 percent—and far behind on policy adjustment. We haven't brought the QE program to a close as of this point.

With most forecasts predicting rapid growth in the current quarter and through the rest of the year, we may have to consider altering plans and deviating from our preset pace. Calendar-based policy has a high risk of getting out of sync with actual economic developments. Inflation also, in my view, is poised to head higher. We saw yesterday that, by far, the largest component of the staff inflation forecast is a constant, representing longer-term inflation expectations.

I do not think it is reasonable to interpret longer-term inflation expectations as drifting down at this juncture since, for instance, the SPF expectations of core PCE inflation remain at 2 percent, and other measures are also stable. Accordingly, I think everyone should add 25 basis points to the staff forecast for inflation, which then puts inflation at target in the medium term. That is certainly how I would interpret the forecast, and my own forecasts have inflation at target or, indeed, exceeding target in the not-too-distant future.

If inflation expectations are declining, then that is a very serious issue, indeed, for the Committee, and I agree completely with President Kocherlakota on this. I have advocated this in the past, that we definitely need to defend our inflation target from below. But I'm not convinced that they are drifting down at this point. I'll keep an open mind about it, but I'm not convinced about it. Also, I do not agree that if longer-term inflation expectations are drifting down that that's a problem that can be fixed by cyclical adjustment.

The way I would think about models is that you've got those inflation expectations more or less fixed, and that the economy is going to cycle around those expectations, and it's going to be very hard to move away from them. Even if inflation goes above the longer-term expectations, markets would be interpreting that as a cyclical factor, not as a structural factor. It's really very troubling for the Committee if we cannot center inflation expectations on our goal. But I—again, my view is that we are centered on our goal, and it would take more convincing to get me to move off that view in the near term.

Let me turn to the calendar-based plans. A lot of our plans are based on the calendar and envision press conferences by Chair Yellen as a primary communication vehicle. I have advocated, and continue to advocate, that we design all FOMC meetings to be ex-ante identical with a press conference attached. Financial markets, in my view, seek reassurance from the Chair that they understand the Committee's thinking on current monetary policy issues. Our current system puts a lot of pressure on particular meetings and particular press conferences. I think it mixes messages about the current state of monetary policy—which is always a concern—and current interpretation of what is going on in the economy with other longer-term issues that we might want to address at that particular juncture.

Maybe, just maybe, one thing we could do is split the latter part off into a separate press conference. You could have a separate press conference that would focus entirely on future monetary policy implementation issues and focus all the questions on that. You could talk about the overnight reverse repo facility until you're blue in the face without bringing in the current policy stance of the Committee and the day-to-day monetary policy issues. I'm just suggesting that as a possibility. One advantage of that is you could schedule it when it was appropriate, when the Committee felt like we got to the right juncture, so I just put it on the table as a possibility.

Let me turn to the issue about ending QE. As other people have remarked, it is a small issue, but it does affect the expected timeline of policy rate liftoff. I appreciate Chair Yellen bringing this up. I think buying $5 billion in assets is just not credible. It will be viewed by markets as essentially zero, and markets will say that the program is effectively over. I agree with Chair Yellen that the last step should probably be just go down to zero, and I would not put this in the policy statement. I agree that this is something that could be dealt with, as President Rosengren suggested, as sort of an offhand comment and go from there.

Now, however, I do think that this reinvestment issue is a serious one for our exit strategy, so, again, I'm going to put my dove feathers on here and fly around the room a little bit. Ending reinvestment, in my view, is a buffer step between ending QE and raising the policy rate. One of the things we have been concerned about is, as we get to the end of the QE program, all of the talk is going to be about, well, are they going to raise rates at the next meeting, and so on. By having this buffer step, it's an intermediate decision that the Committee could make during this period between ending QE and raising the policy rate. It would be clear that the Committee is going to have to make that decision, and would suggest that the Committee has enough confidence in the economy at that juncture to go ahead with that decision before actually getting to the rate increase.

It should not have a large effect on the economy, certainly not a large macroeconomic effect according to the models that we have. Even if you think it might have a large macroeconomic effect, you could certainly manage it in an effective way, as was discussed yesterday—that is, we could stipulate that the size of the balance sheet would fall along a smooth path, or, if you wanted to do the reinvestment maybe into shorter-term Treasury securities, you could do some of that. I think there are various ways to manage it. It doesn't have to just be an abrupt decision to end reinvestment. I suggest we keep the step of ending reinvestment as a useful tool during the interim period between ending QE and raising the policy rate.

My views are different from Vice Chairman Dudley's. He gave four reasons to move ending reinvestments back in the timeline. My interpretations are different. First, he argued ending reinvestments would signal the beginning of tightening. Well, yes, but only in the sense that it would signal that the Committee was confident enough to move a step closer to raising the policy rate. In my view, that's a useful thing to be able to do, because there's going to be a lot of pressure on the Committee about when are we going to raise the policy rate once the QE program ends. Taking the end of reinvestment off the table would mean that the immediate, concrete next step for the Committee would be to raise the policy rate. Indeed, Vice Chairman Dudley suggested that part of the idea is to get off the zero bound sooner rather than later, which I'm not so sure is my sentiment, or maybe the sentiment of the Committee. We want to get off the zero lower bound at exactly the right time, ideally.

Vice Chairman Dudley also cited communications challenges, but my argument is that the end of reinvestment is a helpful and useful buffer step that the Committee can use to signal that the Committee has enough confidence to raise the policy rate in the meetings following the date of ending reinvestment.

Finally, Vice Chairman Dudley made a risk-management argument, but my view would be that we can change balance sheet policy as necessary in response to macroeconomic events. We have done that in recent years, including our open-ended QE program. On this dimension, I agree with President Kocherlakota. If we get into trouble on the downside, if the economy looks to be worse, or the inflation outlook looks to be worse than we expected, then I would think we would have to go back and use our balance sheet tool as we have in recent years. But it's not looking like that's the way the economy is going, at least sitting here today. The bottom line on this issue: I think it would make our job harder, and possibly much harder, if we move the ending reinvestment decision to after the policy rate decision.

For today, Madam Chair, I can support alternative B, but I think some of the issues I mentioned here do need attention in the coming meetings. I do not think we should add the sentence suggested by President Kocherlakota at this time. My own forecast has inflation moving higher faster and actually above target.

Just as a last comment, I am not one that views the inflation target as some kind of ceiling. I do think you should hit it on average over a period of time, and maybe this is something that the Committee should have a broader discussion about. If you hit your inflation target on average over a period of time, you are going to be much closer to price-level targeting. It isn't exactly price-level targeting, but it's much closer to price-level targeting. That's optimal policy in the kinds of sticky price models that are informing a lot of the judgments around this Committee. I'm one that thinks, as long as we can hit it on average, that's fine. Let me just end with that comment. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Madam Chair. I support alternative B. I think the proposed statement is satisfactory as presented. Like the previous meeting, I favor a minimalist approach, the least possible drama this time around.

On the question you posed, I really don't think it's a big deal one way or the other, but I'll make the case for two final steps, October and December. The reason would be that putting it off until December might delay the starting of the considerable period clock in the minds of some people in the market, particularly those who are not listening and who are locked into a six-month view. I don't think it's a big deal, but, on balance, I would favor, as President Kocherlakota did, doing this in December. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. I support alternative B as written, to continue the taper. I support an October concluding taper of $15 billion as you suggested, although we are not on a preset course. [Laughter] Stating this at the press conference is perfectly fine, in my opinion.

Just to be clear, my assumption for appropriate monetary policy in my SEP submission is liftoff in the first quarter of 2016 with a shallow path of tightening thereafter, and my long-run nominal federal funds rate is at 3¾ percent. I think inflation and inflation pressures remain low. I think they are low for the PCE. I think they are low for the CPI. I think they are low around the world. President Kocherlakota's comments are important here. I think we should vigorously support ending our below-inflation-target performance, which by some measures we have experienced since 2008 on core PCE.

My preferred policy rate liftoff is delayed until I have high confidence that one-year-ahead inflation is at least at our target, and is sustainable thereafter. It would be very helpful to increase our discussion publicly of associated compensation growth that supports sustainable inflation at the target. For instance, as you mentioned, Madam Chair, nominal wage growth of average productivity growth plus an inflation objective sounds right to me. That's 1½ percent plus 2 percent. That's 3½ percent, and we're well under that. We have a ways to go on this front, and I think that if wages started to move up in line with that that would be associated with sustainable inflation at our objective. Without this type of steady-state wage growth, it's difficult for me to believe that inflation is going to be at our target, at least sustainably.

Let me close by highlighting a little-discussed risk that we could face. Once we begin raising rates, I think our worst dilemma will be if inflation falls and is below our inflation objective and remains below our inflation objective. We know how to deal with inflation above our target. A premature fiat tightening, like the Bank of Japan and the ECB have done over time, will quickly ratify a return to the zero lower bound challenges that we desperately need to get away from. Our first priority should be to exit the zero lower bound organically, as quickly as possible.

I think it's too early to begin thinking we can return to a "business as usual" central banking attitude. Like I said, we know how to deal with inflation if it's above our target. We need to focus on goal-oriented monetary policy for our dual mandate objectives. I think it's better to err on the side of getting away from the zero lower bound. If we put a lot of hope on threading the needle to exit the zero lower bound, we risk falling back. I agree with President Kocherlakota's sentiment that we need to put more weight on getting to the inflation objective sustainably as the unemployment rate falls and with nominal compensation growth rising closer to 3½ percent. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I would like to start with an apology to Vice Chairman Dudley. Normally, when one of the major sports franchises in my District is in a championship, I reach out to my colleague in the other District to make a small wager. Unfortunately, with the Stanley Cup Finals coming up, with the L.A. Kings playing the New York Rangers, I was traveling at the time, and I didn't actually reach out to you. By the time I came—

VICE CHAIRMAN DUDLEY. I'm happy. I'm happy that you didn't, in view of how it all turned out.

MR. WILLIAMS. By the time I came home, it was already over. [Laughter] Again, I apologize.

VICE CHAIRMAN DUDLEY. Thank you for that.

MR. FISHER. President Lockhart and I could have had the same deal.

MR. WILLIAMS. I support alternative B as written. Recent data confirm that the first-quarter drop is an anomaly and point to the reemergence of moderate growth. Of course, substantial labor market slack persists, and inflation remains below our longer-run target, and these circumstances call for maintaining the current course of policy. This includes a further measured reduction in the pace of asset purchases, combined with forward guidance that signals a highly accommodative future path for the funds rate. The judicious wording changes in alternative B properly leave the first quarter behind while highlighting policy continuity.

Madam Chair, with regard to the October ending of the asset purchases, I agree with your approach completely. I don't think this is a governance issue. You actually invited all of us to opine on that, and I do think putting it in the statement would potentially lead to the public misconstruing the message there. I agree completely with how President Rosengren put this—you really want this to be just a minor technical issue, so I agree with the approach that you have suggested on that at the press conference.

I do want to mention an issue looking further ahead from our policy decisions today, and obviously our main challenge is going to be managing the normalization of policy while minimizing unnecessary disruptions in financial markets. Our discussions yesterday focused on the operational issues, so these are obviously very important.

I would like to take this opportunity to highlight an additional challenge relating to the global monetary policy environment. I recently returned from visits to four foreign countries: South Korea, Japan, Germany, and Texas. [Laughter] And my visits to Japan and Germany were just an apt reminder of the divergent paths that the major central banks of the world are taking in terms of monetary policy currently and over the next couple of years. Both the Bank of Japan and the ECB are in the early stages of sizable and prolonged expansions of monetary accommodation. My own view is that these steps are entirely appropriate, and I am encouraged by the signs of progress in escaping deflation in Japan. However, I foresee a tug of war in global financial markets as we and the Bank of England withdraw monetary accommodation at the same time that the ECB and the Bank of Japan are adding massively to accommodation.

As research on the effects of QE has shown, policy actions in one major economy spill over to the financial conditions, especially interest rates and exchange rates, in other countries. This came up in the primary dealer survey as one of the factors—the policy actions of other countries—that explain why interest rates have been coming down globally, and we know this. But this divergence in the policy direction across the globe will add an additional dimension that may complicate our task of achieving the appropriate set of financial conditions supportive of our employment and price stability goals in the period ahead. In addition, it may exacerbate carry trade, reach-for-yield, and short-term capital flows with financial-stability implications. Now, I mention this issue not with some goal of advocating a particular policy, but, rather, to highlight this issue as one we should have on our radar screen and one we should be including and accounting for in our analysis involving future financial conditions. Thank you.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. I support alternative B today. The FOMC has signaled that it would take a significant change to the outlook before it would deviate from the path of reducing asset purchases by $10 billion per meeting. While there are risks and uncertainty, economic developments suggest our forecast remains largely intact. Growth is expected to rise over the forecast horizon with employment increasing and inflation moving gradually back to our goal. Thus, I believe we should continue on the policy path the Committee has laid out and reduce monthly purchases by another $10 billion.

Regarding the ambiguity about whether our purchases will end in October or December if we keep on our tapering path, I agree with the Chair that this is really immaterial from an economic point of view. Hence, I have no strong preferences for October or December. Rather than clarify the ambiguity in the statement, which would elevate its importance, I support the Chair's proposal to do this in the press conference, and I guess I would say if you're confident you're going to get the question, fine. If you think there's some possibility the question won't come up, then I would just suggest doing it in your prepared remarks to clarify the ambiguity and get the issue off the table.

Turning to language, I have no problem with the statement as written in alternative B. My preference is to make minimal changes today, but with the end of purchases looming and with rate increases anticipated sometime next year, provided the economy evolves as anticipated, I believe it will very soon be time to change the guidance indicating that liftoff will be a considerable time after the asset purchases end. My preference would be to replace this language with state-contingent language, although, given the history of the language, I understand this to be an aspirational goal.

To the extent our policy is forward looking and liftoff is tied to the outlook, perhaps examining the SEP—although I realize that may be a dirty word—either the data that we just collected or a follow-up to it, may give us more understanding of the conditions that Committee participants see at the time of liftoff. In any case, it would seem prudent to come up with language alternatives for consideration sooner rather than later. 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. The labor market has shown meaningful improvement, and inflation, both realized and expected, has increased. The current 1.6 percent year-over-year rate of inflation, along with the projection from the Survey of Professional Forecasters that it will be 1.9 percent next year, suggests that inflation dynamics are generally aligned with our 2 percent goal.

As the economy improves, I have been particularly interested in looking at the various policy prescriptions in Tealbook and to what extent they deviate from the current stance of our policy. In particular, a footnote in Tealbook B, noted that those deviations have persisted even as the intercepts in the policy rules have been adjusted to reflect the Board staff's downward revisions to the long-run real fed funds rate. I also noted that the Tealbook-consistent measure of r^* is also now 35 basis points above the actual real fed funds rate, which is the widest, most accommodative spread since the end of the crisis. These rules suggest to me that we may need to consider preparing markets for liftoff possibly earlier than currently expected in order to be most consistent with a data-dependent policy and to minimize potential adverse effects of a reach for yield, as highlighted by Governor Powell.

Regarding communication about the end of asset purchases, I support the $15 billion in October and that you use the press conference as an opportunity to communicate that, and I assume our minutes would, of course, reflect that.

CHAIR YELLEN. Thank you very much. President Lacker.

MR. LACKER. Thank you, Madam Chair. I support alternative B. I support reducing purchases $15 billion in October. I'd suggest we put it in the minutes and you respond to a question about it by being forthcoming. I'd suggest that you don't put it in the prepared statement. It's a little ambiguous what it means for the Chair to put a policy pronouncement in the prepared statement that isn't in the Committee statement. I think we had trouble with that last June.

I guess more broadly, an observation on some of the earlier discussion today, by Governor Powell and others. I take it for granted that our first policy signals are going to generate an increase in volatility. To me it's not obvious that, *per se*, that would be a problem we need to solve. I think we should expect the normal market reaction to be an increase in volatility. I can picture increases in volatility that we would view as problematic, as symptoms of miscommunication or of us adding more unintended uncertainty about the future, but I can also picture volatility going up in ways that we ought to expect and sort of welcome. Thank you.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. I support alternative B. I also support your proposal about the press conference. It may be the only major news of the day, because this time there's not any suspense about whether we should continue with the program. The advice you've received to treat it in a very matter-of-fact way seems to me to be about right.

I'd just like to pick up, in addition to that, on something that President Plosser said looking at paragraph 6 of alternative B. I think that, President Plosser, if you go to the last sentence that you object to, there are two ways of looking at it, and there's an ambiguity about what is normal in the longer run. If you took the "-er" off "longer," then the statement would be "normal in the long run," then it's pretty straightforward that that will be the case. I don't know what "normal" is for a longer time path, and it just seems ambiguous.

Alternatively, for when we do this next time, we could just say economic—"near mandate-consistent levels, economic conditions are likely to warrant a gradual approach to the long-run target federal funds rate." But I think those would both deal with that, if we want to do it, whenever. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Madam Chair. I support alternative B as written; I am fine with your proposed way of handling the last chunk of the taper.

I do think President Lockhart makes an important point. I'm not sure how much can be done about it though, which is that a lot of the world out there is even less state-contingent than we are and they are driven by the calendar, and for a lot of people, the last chunk of tapering will flip a switch that's more or less six, seven, or eight months. Although we can all, I hope, confirm that nothing is on a preset path, I think we probably should expect that there is going to be a little bit of reaction there. But I think it's sensible to handle it as you proposed, and I agree with Eric, John, and Richard that it actually would not be a good idea to have it in the statement because that would elevate it too much. Thank you.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I support alternative B as written, and I'm very comfortable with your approach on October, of saying that we will cut $15 billion in October and handling it as a question or in the minutes.

In a sense, the normalization process effectively began one year ago at this meeting when the Committee first officially socialized with the public the idea that quantitative easing might not go on forever, resulting in the well-known taper tantrum. This is the first normalization cycle in 10 years, I think, and if I counted correctly, it's the eighth one of my adult life, but it's the first one I will have experienced inside these walls. I've been thinking about ways to learn more about the process and different ways to think about it. For me, the starting point is the Tealbook baseline, which represents for me an acceptable modal outlook and a policy framework that brings the economy to full employment and our inflation objective in a reasonable period of time; in the case of inflation, not as fast as desired.

Beyond that, it also seems to me useful to learn from the taper, as President Rosengren suggested and others, too, I think, and also to understand how past Committees have approached the problem and think further, in addition, about the risks to the forecast and the loss function you might apply to those risks if realized. As a result of all that, working with the Board staff, I've started to look at earlier tightening cycles to see what light they might shed, and market participants and commentators are out there doing exactly the same thing. For example, I met with Board staff and also with a hedge fund a couple of weeks ago that had looked at the previous seven policy normalization cycles and found a clear pattern under which the increase in long-term rates in a tightening cycle has increasingly taken place before the FOMC's first actual rate hike, which I think sheds some light and helps make some sense on last summer's taper tantrum. It also makes the long-end rally of the first half of this year look even more oddly timed, and maybe I'll take this opportunity to comment on President Lacker's comment. I fully agree that it would be healthy to see a return to higher levels of volatility and higher rates, too, for that matter.

Some of you may also have seen the Goldman piece of last week, which looked at the prior three tightening cycles that began in 1994, 1999, and 2004, and I went through those cycles with the help of Board staff with this piece in mind. In both 1994 and 2004, the Committee's first rate increase happened at a time when headline unemployment was about ½ percentage point above the staff's contemporaneous estimate of the natural rate. In today's forecast, that fits pretty well. That would suggest liftoff around the time of this meeting next year, which is in line with the baseline forecast of Q2. I know this analysis is based on two data points.

Interestingly to me, in 1999, the Committee didn't tighten until unemployment was nearly a full percentage point below the staff's estimate of the natural rate. The special circumstances then, as we all know, I suspect, were persistent low inflation of below 1½ percent for both core and headline PCE associated with the well-known IT-driven productivity gains. And there are obvious special circumstances here today: Inflation is unusually low and it's further below target than in any of these prior tightening cycles and expected to remain so; and there's also the general specialness of this era in which a damaged economy is slowly repairing itself. But these are already baked into our forecast, and our policy rate path is now in line with the optimal control simulations and more accommodative than all of the simple policy rules in Tealbook B, except nominal income targeting. There's no obvious message in this for me about liftoff. Others may see that differently.

The bigger question is probably the risks to the modal forecast and the weights one puts on those risks. I do see a risk of a lower inflation path, as I mentioned earlier. I also see a risk to the economy from financial conditions. I guess the relative importance of those risks will depend for me on future developments. I see this as the early stages of an interesting exercise. I invite comments outside the bounds of this meeting from anyone interested, and I've actually suggested it to folks as perhaps an interesting subject for a presentation at some point. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. I support alternative B. I think there's a virtue in confirming market expectations of continuity in the policy stance at this juncture, given recent data. I have to say I'm very sympathetic to the risks that were highlighted by President Kocherlakota, having seen them over a period of time in Japan and having alerted my European friends that I thought their policy stance was flirting with dangerously low inflation and causing quite a bit of consternation, but those concerns remain. I would be comfortable with the proposed addition of the language in paragraph 2, but I don't feel strongly about that.

With regard to the October termination, I think obviously there is a virtue to clarifying at some juncture. I'm perfectly comfortable with October. I would be comfortable with the second date as well. I do believe that given the continuity represented in alternative B this will be viewed as news, and there will be some importance attached to it that perhaps you don't intend.

CHAIR YELLEN. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I support alternative B as written. I take President Kocherlakota's point, but I think making that change in the language at this meeting at a time when inflation looks like it's actually creeping up, I think people would just have trouble trying to understand what the motivation was for that statement change.

I support the Chair's proposal in terms of the press conference and the $15 billion taper in October. I don't want it in the statement, and I don't want it in the press conference statement. I think you want to do it in a low-key way, and if it doesn't come up—and I'll be shocked if it doesn't—it will come up in the minutes, and that will be a fine way to dispose of it.

I also have some thoughts about the Taylor rule formulations in Tealbook B. Not surprisingly, all of them show liftoff occurring either immediately or before year-end. I think these rules are a very poor guide to policy right now. These Taylor rules use as their intercept the long-run equilibrium real rate, which has been lowered to 1¾ percent in their latest formulation. I think they should be using the short-run equilibrium rate, which is likely to be considerably lower. Why should the short-term equilibrium rate be lower? Lower because we can identify significant headwinds that almost certainly have lowered the equilibrium real rate. This is evident in the sluggish recovery, for example, that we have seen in the housing sector. Also lower, though, because of the counterfactual. If policy were as easy as implied by the current level of real short-term rates relative to the 1¾ percent long-run equilibrium real rate, then the economy should be growing much faster than the trajectory we've actually been on.

Another issue worth considering with respect to these Taylor rule calculations, if the unemployment rate is artificially or temporarily depressed because of a drop in the participation rate, and if the Taylor rule's measure of the output gap is based on the unemployment rate, which seems to be the way the staff does it, then it would seem that the Taylor rule formulations understate the output gap because they're taking on board fully the drop in the unemployment rate, which has been driven in part by the participation rate. That's another issue, I think. The bottom line for me is, I think I've said this over and over again, but I'm going to say it one more time. Be careful not to let these Taylor rule calculations influence your assessment of the appropriate stance of monetary policy. Now, we're obviously not doing that because the Committee supports alternative B and it's not following the Taylor rule formulation, but I do think these rules are a bit misleading in the current set of circumstances.

Finally, let me just talk very, very briefly on reinvestment. I'm not going to go through all the arguments I made yesterday, but just state two things. One, the reason why I want to end reinvestment after rather than before liftoff is very simple. Our priority should be to get off the zero lower bound as soon as possible, consistent with the dual-mandate objectives. While it's true that, on a model-based basis, ending reinvestment first wouldn't supposedly do anything to short- and long-term rates, or be very minor, we did an experiment last summer that was supposedly very similar, in terms of the taper tantrum, and we saw not only a very large rise in long-term rates, but we also saw a very significant change in the path of short-term rate expectations. I don't think you can model these things. I think you just see how markets can sometimes react in a very violent way, and so I don't want to take that risk because if we were to experience that sort of event, we might not be able to get off the zero lower bound as soon as we would if we reversed the order and did the reinvestment later. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Well, thank you all for your input on the issue of how to handle October or December. As we went around, I think the vast majority of you preferred October and to have me do this in the press conference if it comes up. I did hear some interest in putting it in the statement, but as I understood it, you were willing to go along with the press conference. I do agree that there could be some reaction to this, and I will do my very best to minimize it, but I don't want to downplay the potential for some reaction. It's because I expect that that I don't want to see it in the statement, but I think that's real.

With respect to alternative B, there were a couple of proposals for changes, but I think overwhelmingly in the go-round, what I heard was support to basically leave alternative B as it is with minimal red ink today. I would propose and put that forward at this point for a vote.

MR. LUECKE. The vote will cover alternative B as described on pages 6 and 7 of Bill English's handout and directive B on page 12 of the handout.

Chair Yellen	Yes
Vice Chairman Dudley	Yes
Governor Brainard	Yes
Governor Fischer	Yes
President Fisher	Yes
President Kocherlakota	Yes
President Mester	Yes
President Plosser	Yes
Governor Powell	Yes
Governor Tarullo	Yes

CHAIR YELLEN. I guess that's good. What do I have to tell you? Two things. There are boxed lunches for those of you who would like to have them or are going to take off. For those of you who are gluttons for punishment, you can watch the press conference in the special study. The date for the next meeting is Tuesday and Wednesday, July 29 and 30.

MR. FISCHER. Well, congratulations on your highest majority yet.

CHAIR YELLEN. True, true. Thank you.

END OF MEETING