Meeting of the Federal Open Market Committee on July 31–August 1, 2012

A meeting of the Federal Open Market Committee was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, July 31, 2012, at 1:00 p.m. and continued on Wednesday, August 1, 2012, at 9:00 a.m. Those present were the following:

Ben Bernanke, Chairman
William C. Dudley, Vice Chairman
Elizabeth Duke
Jeffrey M. Lacker
Dennis P. Lockhart
Sandra Pianalto
Jerome H. Powell
Sarah Bloom Raskin
Jeremy C. Stein
Daniel K. Tarullo
John C. Williams
Janet L. Yellen

James Bullard, Christine Cumming, Charles L. Evans, Esther L. George, and Eric Rosengren, Alternate Members of the Federal Open Market Committee

Richard W. Fisher, Narayana Kocherlakota, and Charles I. Plosser, Presidents of the Federal Reserve Banks of Dallas, Minneapolis, and Philadelphia, respectively

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

David Altig, Thomas A. Connors, Michael P. Leahy, James J. McAndrews, William Nelson, David Reifschneider, and William Wascher, Associate Economists

Simon Potter, Manager, System Open Market Account

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

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

Jon W. Faust and Andrew T. Levin, Special Advisors to the Board, Office of Board Members, Board of Governors

James A. Clouse, Deputy Director, Division of Monetary Affairs, Board of Governors

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

Seth B. Carpenter, Senior Associate Director, Division of Monetary Affairs, Board of Governors

Thomas Laubach, Senior Adviser, Division of Research and Statistics, Board of Governors; Joyce K. Zickler, Senior Adviser, Division of Monetary Affairs, Board of Governors

Michael T. Kiley and David E. Lebow, Associate Directors, Division of Research and Statistics, Board of Governors

Karen M. Pence, Assistant Director, Division of Research and Statistics, Board of Governors

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

Elizabeth Klee, Senior Economist, Division of Monetary Affairs, Board of Governors; Robert J. Tetlow, Senior Economist, Division of Research and Statistics, Board of Governors

David A. Sapenaro, First Vice President, Federal Reserve Bank of St. Louis

Jeff Fuhrer and Daniel G. Sullivan, Executive Vice Presidents, Federal Reserve Banks of Boston and Chicago, respectively

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

Reuven Glick, Group Vice President, Federal Reserve Bank of San Francisco

Todd E. Clark, Lorie K. Logan, Keith Sill, and Mark A. Wynne, Vice Presidents, Federal Reserve Banks of Cleveland, New York, Philadelphia, and Dallas, respectively

Robert L. Hetzel and Samuel Schulhofer-Wohl, Senior Economists, Federal Reserve Banks of Richmond and Minneapolis, respectively

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July 31 Session

CHAIRMAN BERNANKE. Good afternoon, everybody. Britt Leckman is going to take a few pictures; just pretend he's not here. Item 1 on our agenda is our special topic on policy rules. You received the material for this. Let me turn it over to Jon Faust.

MR. FAUST.[1] Albert Einstein is often paraphrased as saying, "Make things as simple as possible, but not simpler." This is probably good advice for monetary policymakers and theoretical physicists alike. The attraction of simple monetary policy rules rests on the view that the robust lessons that economists have learned about monetary policy are rather simple. First is the Taylor principle: Policymakers must consistently raise the real interest rate in response to an increase in inflation above its target value. The second lesson is that a dual mandate central bank should generally lower the policy interest rate in response to slack in resource utilization.

John Taylor enshrined these two principles in the Taylor (1993) rule, and as shown in panel 1 of your first exhibit, the prescriptions of the rule mirror surprisingly well the historical funds rate as set by the FOMC from 1988 through 2007. Policymakers at the time described themselves as reacting flexibly under a "look at everything" approach to monitoring the economy, but Taylor argues that following his rule would have been simpler and would have led to better performance. The case for simple rules generally includes the three claims listed in panel 2.

First, simple policy rules can capture the main benefits of sound policy that policymakers can realistically hope to attain.

Second, simple policy rules provide a transparent and predictable link between the setting of the policy rate and macroeconomic determinants. This clarity and predictability may enhance the effectiveness of policy.

Third, simple policy rules may provide a useful discipline on the exercise of discretion.

Advocates of simple rules generally accept that closely following a rule might at times involve forgoing benefits that could accrue under more flexible policy, but they argue that the benefits of transparency and discipline will generally outweigh the uncertain benefits of greater flexibility.

The research literature summarized in the background memos is most informative on the first of these claims, regarding the degree to which simple rules embody sound

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

monetary policy. In my comments today, I will highlight a few of the more important and potentially contentious issues raised in the memos, starting with the performance of simple rules during what I will nostalgically call "normal times"—that is, times when the effective lower bound on interest rates is not a major consideration.

There is a large literature on the performance of simple rules in normal times. It is worth noting that much of the most influential work in this area was performed by current or former Federal Reserve System staff, most notably, President Williams and Andy Levin, along with a number of coauthors. The background memo by Keith Kuester of the Philadelphia Fed provides a recent summary of the relevant results in a suite of modern DSGE models. This body of research identifies several types of rules that generally perform quite well across a range of macroeconomic models. The serious contenders for your attention are well-represented by the six rules in panel 3, including five rules regularly examined in Tealbook, Book B, plus what we call an inertial Taylor (1999) rule. The inertial Taylor (1999) rule lies midway between the simple Taylor (1999) rule and the outcome-based rule that is used in generating the Tealbook baseline. The inertial Taylor rule adds a lagged federal funds rate term to Taylor (1999), but does not include the additional terms in the change in the gap and the change in the policy interest rate that are part of the outcome-based rule. These six rules have each been shown to perform generally well, but as the literature makes clear, none of these rules performs flawlessly in all models. I'll highlight two issues leading to differential performance.

As noted in the top panel of exhibit 2, the appropriate measure of the output gap is a contentious issue in theory, and in practice, the output gap is subject to substantial measurement error. All of the rules except the first-difference rule respond to the level of the gap; the first-difference rule largely sidesteps difficulties measuring the level of the gap by responding only to the change in the gap.

Research supports the view that measurement problems may justify reducing the response of policy to the level of the output gap and supports the view that the first difference rule delivers good performance in many models. On balance, however, totally ignoring the level of the gap probably goes too far. Large output gaps are particularly costly, and large gaps are likely to be apparent even in the face of realistic measurement problems. Thus, a rule that responds to the level of the gap tends to provide accommodation when it is most beneficial. For this reason, research indicates that under realistic measurement error, a significant response to the level of the gap remains appropriate.

The second major issue is policy inertia. The policy prescriptions of all of the rules, except the Taylor (1993) and Taylor (1999) rules, exhibit substantial inertia. For example, the outcome-based rule places a coefficient of 0.81 on the lagged federal funds rate, implying that the policy prescription in the current quarter is heavily dependent on what was previously prescribed. The first-difference rule shows even greater inertia, with a coefficient of one on the lagged federal funds rate. Research indicates that high inertia, such as that in the first-difference rule, can be beneficial in some models, but high inertia can be destabilizing in others. More moderate inertia, corresponding to a weight on the lagged funds rate substantially less than one, seems to perform well across a wide range of models.

Under any inertial rule, a change in policy carries the implicit forward guidance that the policy change will be persistent. In forward-looking models—that is, models in which agents' decisions depend importantly on long-term interest rates and expected conditions more generally—this persistence gives policy substantial leverage over economic decisions, which can substantially improve stabilization outcomes. The inertial mechanism works, in part, through occasionally inducing modest overshooting or undershooting of the goals of policy, and because overshooting and undershooting are contentious topics, it may be worth spending a moment on the role this mechanism plays.

Attempting to bring, say, unemployment back to target quickly shares some properties with a Washington Nationals baseball player who has just gotten a hit and is attempting to get to first base quickly. The player can arrive more quickly if he increases his pace to the point where he must rationally expect to overshoot the bag upon arrival. The only way to avoid expected (and actual) overshooting is to approach the bag more slowly. Panel 2 of exhibit 2 illustrates the economic equivalent of this phenomenon. The figure shows the simulated paths of the unemployment rate as reported in the current Tealbook under the Taylor 1999 rule (the black line) and the nominal income–targeting rule (the red dashed line). Under the non-inertial Taylor rule, unemployment smoothly approaches the NAIRU from above. Under the nominal income–targeting rule, unemployment approaches the NAIRU at a significantly more rapid pace, and the unemployment rate mildly undershoots the NAIRU beginning in late 2017. Panel 3 shows the corresponding paths of inflation, with the nominal income–targeting rule (the red dashed line) leading to modest overshooting of inflation—inflation peaks at around 2.2 percent. Unlike the baseball case, the expected overshooting here plays a crucial role in bringing about the earlier more-rapid decline in unemployment. If agents instead expected policy to tighten to avoid overshooting, the anticipated future slowing would damp consumption, hiring, and investment—as with the base runner, avoiding overshooting requires a slower approach. Note that under the nominal income–targeting rule, inflation and unemployment both spend considerably more time close to their desired values than they do under the Taylor (1999) rule; the conventionally measured welfare gains of inertia in this case are substantial. Attaining the benefits from inertia would require the FOMC to credibly follow policies that support modest overshooting and undershooting. Whether the FOMC could credibly deliver such policy is open to question. The inertial policies we are discussing here may not, however, put dramatically greater demands on credibility than the demands on credibility posed by the exit principles or the consensus statement regarding longer-run goals and strategy.

Now let us turn to problems that are uniquely associated with the current policy context, in which the policy rate has been persistently at the effective lower bound. First, consider how the FOMC's policy might evolve in the face of typical shocks to the economy if the timing and contour of liftoff were guided by the simple rules. The evidence we report was generated using a standard stochastic simulation of the FRB/US model, imposing the effective lower bound, and starting with the June Tealbook baseline. We contrast the results under the inertial Taylor rule, the outcome-based rule, and a modified outcome-based rule. The modification delays liftoff until two quarters after the unmodified rule initially prescribes it.

As noted in panel 4, if the timing and contour of liftoff were guided by the outcome-based rule (the green line), the distribution of likely liftoff dates would be widely dispersed. There would be more than a 25 percent chance of liftoff coming in 2012 and a similar probability of liftoff coming after mid-2014. Further, the modal date of liftoff would be very early, in the fourth quarter of 2012. This is three quarters before the median date of liftoff under this rule and two full years before the liftoff date implied by this rule under the baseline outlook (not shown). Clearly, none of these three measures of the likely date of liftoff presents a very complete picture of when liftoff would actually occur. In addition, in those cases when the rule prescribes liftoff, say, by 2013:Q1, panel 5 shows that the probability of returning to the effective lower bound within four quarters is very high—above 50 percent. Let me note that the results for the Taylor (1999) rule and first-difference rule are similar to these results reported for the outcome-based rule.

In contrast, the results for the inertial Taylor rule (the blue lines) are quite different. The distribution of the likely liftoff date in panel 4 remains dispersed, but is more symmetric. The modal date of liftoff comes a year later than under the outcome-based rule, and the modal date is also closer to this rule's median liftoff date, which is 2014:Q3. The inertial Taylor rule also shows very little probability of liftoff by early 2013, and in those rare cases when shocks are sufficiently strong to cause early liftoff under this rule, the probability of return to the effective bound within a year, shown in panel 5, is only about 20 percent, much lower than the analogous probability under the outcome-based rule.

Finally, note that under the modified outcome-based rule (the green dashed lines), the results are approximately midway between the outcome-based rule and the inertial Taylor rule. The results for this modified rule are merely meant to illustrate how some fairly modest deviations from some simple rules could yield substantially more appealing outcomes.

The results just presented are purely descriptive but hint at possible motives to deviate from simple rules at present. As noted in the top panel of your final exhibit, it is important to emphasize that existing research does not suggest we should expect the merits of simple rules in normal times to carry over to episodes at the effective lower bound. Quite to the contrary, the major lesson from the literature is illustrated in the standard optimal policy simulations regularly reported in Tealbook. Specifically, maintaining accommodation for considerably longer than most simple rules would suggest can have substantial benefits.

More generally, there are a number of prominent structural factors operating in the current context that are not accounted for in the research regarding normal times:

Nonstandard monetary policy tools are being employed, fiscal policy and housing and credit markets are all operating differently from usual, and high levels of long-term unemployment may be altering labor market dynamics. Any of these structural factors might warrant deviating from a rule designed to operate well in normal times.

There is an additional risk-management argument for deviating from normal rules at present. The constraint on policy accommodation imposed by the effective lower bound interacts with uncertainty in a way that raises special risk-management considerations, and standard theory suggests that these considerations provide another rationale for more-than-normal policy accommodation.

To understand the essence of this argument, imagine an economy at the cusp of taking off from the lower bound. A central bank that follows a simple policy rule, whenever unconstrained, will raise rates in the normal way in response to a positive shock. In response to a negative shock, however, the zero bound will keep the central bank from providing normal accommodation. Because the central bank leans against positive shocks but does not symmetrically cushion negative shocks, policy imparts a negative bias to output growth and inflation. On average, then, shocks push the economy downward. If being at the effective lower bound has costs—as we all think it does—then policy should instead be biased toward extra stimulus to help push the economy away from the effective lower bound.

Overall then, as noted in the final panel, research is generally supportive of the view that, in normal times, some simple rules capture much of what good policy should aspire to. If the FOMC were to choose to focus more heavily on some rule or rules, it would probably be important to resolve some issues including the role of the measured gap and of inertia. There are good reasons, however, that a central bank experiencing an extended spell at the effective lower bound might choose to deviate from its normal-times policy behavior.

Our present circumstances thus serve to emphasize that a simple policy rule is no substitute for a comprehensive policy framework. Rules could well play an important role in such a framework, but the framework would provide a systematic way to assess when rule-based prescriptions should be overridden. As a final note, let me touch briefly on the principles of forecast-based targeting, which could provide useful tools for gauging when to deviate from a rule.

The main idea underlying forecast-based targeting is that, loosely speaking, sound monetary policy at any point in time can be identified by running a number of policy projections conditional on different policy paths. Then one simply chooses the policy that delivers the forecast paths for inflation and unemployment that "look the best" under the objectives. This general characterization takes on more meaning when one realizes that in standard models, the projected paths of unemployment and inflation must bear certain relations under appropriate policy.

As many analysts have noted, the principles of forecast-based targeting have an implication that may be of particular relevance at present. In most conventional

> models, if inflation is below its objective and unemployment is above its objective, appropriate policy must show the projected paths of at least one of these variables cutting through its optimal long-run level. That is, under policy that appropriately balances the costs of attaining the elements of the dual mandate, we must project at least mild overshooting or undershooting for one of the variables. This is just one illustration of how the principles of forecast-based targeting could be used in a comprehensive policy framework to help judge when a policy path implied by a simple policy rule, or by other considerations, reflects appropriate policy. That concludes my prepared remarks.

CHAIRMAN BERNANKE. Thank you very much. That was a useful summary of some very interesting background work. We thank you and the other staff for a very careful, interesting exposition. The floor is open for questions or comments for Jon. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. I compliment the staff for an excellent trio of papers providing an overview of a large subject. I have two general comments in reaction to this. The first one is that there were some findings that were quite a surprise to me, although they probably shouldn’t have been. In hindsight, I probably should have expected this. What I’m referring to is where the memo showed that the frequency distribution of liftoff dates is relatively broad and flat, covering a wide range of plausible dates. I think I was assuming that if you took a given model and a given rule—if you wanted to place a lot of confidence in one model and one rule—you’d have liftoff dates fairly tightly bunched around your modal forecast of a liftoff date. Instead, the results showed that even with a given model and a given rule, you should be relatively agnostic about when it’s likely for us to lift off. Then you back away from certainty about the model and the rule, and you’re going to get more uncertainty because you don’t quite know the model and you’re not sure which rule characterizes good policy, and so on. This was a really striking finding to me—and I know we’re not going to talk about policy now, but it’s about policy rules. To me, this suggests that the proponents of the forward-guidance language we have in the statement now really need to reconcile the certainty that is conveyed by the language in the statement with the agnosticism that the staff’s analysis suggests ought to characterize our assessment of liftoff date. You might have some strong views, but you need some explanation of how you reconcile the staff's results with that relative certainty that's expressed in the statement.

The second comment has to do with a couple of issues. The memo describes circumstances in which first-difference rules are relatively attractive. One is that the more that expectations are forward looking, the better first-difference rules do relative to alternatives. I would just point out in this context that over the last at least 10 years or so that I've been involved with the FOMC, I've seen the staff move decidedly in the direction of adopting the approach of assuming expectations are more forward looking, both in their analysis of the economy and in their analysis of policy. It's obvious that the profession moved decidedly in that direction as well, although the timing might have been different. To me this is an argument in favor of giving first-difference rules a little more weight. The staff also points out that uncertainty about the natural rate favors first-difference rules, and, obviously, there's a large literature on this—for example, Orphanides and Williams—documenting historical evidence that misjudgments about the natural rate can lead to pretty serious policy errors. The only thing I'd add to this is that while there's been research out there, I don't think it takes on board necessarily the extent to which—and this is extra evidence here—that within the Committee, there's a tremendous range of views about the natural rate. And in this regard, you made a comment, Jon, that ignoring the level of the gap seems to go too far, and as I listen to you, I think you base that on two things. One is that when the output gap is really large, we should care about it. We do care about a large output gap. And the other was that large output gaps tend to be persistent. Well, there are estimates of the output gap based on DSGE models in which the output gap is smaller. Moreover, that's the welfare-relevant gap in those models. The argument that we care about large gaps is based on some less-than-agnosticism about the level of the gap; it's based on some views about the gap. And then I think it is true as well that in DSGE models, those gaps are less persistent than the ones based on a notion of potential that imposes a substantial amount of smoothness on the estimate of potential. The argument seems to be, well, the first-difference rule is really good if you don't know much about the output gap, but we do know enough to say you shouldn't ignore the rule. Those are my two comments about the rules, and again, I commend the staff.

CHAIRMAN BERNANKE. Do you want to say something, Jon?

MR. FAUST. Let me make a couple of comments. I think that we were somewhat surprised about the dispersion of the liftoff dates under these rules, although I think a number of Reserve Banks that ran some simulations indicated there was dispersion. We were surprised at the degree. And just to get some intuition for why that's true, we happen to have a baseline forecast that has the economy kind of moving slowly away from the conditions that warrant being at the zero lower bound. That means that the notional interest rate implied by these rules—I'm saying "notional" because it may be negative or below the bound—the notional value is lurking near the zero lower bound for about three years, and since it lurks near the bound for three years, any positive shock may lead you to lift off. If the rule doesn't have inertia, the next negative shock will also send you back to the zero bound. And so it's the fact that we're lurking near the zero bound for a long time that leads to this result.

President Lacker raised some important questions about whether the current forward-guidance language would be appropriate if we were following one of these rules, and, as he indicated, I think this evidence says it would be a bit problematic. Now, that doesn't mean that this dispersion characterizes how the FOMC is actually behaving; that's a matter for you all to decide. However, I think the memo suggests that you wouldn't want to follow any of these rules, especially the jumpier ones—those that are more likely to lift off. The other rules have a much later liftoff date that might well be consistent with the language that says "at least until" a certain point. That's for later consideration, tomorrow perhaps. About the first-difference rule, there are some good cases for it. When I say that the research suggests that it goes too far to eliminate the level of the output gap, that result comes from research that incorporated the empirical properties of historical measurement errors, and so it reflected the actual ignorance that we experienced and still found that putting weight on the gap was a good idea.

MR. REIFSCHNEIDER. Can I add a couple of things to this? First, one problem about the liftoff date that the Committee might want to think about in terms of forward guidance is that the liftoff date in some ways is a lousy summary statistic of what the relevant policy stance will be because it's one point in time. Going back to the simulation analysis in the memo, by strictly following a rule you can have episodes in which the liftoff date pops up for a quarter or two and then goes right back to zero. In terms of what's going to matter to the market and bond pricing, they're really trying to guess the average level of the funds rate over time, and the distribution of that average level over time. That average level is a much less jumpy variable than the liftoff date you get from following a particular rule. Now, saying the Committee should think about forward guidance in terms of a path, that's a much harder problem. But you can lead yourself astray by focusing too much on the distributional statistics of the liftoff date and how meaningful that date is for what the average stance of policy might be and how sensitive the average stance of policy will be to economic conditions. The third thing I'd say, and this is up to the Committee to decide, is that in interpreting the statement, it's conditional. It's a probabilistic statement about the liftoff date, because it says it's "likely." Looking at the market's views about the probable date of liftoff—what's priced into options—you get a range of views. I think everyone understands that there's a considerable dispersion of views about possible liftoff dates as well as a considerable range of views in the markets about what the modal liftoff date would be.

MR. LACKER. Could I follow up, Mr. Chairman? I agree that the liftoff date is a lousy summary statistic, as I think you put it, for our future policy, and what was surprising about the memo was the evidence that so strongly buttressed that view. That's how I read those graphs—that we're more uncertain about the date. I take the language in the statement to connote at least a 50 percent chance that we are not going to raise rates until then. That's what I take away from the "likely" language, and that seemed inconsistent with the simulations that the staff showed us. If you say there are other rules that have later dates, then maybe this distribution should be a systematic part of what the staff reports to us going forward. It might be more informative than just the line drawings that show single modal outcomes under various scenarios.

CHAIRMAN BERNANKE. One can respond to that in a couple of ways. One way is that what they find is a purely unconditional distribution; it isn't contingent on what happens in the economy. Of course, what we've been talking about is what we think economic conditions are likely to be and, therefore, how we will respond to those conditions. So, first, it's a conditional commitment, not an unconditional commitment. Second, there's no discussion here about the value of commitment. You didn't really talk very much about credibility and the possibility that by making a commitment to a certain policy, even if it's not necessarily ex post optimal—that is, it may be time-inconsistent—there may be some benefits ex ante. And that's a question that could be posed. But I would agree that we need to work as a Committee to try to find a way to characterize the future path more explicitly in terms of economic conditions, and I agree with you that that would be a better way to do it.

MR. FAUST. Let me add one comment. There are rules that deliver a later date, and they're in the memo. The nominal income–targeting rule, as we know, comes close to approximating optimal control, which has a very late liftoff date and is fully consistent with the forward guidance; and the inertial Taylor rule has a later liftoff date. Remember, we were using the June baseline because we were running these simulations before the July baseline was available. If we had done it for the July baseline, the inertial Taylor rule would have had an even later date of liftoff consistent with the language. Those inertial rules require some degree of commitment as we touched on, but could be completely consistent with the language.

MR. REIFSCHNEIDER. And to buttress what Jon just said, one of the memos made the point that an inertial Taylor rule can incorporate a threshold for action—just because it's 27 basis points you don't lift off. In one particular case that we considered, you wait until it is 75 basis points. In that case, the distribution for the liftoff date is shoved way out into the future, and the modal liftoff point looks like it's the first quarter of 2016. My point is that there can be very mechanical rules with very mechanical responses that have certain types of inertia. Those inertial rules are not going to respond to what just could be a transitory pickup in the economy, and as a result they push that distribution markedly out into the future in terms of liftoff date. Which one of these rules is in line with what the Committee is doing, I don't know.

MR. LACKER. I'm not sure we do either. [Laughter]

MR. REIFSCHNEIDER. But the point is that you can even follow a fairly mechanistic rule and still have a probability distribution for liftoff that is even further out in the future than the statement might be interpreted as having.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. First I want to thank the staff for their work on rules. If we can agree to allow the robust and simple rules to provide at least first-order guidance for policy, I think there are important benefits to be derived for our policy choices, for providing some clarity about communications, and for the transparency of understanding our decisionmaking process. But I do want to take a couple of minutes to offer some thoughts about how we should go about or not go about thinking about evaluating these alternative rules. Some of my points are consistent with what Jon has already talked about in his presentation.

First and foremost, I do not think we should evaluate simple rules or robust rules based on how they perform at the zero bound on interest rates. We should evaluate how the rules perform in normal times and select a rule or set of rules that help guide policy during those times. However, this evaluation process might take into account, for example, the probability of a rule leading to hitting the zero bound under any proposed rule. But that's different from choosing a rule based on its performance at the zero bound. In a zero-bound environment, important nonlinearities are present. They will make it very hard to assess the performance or appropriateness of any given rule since most of the models and analytics we have aren't well suited for such boundary constraints. Instead we should be prepared to augment the baseline rules in a way that might be appropriate in the face of constraints posed by the zero bound. For example, we might consider augmenting our interest rate rules with adjustments for balance sheet actions or some other mechanism for making adjustments. Thus, comparing the implications of unadjusted rules at the zero bound seems to me to be the wrong way to go about selecting or evaluating the desirability of any particular rule. Why reject a rule that works well 95 percent of the time simply because 5 percent of the time we may have to figure out how to adjust it? As I said, it would be informative, however, to get an assessment of how often a simple rule in normal times might lead to us hitting the zero bound, as that might be considered an undesirable feature.

Second, a lesson that is apparent in Keith Kuester's memo is that optimal control policies derived in one model often lead to poor outcomes in another model. An important motivation for a simple rule is to find one that is robust, that is, it performs well across a variety of models. Model uncertainty is pervasive in macroeconomics. Thus, we need to keep in mind that FRB/US is just one of many competing models, and its optimal control outcomes are almost certainly far from optimal if the operating model is something different. Consequently, we must resist the temptation to place too much weight on the optimal control scenarios in FBR/US or judge the value or merits of any particular rule by how close or how well it compares with the optimal control path produced by FRB/US. If we do so, we can make some very big mistakes if FRB/US ends up being the wrong operative framework. The idea of simple and robust rules is that they perform reasonably well across a range of plausible models. I don't believe that a good way to evaluate the robustness properties of these rules is to benchmark them against optimal policy in a single model or even assessing performance in one model.

I'd also mention that in the Kuester memo, the so-called Taylor (1999) benchmark rule did not perform very well relative to some other robust muddles—models. "Muddles" may be actually a better word. I don't know. As President Lacker pointed out, it does particularly poorly, for example, in some of the models that rely on more forward-looking agents. Thus, I think we should be cautious about what I see as a tendency to emphasize this rule as an appealing, robust rule over some of the others. Indeed, consistent with the literature, he finds that, as we've been talking about, the first-difference rules tend to be somewhat more robust across models than ordinary Taylor-type rules. As I said, this is particularly the case for models in which agents are more forward looking. Of course, as has already been mentioned, first-difference rules also have been advocated on the grounds of measurement error. That issue is not taken up in the Kuester memo, but it is important when the natural rates and potential output are poorly measured.

Thus, I would encourage the staff and others to evaluate robust rules in a variety of models, and I think we need to continue to pursue this as though there will inevitably be robust rules, and recognizing that there are occasions where they don’t work well or are never going to be perfect. But we shouldn’t be basing our rules purely against FRB/US or any other sort of unique model or in circumstances I believe in which the zero bound is particularly operative. The zero bound will be a case where we will make deviations from simple rules, and we should just acknowledge that and not let that be the guiding principle, at least until our theoretical models have better ways of dealing with the nonlinearities and constraints that a zero bound presents us. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thanks. President Evans.

MR. EVANS. Could I just ask a question of President Plosser? I’m really puzzled over the logic behind why, at this point in the economic cycle, we would want to be carrying on an evaluation of these rules in terms of normal times when we are far from normal times. It’s akin to thinking that if I wanted to carry around a radio that is the best radio under normal conditions, I might choose a model that’s got lots of bells and whistles and really takes a tremendous amount of energy and drains the batteries quickly; but that’s okay because normally I can plug it in and recharge it or whatnot. However, then I find myself on Gilligan’s Island where the transistor radio runs out of batteries within about two hours, and I want to make it last for however long it takes. It seems to me like what you’re describing is a perfectly reasonable approach to how we would evaluate normal approaches to policy, but at the moment we want to think about the special features.

MR. PLOSSER. Well, I think, President Evans, the issue really is about how we establish and create our monetary policy or strategic framework for conducting monetary policy. I don't think you want to ignore both how you communicate that strategy and how you want to think about that strategy if you want to be transparent about that. I don't think any of us, or anybody else I know of, views any kind of robust rule as a mechanistic rule that we just never deviate from. There will always be times when we deviate. This may be one of those times that we deviate, but how we deviate depends on where you want the baseline in terms of what you think your strategy is, and you may have to adapt to that. What I don't want to do and what I think we should guard against is allowing the current unusual time to guide us in how we think about developing the strategy more broadly for how we conduct monetary policy. I agree that there are times when you will deviate. I'm not suggesting that you don't, but it's nice to be able to have a framework on which you choose to rest your laurels, so to speak, most of the time and recognize that at times you will deviate. Then we can debate and argue about what is the appropriate manner for us to deviate from that rule. That ultimately makes our communications efforts easier and more clear because then we have to explain why we're doing what we're doing. I think that improves the clarity of our communications and the clarity of the monetary policy process.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I want to thank the staff as well for an interesting set of memos concerning policy rules. I do think this is a fascinating literature, and one that very much informs the debate here at the FOMC. It's one that I have tried to contribute to myself, and I know many around the table have also done work on the topic. I have several remarks on the memos. I'm just going to list them, and then I'll expand on them a little bit. The first remark is that it's pretty clear that this literature is not mature enough to give good advice on the commitment of actual policymakers to a particular policy rule. Accordingly, I think that the policy rules discussion has to remain a step outside the actual policymaking process, which is sort of how I view it now—that it's informing the process, but the Committee does not actually commit to a particular rule. The second comment is that much of the discussion and analysis has the flavor of lining up the adoption of a policy rule with the date of liftoff in the policy rate. This echoes some of the earlier comments. I think that this is inconsistent with the idea that the reason the Committee is naming a potential liftoff date is to suggest a commitment to staying at the zero bound longer than would otherwise be called for by ordinary policy. I'll expand on that a little bit in just a minute. The third comment is that in much of the analysis the ties to household utility are weak. In my view, policymakers should not be free to choose objective functions arbitrarily as is done in parts of this analysis, but should be required to map policy actions back to the welfare of actual households inside the model. Comment four is that I would suggest evaluating the rule somewhat more holistically based on long-run simulations. Committing to these rules means committing to keep unemployment higher than it would otherwise be in some states of the world. I'd like to see what those states are and how long they would last, and ask whether the Committee is willing to accept this feature of committing to a policy rule. Number five is that in many models in this class, the worst policy is the so-called interest rate peg policy. Such a policy inside the model allows many possible equilibrium outcomes. The rules suggested here have the policy rate unchanged for years and years, approximating the interest rate peg policy. This could be viewed as an additional and much more virulent—Richard, is "virulent" a word?

MR. FISHER. Yes, it is.

MR. BULLARD. It is. Okay.

MR. FISHER. Wait a minute. Let me check with Governor Tarullo. [Laughter] Two confirmations.

MR. BULLARD. I appreciate the consultation there—a much more virulent threat to the economy than the ones discussed in the memo. I'll talk about that a little bit. And then, finally, I would like to see even more emphasis on what can go wrong with the policy rule commitments in the event that the trend rate of growth in the economy changes, and I'll give you an example of such a calculation. I suppose the main point that I'm trying to make is that this literature is not mature enough to give reliable advice on the desirability of the actual policy committee committing to a particular policy rule. I think the true range of model uncertainty is much, much larger than what is suggested in these memos, and President Plosser touched on this.

We certainly know that even within a limited set of models, rules that work well in some situations do not work well in others, but I want to just expand on what's not in our models. Here are some examples of real-world phenomena not captured by the class of models studied here: Financial crises are not part of this model framework; increasing globalization in which the number two economy in the world is closely tied to the dollar is not in this model; hysteresis in labor markets as occurred in Europe in the 1980s, 1990s, and up to the present day, is not in this model. Those are all examples of real-world phenomena that are not part of the analysis. These could all have profound effects on the best choice of a policy rule to which one might wish to commit. The bottom line on this part is that I prefer that the policy rules literature be used to inform judgments concerning the actual policy choices, but the Committee should stop short of enshrining a particular rule for actual policy, as that type of commitment could be dramatically in error.

The second point was that the discussion lines up the adoption of a policy rule at the date of liftoff. To the extent this is true, there would be no benefit from our policy of giving forward guidance concerning the possible liftoff date. The Woodford-type idea concerning commitment to keep the rate at zero is exactly that the Committee would be deviating credibly from what would otherwise be thought of as ordinary monetary policy. One way to describe this would be to think of current policy as described by a policy rule that calls for an earlier date of liftoff, but that the Committee has nevertheless committed to keep the policy rate near zero for longer than that timeframe would suggest. For instance, you'd pick Taylor (1993), which would have you raising rates right now, but the Committee nevertheless makes a commitment to stay at zero beyond that point, and that would be the sort of commitment that Woodford is talking about in that line of literature. There should be no need to line up the policy rule with the date of liftoff, and in fact, the policy rule should call for an earlier date of liftoff than the current guidance from the Committee suggests. I've argued at previous meetings that I do not think such commitments are credible and, therefore, that we should not base policy on them, but the analysis, of course, allows for perfectly credible commitments.

The third point was that ties to household utility are weaker than I think prudent. The objective function assigned to us policymakers is largely arbitrary in this type of analysis. In the literature, quadratic objective functions can be justified, but the parameters in the objective function would be dictated by the preferences of households in the model and other factors that are inside the model. So you're not really just free to say, "I have such-and-such objective as a policymaker" because that would imply different characteristics of what would actually be going on inside the model. To make everything consistent, you have to take the objective function that would be dictated by the households in the model. We care about households and about what policies deliver the most utility to those households. We should design policies to maximize their utility, not our utility. In the literature, objective functions can be obtained from first principles. They tend to put more weight on price stabilization than typically assumed in policy discussions. It may be possible to break that result, but the assumptions behind such a model should be made very clear.

Let me now turn to my point that the worst policy in this class of models involve the so-called interest rate peg. For models in this group, keeping the nominal interest rate fixed and unresponsive to shocks for a very long time is often called an interest rate peg policy. A very robust result across models in this class is that such a policy allows many possible equilibrium outcomes. Some of the equilibriums that are allowed under such a policy are extremely volatile and would be very distasteful from a policy perspective. One idea about robustness in policymaking would be to avoid those kinds of situations, like the one I'm describing, where "anything can happen." The policy rules discussed in the memos often call for an approximate interest rate peg where the rate just stays at zero for years and years. From the perspective that I'm describing here, how wise is that? How robust is that? Is this not an approximation to the actual worst policy in these models? The reason I mention this is that it provides another reason to take the advice coming from the policy rules literature with some considerable caution because that advice depends a lot on what do you even mean by robust policy.

And finally, what can go wrong with committing to a policy rule? Suppose the Committee commits to a policy rule under the assumption that the trend rate of growth in the economy does not change or is well known, and suppose that that trend rate of growth does, in fact, change and that both the Committee and the private sector have to learn about the change gradually as information arises. What would happen in that case? Some will recognize this as a version of work by Athanasios Orphanides and coauthors concerning the poor monetary policy of the 1970s. My own work with Stefano Eusepi, published in *The Review of Economic Dynamics*, studied this issue in a DSGE New Keynesian model that had gradual learning about the productivity slowdown of the early 1970s and a policymaker completely committed to a Taylor-type policy rule. The main result was that a productivity slowdown of the same magnitude of the one experienced in the early 1970s in the United States would generate about a 300 basis point persistently high inflation rate. That would explain perhaps about half of the inflation in the 1970s. Working on that paper made me cautious about thinking in terms of policy rules, which are not appropriately adjusted to changing trends in the underlying economic performance of the economy.

My final comment is I do appreciate the work behind these memos. I do like this literature; I do think it informs our policy judgments. However, I also think we have a long way to go to get something really convincing out of the literature. I do not think that the Committee can in good conscience commit to a particular policy rule based on the literature as it stands today. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Mr. Chairman, if I heard your question correctly, I have spent enough time with Finn Kydland to do two things: One is to appreciate microbreweries because he has become quite good at it—and oddball wines—and the other is to appreciate the value of using a rule to develop a perspective on policy. There is a strong theoretical case for developing a rule.

The question is, how do we develop a rule for the world that we currently live in? My colleague just touched on this—not only are we at the zero bound, but we are post-crisis. And one of the things I have had a problem with, and I have discussed at great length with John Taylor, is this whole issue of an output gap. You and I have had discussions on this, but how do you define an output gap in a globalized world? Jim just referred to globalization. I think that's one of the issues that I'm not sure we properly take account of, and I wonder—and this is a question, again, not being as sophisticated as other people at this table—about the degree to which we tend to think in terms of a closed economy when we develop these rules, and how much we can possibly develop a rule, not just against a zero bound, but in the kind of world that we actually live in. It's just not clear to me if we can easily do that. I think the subject should be pursued. I thought Jon did a great job in his presentation. I must say, I actually enjoyed reading these memos. I thought the Philadelphia memo raised some very good questions, not only questions about a real-time data problem but also about the zero bound. And it also hinted at—at least the way I read it—the concern about globalization. So it is not clear to me that this is doable, but I understand the theory behind wanting to do it.

Just two other quick points. On page 12 of the longer memo there was a sentence that really caught my eye. It said, "An impairment of the transmission mechanism would call for more accommodative conventional monetary policy than that implied by the simple rules, all else equal." I wonder about that. To me, it represents just pouring it on. And the question is, why not try to affect the transmission mechanism rather than increase the quantity of accommodation? I know that's not what we're talking about here, but that did catch my eye. The second issue I have is that none of this addresses whether these were the right outcomes. If you look at that exhibit 1, the rule may have led this Committee to lead to a very low interest rate environment prior to 2005 and 2006. Was it the right decision to raise rates as quickly as we did? The reason I mention all of this—again from a less sophisticated perspective than President Lacker or our other two interlocutors—is that these are simple questions that I think we need to address in order to be effective. And then, also constantly asking ourselves, does the rule lead us in the right direction? Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. If you feel compelled to comment, raise your hand. But otherwise, let's hear everybody, and then Jon will make the final comments. Okay? President Williams.

MR. WILLIAMS. I would like to thank Jon and the Board, and the Philadelphia staff as well, for their thoughtful and helpful discussions on this topic. Personally, I find monetary policy rules to be a useful guide for thinking about the appropriate stance of policy. Importantly, they provide us with a straightforward way to think about monetary policy in terms of systematic, predictable responses to changing economic conditions. Now, the background materials covered a lot of ground, so in my time I will focus on the issue of adapting policy rules to what President Evans calls the "Gilligan's Island economy," that is, situations where the zero bound does constrain policy. And I have to say, President Plosser, that the prediction that 95 percent of the time we'll be away from the zero bound, and 5 percent of the time we'll be at the zero bound is optimistic to me—at least so far in my tenure, it has been zero. [Laughter]

MR. PLOSSER. Fortunately, we have a bigger sample than that.

MR. WILLIAMS. In my research with Dave Reifschneider on this topic, we drew two key conclusions that I think are relevant to our current situation. First, when faced with the zero bound, we do not want to keep our powder dry for reasons I will explain in a moment. Second, after you are stuck at the zero bound, it is important to keep monetary policy lower for longer than normal to help the economy recover. So why not keep our powder dry? When you're approaching the zero lower bound, or any limit on what you can do with monetary policy, the fact that we may be constrained in the future gives us even more incentive to ease policy as quickly as possible. This allows the available conventional monetary stimulus to be operative for as long a period of time as possible. In contrast, if you keep the powder dry, then we are giving up on an opportunity to add stimulus, slowing the recovery. Why do we want to keep monetary policy lower for longer than a standard monetary policy rule would prescribe? Well, by promising to keep policy lower for longer, we are helping to keep longer-term interest rates low, and, in fact, closer to where they would be without the zero lower bound. This is exactly the same idea as in the optimal commitment policy in the Tealbook. Thus, in order to compensate for the presence of the zero lower bound, our analysis argues for being easier than a standard policy rule on both sides of the zero bound. You want to be easier going in so as to put that policy easing in place for as long a period of time as possible, and you want to be easier coming out of the zero bound so as to keep long-term rates lower and closer to where they would be in an unconstrained world. To make things concrete, based on my current economic forecast, the Reifschneider–Williams rule prescribes policy liftoff about three or four quarters later than a comparable unadjusted monetary policy rule. Thank you.

CHAIRMAN BERNANKE. Thanks. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I would like to thank the staff for providing us with exceptionally illuminating memos. They reinforce my own long-held view that simple rules can serve as useful benchmarks to gauge the stance of monetary policy and to enhance the clarity of our communications. I first promoted the FOMC's use of rules for these purposes in a speech I gave in 1996 during my first stint as a Governor. And a few of us encouraged the staff to conduct research on the use of simple rules in monetary policy analysis. We have come a very long way and learned a huge amount, and Federal Reserve staff have contributed—and continue to contribute—very importantly to the impressive literature on this topic. Meanwhile, the actual use of rules in policy has increased markedly.

The staff memos highlight important design issues that need to be addressed. Given our statutory mandate, the memos appropriately focus on rules that mirror our dual objectives. A key design issue, therefore, concerns the relative weights assigned by the rule to stabilization of employment and inflation. Given the commitment incorporated in our January consensus statement to follow a balanced approach in promoting these objectives, I think it is essential that any rule we use to inform our policy judgments incorporate a strong enough response to resource slack for the economy to move expeditiously back to full employment following a shock. And for this reason, a rule like Taylor (1999) is much more consistent with a balanced approach than one like Taylor (1993), in my opinion.

Although the Taylor (1999) rule doesn't incorporate any policy inertia, I believe that a moderate amount of inertia is appropriate in normal times, like those we experienced during the Great Moderation. Some inertia serves to enhance public understanding of monetary policy and the predictability of its future course. Given the noisy nature of incoming information, a moderate amount of inertia also allows policymakers to minimize the risk of reversals without being seen to be falling behind the curve. The experience from the tightening episode during 2004 and 2005 suggests that market participants understood the commitment implied by inertial behavior. In particular, investors correctly anticipated a prolonged sequence of fed funds target changes in the same direction. Rules that embed a much higher degree of inertia may come closer to approximating optimal policy under commitment, but the value of conditional commitments seems to have fairly limited importance in normal times. Unfortunately, present circumstances are far from normal, and I found the memos particularly insightful in analyzing how simple rules can and should be modified when monetary policy is constrained by the zero bound. They dramatize that the gains from making conditional commitments are substantially greater, and, hence, the shortcomings of the Taylor (1999) rule relative to the optimal control policy are much more glaring in times like these. They have convinced me that it would be inadvisable to use that rule as a guidepost for our current policy deliberations and communications. In contrast, a highly inertial version of the Taylor (1999) rule does a much better job of approximating the optimal policy under commitment at the zero bound. And I intend going forward to use it as a benchmark in making my own assessments of appropriate monetary policy.

Finally, I would like to comment briefly on the links I see between this topic and our consideration of the consensus forecast initiative. First of all, a consensus forecast will provide a context in which to explain the rationale for the Committee's judgments about the appropriate path of policy. I expect that these judgments can be informed by the use of simple rules as benchmarks, but mechanistic adherence to the prescription of any rule would be unwise. There will surely be circumstances where deviations of policy from the prescription of any given rule will be warranted by the modal outlook or the balance of risks. Second, we will need and want, as part of a consensus forecast, to convey the degree of uncertainty surrounding the modal outlook. This can be effectively done using fan charts. However, such charts are generally constructed using stochastic simulations, which in turn require the specification of a policy reaction function. Thus, if the Committee decides to proceed further with the consensus forecast initiative, we will need to specify a particular reference rule and to consider carefully whether that rule would be featured prominently—or, alternatively, downplayed—in our monetary policy communications.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I want to thank the staff, both here at the Board and in Philadelphia, for the three very useful memos. I found them, as others have said, quite illuminating. I am going to deviate from the trend I have heard around the table and am going to actually have some questions for the staff, but it is useful to provide a little context for what my questions are. My questions are going to be about LSAP adjustment. And right now, in particular, a lot of the focus of the policy discussion around the table is about the use of LSAPs. And President Williams and Governor Yellen just highlighted the difficulties of using standard rules when you're at the zero lower bound. But one of the benefits of large-scale asset purchases is they are able to offer stimulus, and in that way we are in some sense breaking the zero lower bound. My questions are going to be about trying to use the insights from rules in order to understand how we should be adjusting this extra stimulus being provided by the large-scale asset purchases.

My first question is a narrow one. The second Board memo expresses some concerns about LSAP adjustment because there is a view that we should be making up for underaccumulation of past accommodation. I think that the idea is that because of the perceived cost of unconventional policy the FOMC failed to provide sufficient accommodation in 2009, and that we should now somehow make up for that. But my question is, why isn't that mistake sunk? Why should I be worried today in 2012 about underprovision of accommodation in the past?

MR. FAUST. Let me say a couple of things, and then I think Dave Reifschneider will want to comment. One important point that we tried to make in the memo was that under certain assumptions that you guys have derived, you can make an adjustment that exactly and properly adjusts for the effect of LSAPs and allows you to mirror the outcome you would have had under the unconstrained rule. And we want to emphasize is that there are a lot of other special factors going on at the zero lower bound that might make you want to be doing something else in the present circumstances. The clearest example to me—but not everybody likes this one—is that fiscal policy in the current circumstance is behaving dramatically differently from how it behaved in almost all of the other recessions, the ones in which that rule was found to be a good thing. We all think that the interaction of monetary and fiscal policy is central to understanding either one of them. You don't want to get only the stance of monetary policy right; you want to get the stance of overall macro policy right. And so we would want to adjust for LSAPs. We would also want to adjust for fiscal policy. And I can list two or three other things where I can make a good case as well for making an adjustment. So the answer to the first part of your question is that it would be great to come up with a fully and properly adjusted rule. Adjusting for maybe one or two special factors, but not three or four other relevant things—that I am not so much in favor of.

The second part of your question is about the references in the memo to filling the past policy accommodation hole. I will let Dave comment on that, if he wants to, because that is more his area.

MR. REIFSCHNEIDER. I will start by going back a little bit over the ground that Jon did because he raised a key issue, which is, what are the benchmarks against which you evaluate what is a good adjustment? One way we would do it is to forget rules and just have a loss function or something to represent what's a good outcome. As we pointed out in the memo, if you said, "I'm going to follow one of two rules. I'm either going to follow a Taylor (1999) rule or I'm going to follow an LSAP-adjusted Taylor (1999) rule, we could ask which rule would be better in terms of better macro outcomes? The answer in the memo was that you wouldn't want to adjust the rule because the adjustment would cause you to lift off from the zero bound earlier. What you would want to do in the face of this big shock that had kept you trapped at the zero lower bound, is just be easier for longer. That's just another way of stating the point that John Williams made, which is that Reifschneider–Williams adjustments, we'll call them, make up for the fact that you were stuck at the zero lower bound—that you were in a bad state—and if you were trying to get a better outcome you would do an adjustment to stay easier for longer.

Now, a different way of looking at this issue is to say, "Well, I don't know what loss function anybody has in mind, or anything else like that." It wasn't expressed so colorfully in this version, but I think how the March memo from John Roberts and Ed Nelson put it was, suppose you were a policymaker who just loved the performance of the economy under, say, Taylor (1999)—pick your rule; it doesn't quite really matter—when you never were worried about the zero bound. Then, you get into a really bad shock that sticks you at the zero lower bound, and the policymaker says, "Gee, I would really like to replicate the performance of the unconstrained Taylor rule. How do I do it?" What the Minneapolis note from April showed was that if you had been using asset purchases very aggressively, in fact so aggressively you essentially had made up for the fact that you were stuck at the zero lower bound, then when you are coming out and are no longer constrained by the zero lower bound, a policymaker who wanted to replicate the hypothetical behavior of the economy under an unconstrained Taylor rule should make those LSAP adjustments. The formula that the Minneapolis memo had for adjusting the Taylor rule was exactly right in that world. But what the memo that we distributed this time went on to say—and the point was definitely made in the Minneapolis note, too—was that there is a condition for LSAP adjustments to be appropriate, and that condition was that the Committee had done enough LSAPs to make up for the shortfall.

MR. FAUST. Before the current one.

MR. REIFSCHNEIDER. Right. In some sense, had you done enough with LSAPs to make up for the shortfall, so that when you are coming out finally, there is nothing in the past that you need to make up for, and the economy had been on that path that you would have wanted to have been on if you could have gone below zero. But if you are not on that path, if the Committee hadn't done enough, the question is, what can you do to get me closer to that path? The other way of putting it was, did doing the LSAP adjustment put you closer to that path or not? And the answer was, no, it didn't put you close to the path. You would be better off not doing the adjustment. These are the examples that we looked at.

If one felt that the two LSAP programs and the MEP had basically managed to replicate what would have been possible under Taylor (1999) unconstrained and you are a policymaker who thought that that was just the right thing to do, then you would want to adjust. But if you didn't think that they had fully made up the gap, then you wouldn't want to make the adjustments. It might be that those programs might not have made up the gap because you might have thought they were too costly a tool to use to make up the gap. Alternatively, if you don't care what Taylor (1999) says, you might be just asking yourself whether this is a good outcome for unemployment and a good outcome for inflation. Alternatively, you can go ahead and make the adjustments, but there are more than offsetting adjustments you would make along the lines that President Williams was discussing a few minutes ago. I don't know if that helps.

MR. KOCHERLAKOTA. Well, that is going to lead pretty nicely into my second question. I thought that you and Jon hit on two separate issues, which are important to separate. One is that the dynamics of the economy right now might well be different from what has been true in the past, and our policy reaction function might well want to adjust for it. Vice Chairman Dudley has highlighted this as well in one of his speeches, that there might be reasons to think that the natural real rate of interest right now is considerably lower than it was five years ago.

Then, there is a separate point about the fact that interest rates are constrained by zero. If we are able to do an arbitrary amount of LSAPs—and we just got a memo from New York saying we can do a lot more than I thought—then we should be able, in principle, to provide as much stimulus as we could by lowering interest rates, whatever rule you want to use. And then, there is a question of how do we do the translation? And that leads into my second question. LSAPs are not just another adjustment like fiscal policy because, unlike fiscal policy—which I watch and wonder at—we actually get to do something about monetary policy. Tomorrow the Committee is going to be asked to think about alternative A versus alternative B. It is useful to have a monetary policy rule to serve as a guide to thinking about that choice. How should I do that? That's my question.

MR. FAUST. Well, let me say a couple of things. First of all, on fiscal and monetary policy, it's not a matter of who gets to actually implement it; it's a matter of what the appropriate stance of either one is. And that appropriate stance, in my view, is appropriately jointly determined. If fiscal policy is operating very differently than at other times, the dual mandate doesn't say, "Pretend fiscal policy is operating as normal, and then behave appropriately." It is a joint determination. Now, that is a separate point from the one you were talking about, and I agree that those should be separated.

On your point about, what should we do? I think a lot of people around the table have said that in light of the current circumstances—the person sitting next to you maybe has dwelt on it as much as anyone—the simple models—say, those in which the simple adjustment for LSAPs would be exactly right—are perhaps adequate in normal times. I'm not sure they are so adequate now, and so to have confidence in those is kind of difficult. That is why the staff has been attempting to provide information to allow lots of kinds of adjustments that would allow people to make judgments about where to go from there, whatever policy rule they like. We are not against adjusting for LSAPs, but, rather, we are in favor of—and I think the memos support this—thinking about a lot of factors and how they call for different adjustments at present. The presence of LSAPs is one such factor, but I don't think it's unique or special. Finally, everybody around the table probably has their own view about whether the use of LSAPs so far has completely offset any effects of the zero lower bound. Indeed, if we were all confident on this, I think we would have a simpler time around the table—our discussion might be quite different if we could just condition on the past use of LSAPs as being such that the effective lower bound has no implication.

MR. REIFSCHNEIDER. What I would add to that goes back to the forecast targeting point that Jon was making in his presentation, and it links up to the consensus forecast discussion that you will have later in the meeting. One way to look at the issue is to say, "What does the Committee think is the most likely outcome for real activity and inflation going forward and how does that link up to the dual mandate?" Suppose the Committee looks at the projected paths for, say, the unemployment rate and inflation conditional on what was in the statement last time, and determines, "Yes, that is consistent with the dual mandate." Let's say it's balanced. Let's say inflation was a little bit above 2 percent and unemployment was coming down to 5½ percent or something, which is the midpoint of the Committee's longer-run normal range. Then you might say, "Okay, that's balanced; that's fine; that's an okay strategy." If it wasn't showing that, if it was showing inflation running persistently below 2 percent, and unemployment staying persistently above, then you might say, "Okay, that's grounds right there for further policy action." Now, of course, the other complication with this approach is that when you are dealing with LSAPs or the MEP or whatever, you have to ask yourself how effective they are going to be and if there are costs associated with them. There is a second cost-benefit analysis that you would have to do because it is an unusual tool. But stepping back from that, I would first look, conditional on some policy, at the expected outcomes for real activity and inflation. And then I'd ask, is that outlook consistent with the dual mandate? Is that outlook satisfactory? And if it isn't satisfactory, do more. Then the question becomes, do I have a tool with which I can do more and for which the benefits from using that tool outweigh its costs? That would be how I would answer your question.

MR. KOCHERLAKOTA. As you'll hear over the next couple days, I'm sympathetic to what you're saying about the forecast-based approach. One of the reasons we do like rules is that formulating forecasts of medium-term inflationary pressures is not easy. One of the reasons we're using models is to try to deliver forecasts, but different models might differ on that, and rules are maybe a little more mechanical way, but we hope a more robust way, to get at that. So I think there is more of a give-and-take between the forecast-based approach and the rules-based approach, and the take-away that I heard from you is that you're leaving policymakers on their own in terms of how to adjust rules for LSAPs. Is that the right take-away?

MR. REIFSCHNEIDER. The point we made in the memo was that there are a number of unusual circumstances going on right now. One of them is LSAPs, and that suggests we adjust the rules in a certain direction. Others are having been stuck at the zero lower bound for a long time and thinking that maybe unconventional policy didn't make up for it. Another is maybe we're looking at a lower natural interest rate, and so on. There are all sorts of unusual circumstances.

MR. KOCHERLAKOTA. Right. I have a choice to face tomorrow—or not me, but the voters do—of deciding whether or not to provide more of this particular kind of action. And the question is: Is there a way to adjust a rule to provide some guidance about whether or not to take that choice or not?

MR. FAUST. Here's the answer that I think is most appropriate to that. The whole simple rules literature attempted to distill some truths that are out there across all the models and imbed them in a rule. That's great. Now, if we were in a position right now to distill some truths about current circumstances that we could all agree about—did we fill the hole with past LSAPs; are labor markets functioning in a standard way?—then maybe we could have a simple rule that would be appropriate. But in my view, we get into a bit of a stone soup situation if we say, "I really like simple rules if we just adjust for A—and then B—and then better adjust for C and D." And then we've left the simple rule behind. And from the standpoint of the staff, there's a problem that if you come up with an adjustment that encompasses myriad factors, the appropriate response by the policymakers who would like help could be, "I don't believe that. What's in that adjustment?" And then we'd go back to discussing A and B and C. It's a complex situation, and maybe we should go back to Einstein here; it's not amenable to a simple characterization. I am particularly reticent to recommend: "There's this one adjustment on which we have a bit of theory and that only holds in certain models. It's not robust across models, but at least we have some theory that tells us what that number would be. Let's go ahead and add that one in. We'll leave the other adjustments vague." That strikes me as particularly dangerous because you might attribute a false precision to a single adjustment. You could goad the staff into providing more information about each of these things that we're saying one needs to adjust for. Well that's we are trying to do; we're working pretty hard on that, as are your staffs. It's a complicated topic, and we'll report back as frequently as we have something useful to say.

CHAIRMAN BERNANKE. Were there short interjections?

MR. FISHER. Judging from your expression when I raised both hands, I'm going to pass. [Laughter]

CHAIRMAN BERNANKE. Nothing personal. I'm just looking at the time.

MR. FISHER. No. I think we want to move on.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. I appreciate everything you guys are saying on this topic, and there are lots of adjustments, but it wasn't clear to me, and maybe it's not clear to the Committee that that means that, "You shouldn't do an adjustment and, therefore, I'm going to report some results for some unadjusted rules." That leaves you open to everyone saying, "Well, you know, what about these other factors?" Maybe what you're saying is it's just inconsistent to talk about simple rules and then talk about lots of adjustments. But it's not clear to me that, therefore, you should look at unadjusted results and at these graphs of unadjusted rules and what they would imply because you know that that is, in some sense, not right unless all of those adjustments are offsetting in some particular way.

MR. REIFSCHNEIDER. What I would say is there are a number of adjustments that we can sign, and I think that almost all of them go in the opposite direction than the LSAP adjustment. That's one reason we're so queasy about the LSAP adjustment. And, second, we can do some back-of-the-envelope calculations on things—which we have done—such as, if the equilibrium funds rate is not 2¼ but is 1½ or 1¾, and if the previous policy shortfall is a certain amount. I think they can easily carry you from add-factoring up to add-factoring down. And then we get back to Jon's philosophical point that we're definitely not using a simple rule any longer, and we are delivering other analyses, such as optimal control, which we can do in multiple models. But if the Committee would like, we could do other analyses; we could put out an extended set of rules with all sorts of adjustments. I don't know if that's helpful or not.

CHAIRMAN BERNANKE. The last person on my list is President Evans.

MR. EVANS. Thank you. I didn't really prepare any remarks. I think I followed some bad advice from Governor Tarullo last time when he said we shouldn't come and have prepared remarks. I actually have more questions than comments.

It does seem like there have been a lot of references to designing "the rule," coming up with the best, simple, robust type of rule—or at least I heard it that way—and that certainly seems overly ambitious. I thought this was really more about showing a collection of different possibilities. I kind of favor this eclectic approach. I have my own view, which is I would take the best-looking model that I think captures the data and think seriously about what the optimal policy is within the context of that. But if I want to think about robustness, I would think of this as a collection of models, which then has to be evaluated, as the memo suggests, along the lines of forecast-based targeting. That approach seems best aligned with being responsive to our mandated goals, and I wholeheartedly support that type of advice. Now, that does raise a question, which President Plosser was sort of getting at. The way I heard it was—and some others might have mentioned this, too—well, what if these policy rules are overly tuned to the characteristics of FRB/US, or a particular model, and what if that model is wrong? And that's a very interesting and important question to ask because it could be costly. One question I immediately asked my own staff was, "Okay. That's fine. How many alternative models do we want to contemplate?" Because it's not obvious how many we want to look at. To some extent it's a little ad hoc as to how many of these models or how much dimensionality do we want in the space of different viewpoints on how the economy behaves? We have to take a stand on that. I read the Philadelphia memo quickly, but my staff advised me that the Philadelphia memo was pretty careful in looking at a wide variety of models that, in fact, seem to fit the data pretty well. One question that I have is: Jon, did you find different prescriptions coming out of the Philadelphia model than what I heard in your own presentation? I would have thought that as you expanded the models, you would see many of the same conclusions, but I'd be interested in any differences.

MR. FAUST. It was very broadly consistent. The main difference really is that we didn't address the probability of hitting the bound under the various rules, and including that was a nice addition.

MR. EVANS. The days when I think of myself as an econometrician make me wonder whether, if you were going to bring these other models to the table and say a little bit about how the data speak to that, you would want to use something like method of moments to weight those that are most informative about the data and down-weight others. Otherwise, it's just completely uniform and ad hoc: I get to throw in some bad model projections, and that can distort how this comes out. And, Jon, I suppose that must be in the kind of work that you were doing. You would let the simulations speak to that somehow.

MR. FAUST. But there are papers, including by Andy and John, that do various things like taking a Bayesian approach to deciding which models are good and to coming up with a rule that performs well in some general sense. The general conclusion that some of these rules do pretty well across a bunch of models comes not only out of an ad hoc approach to running the rules in a bunch of models and looking at the results, but also from more formalized approaches to computing robust policy rules. Now, it is true that the results are sensitive to the collection of models you start with, and that's very important. And the models in the Philadelphia memo were all modern DSGE models with a little FRB/US thrown in, which is a little different than the classic academic DSGE model, I guess. I carefully didn't say across all kinds of models. I said across conventional models, but that doesn't span the kind of diversity that you'd like to see. All of these models don't create financial crises. All of these models still have pretty rudimentary financial sectors, labor sectors, et cetera. So the robustness results carry across, but we'd like to have a wider range.

CHAIRMAN BERNANKE. Do you have any summary comments?

MR. FAUST. Well, I think it's a simple topic, as illustrated. [Laughter] One of the papers I just mentioned by Andy Levin and John Williams on the robustness of simple rules says in the conclusion that because of the strength of the results, it should be easy for a group of policymakers that have different views of the economy but similar views on the objectives of policy to come up with a rule they all agree on. And I really wanted to finish up with John providing some additional perspective on that quote from his paper, which I found more and more amusing as this process went on.

MR. WILLIAMS. As do I. [Laughter]

CHAIRMAN BERNANKE. Well, I think one basic point here is that we are in an unusual situation not only due to the zero lower bound, but also due to structural changes and large shocks to the economy that make it unlikely that a simple rule will reliably achieve all the results you want. Nevertheless, it is useful to look at these benchmarks, and, again, I appreciate the staff's good work. Thank you.

Let me turn now to item 2 and welcome Simon Potter to his new role and ask him to present the report on financial market developments.

MR. POTTER.[2] Thank you, Mr. Chairman. Further signs of a slowdown in global growth have prompted a number of central banks to ease monetary policy, and expectations have increased for additional easing measures by the Federal Reserve in the coming months. In Europe, investors continued to focus on the shortcomings of announced policy measures to address sovereign and banking-sector risks in the euro area, leaving markets in an increasingly fragile state, although expectations have mounted for a more aggressive policy response from the ECB.

I will begin with developments in interest rate markets. As shown in the upper-left panel of exhibit 1, yields on highly rated sovereign debt have continued their decline in recent weeks as concerns over the euro-area sovereign and banking crisis have reemerged, though some of these moves have been retraced in recent days. Yields have also declined on disappointing economic data and on policy easing measures by a number of central banks. In the U.S., the weakening growth outlook and persistent risks associated with Europe and the fiscal cliff have led investors to push out the expected timing of the first increase in the federal funds target rate, with the market now pricing in significant odds that the rate will not be increased until the third quarter of 2015. This view is also reflected in the probability distribution from the Desk's Survey of Primary Dealers, shown in the upper-right panel. Dealers now assign the highest probability of a first increase in the target rate to the second half of 2015.

Given the assessment of an increased likelihood that liftoff will occur at a significantly later date than late 2014, responses to the dealer survey show increasing expectations that the Committee could extend the forward rate guidance beyond "late 2014." As shown in the middle-left panel, dealers assign a 65 percent probability that the forward guidance will be extended further into the future at some point over the next year. The probability assigned to a change in the guidance at this meeting has also risen notably, to 40 percent.

[2] The materials used by Mr. Potter are appended to this transcript (appendix 2).

The dealer survey also shows heightened expectations for an increase in the size of the System Open Market Account (SOMA). Dealers now assign a probability of 65 percent to such an increase over the next year, though expectations for an announcement at this meeting are much lower. In addition, given the discussion in the June meeting minutes, we asked dealers to assess the probability of "new tools" being used to provide additional policy accommodation. Dealers assigned a 30 percent probability to this possibility over the next year, with several suggesting that a program similar to the Bank of England's Funding for Lending Scheme could be adopted.

Lowering the interest rate on excess reserves (IOER) is an additional policy option that has received increased market focus in the wake of the ECB's policy decision in early July that reduced the rate on its deposit facility to zero. Despite an increase in the probability assigned to this policy action, expectations for an IOER cut remain modest. However, as seen in the middle-right panel, the two-year Treasury yield and forward rates derived from overnight index swaps have moved down notably since the ECB decision, and the Desk's market contacts attribute these moves primarily to the possibility of a reduction in IOER.

While the dealer survey did not directly ask about the structure of an additional LSAP, qualitative responses and a standard question on expected changes to the balance sheet provide some insight into views about the likely composition of a purchase program. Most dealers appear to expect any new purchase program to focus on mortgage-backed securities (MBS) in whole or in part. This view is consistent with commentary from mortgage market participants, and indeed, building expectations for the announcement of an MBS purchase program have contributed to the narrowing of MBS spreads to Treasuries over the intermeeting period, as shown in the lower-left panel.

The bottom-right panel looks at how recent developments have affected risk assets broadly. Despite increasing concerns about global growth, stock markets were mixed over the period, supported in part by monetary policy easing and expectations for additional accommodation in both developed and emerging economies. In particular, and as I will discuss in a moment, increasing expectations that the ECB may restart purchases of peripheral sovereign debt prompted a notable rally in equity markets in recent sessions, leaving both the S&P 500 and the Euro Stoxx indexes higher over the period.

Your next exhibit turns to developments in Europe and for financial institutions. As Steve Kamin will discuss in his briefing, at their late-June summit, EU leaders took a number of steps toward reforming institutional arrangements within the euro area. However, these and other measures have failed to reassure investors that officials are taking necessary and timely steps to adequately backstop peripheral sovereigns as well as recapitalize banks without increasing the burden on sovereign balance sheets. These concerns came to the fore in Spain, where uncertainties arose as to whether the EU plan to recapitalize Spanish banks would ultimately still require a guarantee from the sovereign. At the same time, investors increasingly sense that leaders in the European core are unwilling to provide additional funds to Greece and that such an outcome could precipitate a Greek exit from the euro area in the coming months.

Given these concerns, as seen in the upper-left panel, Spanish and Italian 10-year debt spreads to Germany rose to record or near-record levels during the period. Increasingly troubling has been the sharp rise in shorter-dated yields for these two sovereigns, with Spanish 2-year yields at one point breaching 7 percent. Spain in particular has had increased difficulty accessing funding markets, with recent auctions evidencing weak demand, even at very short maturities and reduced sizes. In light of these developments, investors are increasingly discussing the possibility that Spain will soon need to request a full support package from the EU and the IMF. In recent days, comments from ECB President Draghi have reignited expectations for ECB purchases of peripheral sovereign debt, leading Spanish and Italian debt spreads at all tenors to narrow sharply. Investors are now focused on Thursday's ECB meeting for an indication that the ECB will resume its purchase program.

Negative sentiment toward the euro area has put additional downward pressure on the exchange value of the euro against the dollar, as seen in the upper-right panel. Short futures positioning by speculative accounts against the euro approached near-record levels, although pricing in options markets does not suggest aggressive positioning for sharp moves lower in the exchange value of the euro against the dollar.

The ECB's July 5 decision to lower the rate on its deposit facility to zero, in lockstep with the decrease in the main refinancing rate, came as somewhat of a surprise to investors. As seen in the middle-left panel, the ECB's policy action has had pronounced effects on interbank funding markets, and the term structure of EONIA swap rates suggests expectations that accommodative policy is likely to remain in place for a considerable period. The ECB decision also led to notable declines in short-dated yields on European sovereign debt, shown to the right, though some of these moves have retraced in recent sessions.

The ECB was not the only European central bank to take significant policy-easing measures during the intermeeting period as the Bank of England increased its QE program by £50 billion. Further, in conjunction with the U.K. Treasury, the Bank of England introduced its Funding for Lending Scheme, which is designed to promote bank lending, or at least limit the impact on lending of bank deleveraging efforts. Market participants view the program as a positive development, and as seen in the lower-left panel, lower anticipated funding costs associated with the program have contributed to the compression of 3-month sterling LIBOR–OIS spreads.

Before moving on to Desk operations, I will touch briefly on the impact of the Barclays settlement with the U.K. and U.S. authorities regarding attempted manipulation and inaccurate reporting of LIBOR on share prices of financial institutions. As shown in the lower-right panel, Barclays' share price fell sharply following the announcement of the settlement, as investors assessed the impact of the news on Barclays' reputation and future earnings. In the immediate aftermath of the announcement, shares of other banks that were in the U.S. dollar LIBOR panel in 2008 underperformed the Euro Stoxx Bank index, amid speculation that the investigation into alleged wrongdoing could extend across a number of LIBOR panel banks.

Your third and fourth exhibits turn to recent Desk operations and the capacity for further large-scale asset purchases. Since the last FOMC meeting, the Desk has purchased $56 billion in longer-term Treasury securities under the maturity extension program (MEP), bringing total purchases to $438 billion, as seen in the upper-left panel. The Desk also sold a further $56.6 billion and let $18.6 billion in securities mature without reinvestment.

The MEP operations are proceeding well, with a median offer-to-cover ratio for the purchase operations of 2.9 and for sales of 6.8. As shown in the upper-right panel, the coverage ratios for the purchase operations have been declining. We think this change largely reflects the lower outstanding supply of eligible seasoned securities given the purchases to date. As shown in the purple bars in the middle-left panel, earlier purchases were concentrated in seasoned securities, as they are typically seen as cheap relative to surrounding securities on our relative value curve. However, our purchases are gradually shifting toward more recently issued securities, a development that we anticipated at the start of the program. We will continue to monitor the operations and these trends to determine whether there are any adjustments that may be warranted.

At this time, we do not see any signs that the continuation of our purchases and sales is having detrimental effects on broader market functioning. In fact, a range of indicators suggests that liquidity in the Treasury market has held steady. As shown in the middle-right panel, measures of the cost of transacting in Treasury securities remain within recent ranges. Trading volumes are also within ranges observed over the course of the MEP, and we have not seen an increase in the degree of specialness in the repo market, which would be consistent with market liquidity strains.

Though we do not think the large Desk operations to date have negatively impacted market functioning, this risk could rise if the size or pace of operations were to increase as a result of additional balance sheet expansion. To better assess this possibility, staff estimated the amount of additional Treasury and agency MBS that could be readily purchased over the next two years without meaningfully disrupting market functioning. The results of this analysis were described in the memo "Market Functioning and Limits on Asset Purchases" circulated to the Committee last week and are summarized in the bottom-left panel.

We calculate purchasable capacity by projecting the stock of securities outstanding over the next two years, less current SOMA holdings. We exclude a set of securities from purchasable capacity because they are assumed to have characteristics that make them less effective in lowering interest rates or would be challenging to purchase in size. Specifically, we exclude structured or nonstandard securities, those with low duration or liquidity, and those held by foreign official accounts as a proxy for price insensitive investors. Finally, we subtract a portion of the remaining amount—the "float adjustment" in the panel—that we believe would be needed to allow for continued efficient trading and hedging in these and other markets. The remainder represents the estimated capacity for purchases. Overall, we estimate that about $2.6 trillion could be purchased over the next two years, with about two-thirds of this capacity in Treasuries and one-third in agency MBS. Of course, the uncertainty involved in this type of exercise is considerable.

Purchases of $2.6 trillion in securities over two years would imply a pace of about $110 billion per month in net new purchases. In addition to purchases associated with the current policy of reinvestments and the MEP, the total purchases represent a substantial pace—particularly over coming months—and as shown in the bottom-right panel, one that we have never before sustained over such a long period.

As one gauge of whether such a pace of purchases would strain market functioning, we compare the pace of purchases to the pace of gross issuance, the results of which can be seen in the top panel of your next exhibit. This metric is much more important for the MBS purchase pace, where most trading is in recently issued securities in the TBA market. For MBS, it would represent about 45 percent of projected gross issuance but about 65 percent when including purchases made for reinvestments. With purchases at this rate, by the end of the two-year period, we estimate that SOMA would own 54 percent of all nominal Treasury securities maturing between 3 and 30 years and 40 percent of the fixed-rate agency MBS market.

Lastly, I want to provide an update on recent developments in the euro reserves portfolios of SOMA and the U.S. Treasury Exchange Stabilization Fund. These portfolios have included three types of assets: deposits at official institutions; reverse repo investments recently conducted only against German, French, and Dutch sovereign assets; and outright holdings of German and French sovereign debt securities with no more than five years to maturity. Following the ECB's decision to cut the deposit facility rate to zero, rates on reverse repos for these three collateral types declined below zero, as shown in the middle-left panel. Additionally, rates on our cash deposits at the BIS declined below zero. To avoid investing at negative rates while maintaining nearly the same maturity liquidity, the Desk transferred funds from maturing reverse repos and cash held at the BIS to an unremunerated cash account at the Banque de France. This shift in portfolio composition is shown in the middle-right panel.

We expect the negative rate environment in the repo market to persist, and there is a possibility that the ECB could seek to align rates available to reserve managers with market rates by requiring euro-area national central banks to impose negative rates or fees on official deposits and cash accounts. To prepare for this possibility, the Desk is exploring options for the composition of the euro reserves portfolios and will engage U.S. Treasury officials on their views of the appropriate balance between principal preservation and portfolio liquidity. Taking these views into account, staff will assess the trade-off between accepting negative rates and a change in the composition of the invested portfolio and update the Committee on any recommended changes as appropriate. Thank you Mr. Chairman. That concludes my prepared remarks.

CHAIRMAN BERNANKE. Thank you. Just quickly, on table 19, are those shares of total Treasury issuance or Treasury issuance with certain maturities?

MR. POTTER. This is going to be in the 3-to-30-year sector. Is that right, Lorie?

MS. LOGAN. Yes.

MR. POTTER. It's in the 3-to-30-year sector. So we're excluding, remember, the 0-to-3-year sector where there's a large amount of issuance of the next few years.

MR. FISHER. But you had a footnote to that. Excuse me, Mr. Chairman. You said at the end of your comment on 19, "We would end up owning 54 percent"—could you repeat that, please?

MR. POTTER. That would be 54 percent of outstanding Treasury securities between 3 and 30 years. That would include continuing with the maturity extension program, which, remember, is buying long-term securities as well.

MR. FISHER. And you gave a figure for MBS as well.

MR. POTTER. Yes. That was—

MS. LOGAN. Forty percent.

MR. FISHER. Of outstanding MBS. Thank you very much.

MR. POTTER. Just to be clear, that's a capacity including some of the things that would be hard to readily purchase.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. Other questions? President Lacker.

MR. LACKER. How does the $100 billion average gross issuance pace compare with the recent past, and how much of that represents the Treasury's avowed interest in extending the maturity of their issuance?

MR. POTTER. We've assumed that the issuance pattern stays constant going forward. That's a conditioning assumption we've been making for some time. That's been a good assumption so far. It could obviously change going forward. And if they decided to issue more in the 3-to-30-year sector, that would give us more purchasable capacity then.

MR. LACKER. My recollection is that Treasury has announced an intention to do that?

MR. POTTER. Yes, but slowly over time.

MR. LACKER. Slowly over time?

MR. POTTER. The standard answer we've given—this question's come up a lot—is this is a deviation relative to what's already priced in that market participants expect.

MR. LACKER. What's a deviation?

MR. POTTER. Any kind of LSAP purchase that we would do.

VICE CHAIRMAN DUDLEY. Treasury is not adjusting to what we do?

MR. POTTER. Yes. It's not adjusting to us.

MR. LACKER. No, I'm just wondering to what extent that average gross issuance reflects Treasury extending it. So you're saying it's not. It's just a current pace.

MR. POTTER. Is that right, Seth? It was the current pace? So there will be some slight increase?

MR. CARPENTER. That's right. The staff forecast that is in these numbers is based on a variety of estimates based on everything that Treasury has been doing so far. The numbers are consistent with the Tealbook estimate that is based on historical Treasury issuance patterns and the CBO's estimates of issuance. The CBO is probably on the lower side.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. You mentioned that you had a new category that you asked about in the dealer survey, so-called "new tools."

MR. POTTER. That's correct.

MR. PLOSSER. I guess I have a two-part question maybe for you and maybe Bill English: (a) in the dealer survey, did you allude to what new tools those might be? You did mention in your comments that one thing might be some comparable tool to what the Bank of England instituted. I'd like to know what was mentioned in the survey. And (b) I'd like to know if, in fact, New York or the Board is exploring new tools, and obviously what things are under consideration?

MR. POTTER. What we did is we took the exact phrasing in the June minutes—the exact phrasing, no words added or anything else—and then the dealers were free in the free response section to tell us a little bit what they thought the Fed might be doing, and that's where they mentioned the Bank of England program. I think the Chairman mentioned it in his press conference as well.

MR. PLOSSER. Is that under active consideration and study or are there other things that are being considered that would be classified as new tools?

MR. ENGLISH. We have staff working on thinking about tools along the lines of the Bank of England program and other ways of potentially using the discount window to provide liquidity, to encourage lending. That thinking is still at an early stage, but we're certainly actively pursuing it.

MR. PLOSSER. Anything else other than the discount window-related lending?

MR. ENGLISH. I don't think so. It's all tied into the discount window.

MR. POTTER. We could check if the dealers have sent us other ideas.

CHAIRMAN BERNANKE. Governor Duke?

MS. DUKE. In looking at figure 2, the Probability Distribution of First Increase in Federal Funds Target Rate, I'm curious about what rule we think the dealers are using to come up with their estimates of when we're going to lift off.

MR. POTTER. That's a really interesting question. We've looked at the responses to this question to see if they make sense so we can convert them into a number of months until the fed funds target will be increased, and it seems to make sense, surprisingly. This is pooled across the 20 assessments that the dealers make, and by now if you convert this into an expected time we'll be at the zero bound, it's the longest it's been since we've been asking this question.

MS. DUKE. So do we then impute it back to some rule? I'm curious about the degree to which we think they're being influenced by things like an expectation that Hilsensrath was right in his article or an expectation that this newsletter seems to have more insight than another, and kind of talking to each other about the rules that might apply.

MR. POTTER. This survey is sent out the week before the pre-FOMC week, and we usually collect the data on the Monday of the pre-FOMC week. So it's usually not influenced by some of the reports that come out in the week before the FOMC meeting.

MS. DUKE. Then would this imply really a significant downgrade in the forecast as they move that out?

MR. POTTER. They move that forecast fairly similar to the Board staff. So I wouldn't say it's a significant downgrade, but I think what they're looking at is January, the last time that the forward guidance was changed. Last time, the forward guidance lasted for about five months and was changed again. So they might be expecting something like that to happen. How we separate out their interpretation of the forward guidance from what they view the economic prospects to be would be difficult to do.

MS. DUKE. Would it be fair to say this is some guide of how they're interpreting the relationship between the statement and the fed funds projections that are in the SEP and learning as they go?

MR. POTTER. Possibly.

MS. DUKE. Thank you.

CHAIRMAN BERNANKE. Those projections are highly correlated with the fed funds futures and other market indicators.

MR. POTTER. That's right.

MS. DUKE. I had two other questions. The next one has to do with the gross issuance particularly in the MBS market. It would seem to me it's easier to project the issuance in the Treasury market than it is in the MBS market, where I'm assuming that it will be affected by the capacity of originators, the refi programs, and then once refis are over with, just the pure purchases.

MR. POTTER. I have confidence in the short run in the gross issuance in the agency MBS market being quite strong. The memo was reasonably clear that in year two we have less confidence. There is model error in the prepayment speed, we could affect the total that we're buying because of the reinvestments, and the conditioning assumptions are more likely to deviate in practice from what we assume.

MS. DUKE. Thanks. And then my final question has to do with what I think I heard about the BIS when other rates went negative.

MR. POTTER. They were charging us minus 15 basis points. So we withdrew that deposit.

MS. DUKE. Interestingly, what I've heard about that is the reason they charged the negative rates was to make sure that they didn't get all of the money that was coming through.

MR. POTTER. Yes. That would be one of the issues with the cut in the deposit rate that the ECB did. For some investors, it's hard to access accounts that are showing zero rates rather than negative.

MS. DUKE. Thank you.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. Well, Governor Duke touched on something I was going to ask about, throwing out a phrase "new tools" without definition—but you have some examples. We were referred to the discount window. The Bank of England (BOE) has its Funding for Lending. Even though there are vast legal differences and vast differences between the Treasury and the Exchequer and the relationship between the BOE and the central bank, it does make me wonder about the value of the probability of additional policy action when they don't even define what new tools are. It's just a buzz word, and at least it leads me to question its value. The other tools that we have are well known, and there's a drift to what we do and an understanding, but that's my comment.

The question I have—and this is just something maybe for you to look at, Simon, or someone on your staff—relates to the equity markets. As I look at the numbers, we've seen significant sales in domestic equity mutual funds. I'm trying to get my arms wrapped around the effect this has on savers and on the wealth function. My sense is that trading is increasingly concentrated in lesser hands or being distributed to a lesser population base, but I'm not sure. One has to look at the ETF market, for example. How much is used for institutional purposes in hedging and are some substitutions taking effect between ETFs for the average citizen or the normal mutual fund holder? Not now, but I wonder if you could give us a little briefing on that at some point, unless you wish to give it to us now.

MR. POTTER. I know very little about it right now that would allow me to tell you anything about it, but we can look into it. It might be quite difficult to be able to give you a satisfactory answer when the question has something to do with flows and who the ultimate investor actually might be, but we can characterize some parts of it, and there might be something interesting there.

MR. FISHER. I'm interested just because it helps shape my understanding of what the wealth effect is.

MR. POTTER. Completely.

MR. FISHER. I'd be grateful. Thank you.

CHAIRMAN BERNANKE. Okay. President Kocherlakota.

MR. KOCHERLAKOTA. Yes, Mr. Chairman. A couple of quick questions about table 19. I should know this, but what fraction of the 3-to 30-year maturity structure do we currently own? So we're going to go to 54 percent at the end of two years.

MR. POTTER. Let me check.

CHAIRMAN BERNANKE. I think I recall Brian saying it was 35; is that right?

MR. POTTER. Yes, it looks like that, but we've got it broken out by different sectors.

MS. LOGAN. It's about 35 percent, and the 10-to 20-year sector is projected to go to 41 percent and 20-to-30-year to 36 percent by the end of the month.

MR. KOCHERLAKOTA. Thank you. And my next question/comment is that it would be useful to tell us something about how this hypothetical LSAP program would translate into projections for income for the Federal Reserve. I didn't see that in the memo that you circulated, but that would be interesting to think through.

MR. POTTER. I think that most people around this table should be able to work it out a little bit. Income will go up in the short run from a large LSAP and then will go down because we have to pay interest on a much larger amount of reserves. And then the fine details of it are that if you went for the whole $2.5 trillion, it's likely that that would produce a deferred asset toward the end.

MR. KOCHERLAKOTA. Yes, I think, at least for me, it would be useful to have those kinds of quantitative details more fleshed out.

MR. POTTER. We can provide them for you.

CHAIRMAN BERNANKE. Have we done those?

MR. POTTER. We've done it for alternative A in the Tealbook.

MR. ENGLISH. I had staff look into that for alternative A in the Tealbook, and the remittances to the Treasury are higher in the near term, as was said, and then decline, and trough at a little under $10 billion. So the trough is lower than in the case without the LSAP, but still at a positive value. Clearly, the cumulative amount increases some. The larger the LSAP you take on, the closer you come to ultimately getting to zero remittances, and we'll aim to provide more information on that.

MR. KOCHERLAKOTA. Yes, I think knowing something about the risks of that would be not necessarily to argue that's determinative in any way, but I think it's a useful piece of information.

MR. ENGLISH. I agree.

MR. KOCHERLAKOTA. Thanks.

CHAIRMAN BERNANKE. President Pianalto.

MS. PIANALTO. Mr. Chairman, it would also be helpful to have that information under different interest rate scenarios because obviously you're making some assumption about where longer-term rates are going to be, especially in those out-years. So it would be helpful to have some different interest rates scenarios.

MR. POTTER. We are ready to do that, and we will present a full range there, both, I think, higher interest rates and lower interest rates in the sense that if we had a program that lasted for two years, that might be consistent with lower rates for longer, and we should look at that particular scenario as well.

MR. FISHER. The income and price components as well, the capital loss.

MR. POTTER. That is in the standard program that we produce, and so that would be if we marked the portfolio to market. The footnote would be another place showing the fair value.

CHAIRMAN BERNANKE. Any other questions? [No response] I need a motion to ratify domestic open market operations since June.

MS. YELLEN. So moved.

CHAIRMAN BERNANKE. Without objection. Okay. Thank you. I understand coffee is ready. We could come back at 3:20. Thank you.

[Coffee break]

CHAIRMAN BERNANKE. Okay. Why don't we recommence? You have a number of handouts. I'll ask Bill English to describe what you have in front of you.

MR. ENGLISH. We distributed four handouts during the break. You should have one that says "Forecast Summary." You should have one that says "Consensus Forecast Exercise." You should have a single page of charts, and one that has a Class I FOMC cover on it. That last one is some slightly revised versions of the policy alternatives that I wanted you to have for your reference. We have very small changes to paragraphs 1 and 2 in alternatives A and B, just to catch up with the BEA's release on Friday. So I wanted you to have those, and I'll be working from this version in my remarks tomorrow.

CHAIRMAN BERNANKE. Okay. Thank you very much. We are now at item 3, the economic situation, and I'll turn to David Wilcox.

> MR. WILCOX.[3] Thank you, Mr. Chairman. From time to time, as all of you are well aware, there have been proposals to televise FOMC meetings in order to enhance the transparency of monetary policy. Whatever the pros or cons of the idea on substantive grounds, I am relieved that we're not on the air this week, going up against the Olympics, because I, for one, don't think I could bear to come up short in a ratings match-up against mixed-doubles badminton, the 50 kilometer race walk, or—what would be most aggravating of all—dressage. [Laughter]
>
> The spending data and other indicators that we received over the intermeeting period led us to mark down our near-term projection for real GDP growth. On the household side, real retail sales are now estimated to have been about flat, on net, since February—a weaker trajectory than we had expected in the June Tealbook—and household sentiment has been more downbeat than we had foreseen. In response, we have trimmed our forecast for the growth of real PCE over the second half by about ¼ percentage point.
>
> On the business side, although growth in real equipment and software purchases stepped up modestly in the second quarter, we do not think that this acceleration will persist: New orders for capital goods have flattened out and the backlog of unfilled orders has decelerated sharply, while forward-looking indicators of investment such as indexes of sentiment and capital spending plans from business surveys have deteriorated in recent months.

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

Consistent with the tenor of the spending data, we have also seen a more-pronounced slowdown in manufacturing output than we were expecting. Moreover, the new orders diffusion indexes from the national ISM survey and various regional surveys—including the ones that you conduct—have generally softened considerably of late.

After the July Tealbook was closed, the BEA published its initial estimate of second-quarter real GDP together with the annual revisions to the national accounts, which extended back to the first quarter of 2009. As can be seen from the bottom-left panel of the forecast summary exhibit, the revised data imply that the recession was a bit less severe than previously estimated, while the subsequent pace of the recovery now appears to have been somewhat flatter.

In addition, the BEA's initial estimate of real GDP growth in the second quarter came in at 1½ percent, ½ percentage point higher than our July Tealbook forecast. Despite the stronger top-line number for second-quarter GDP growth, we are not inclined to draw any significant inference of greater near-term momentum in production. In fact, our initial assessment is that these data point to a bit less economic growth during the second half of this year than we had envisioned in our July forecast. Three main considerations inform this judgment. First, a substantial part of the upward surprise came from inventory investment; but we read inventories as already reasonably well aligned with sales, and businesses as not seeing a need to stock up further. Accordingly, we would not materially change our projection for inventory investment going forward, which yields a smaller contribution to overall GDP growth from this category over the second half of the year. Second, another substantial part of the upward surprise reflected a technical measurement issue pertaining to federal defense purchases that we think has no signal content for the pace of spending going forward. Third, other aspects of the annual revision seem fairly consistent with our earlier assessment. To give one important example, the personal saving rate often revises substantially in these reports, but as is evident from the plot in the bottom-right panel, the rate in the first quarter of this year was hardly revised while the rate in the second quarter was right on our expectation, giving us no reason to modify the profile of household spending that we showed in the July Tealbook. All told, pending the receipt of additional underlying detail about the GDP accounts and especially Friday's employment report, our updated near-term forecast for GDP growth is a little softer than we showed you last week, and more noticeably weaker than we had in the June Tealbook.

Turning to the medium-term outlook, we made essentially no change to the staff forecast in 2013 and 2014 despite the downward revision to real GDP growth this year. This reflects an improvement in our financial conditioning assumptions that is in turn partly attributable to the continuation of the maturity extension program that you announced after your June meeting (and that we had not factored into our June projection). Indeed, in 2013, the improvement in financial conditions largely offsets the weaker momentum in spending and usual multiplier effects that result from the downward revision to output growth in 2012.

We have made no material change to our fiscal policy assumptions in this forecast. Specifically, we continue to assume that domestic fiscal policy will be a substantial drag on the growth in aggregate demand next year (and a somewhat smaller drag in 2014), but that the more severe consolidation implied by current law—the infamous “fiscal cliff”—will not occur. In addition, our supply-side assumptions are the same as in June.

Turning to the labor market, the one labor market report and the other data that we have received since the June Tealbook have come in a little worse than we expected. We have continued to assess the influence that the unusually warm winter weather and recession-related distortions to seasonal adjustment have had on the employment data; at present, our best estimate is that about half of the deceleration in private payroll employment between the first and second quarters of this year that we see in the official numbers can be attributed to seasonal, weather, and other temporary effects, with the other half representing a genuine loss of momentum. This deterioration in the underlying trend is a little larger than we had expected in June, and combined with our weaker near-term GDP projection, led us to lower our forecast for monthly job gains over the second half marginally relative to the June Tealbook.

The weaker tenor of the outlook for real activity also led us to nudge up our projected path for the unemployment rate, which is shown in the top-right panel of the exhibit. With a pace of real GDP growth that is expected to run about in line with our estimate of potential output growth, we anticipate little reduction in the unemployment rate over 2013; indeed, the small decline that we are forecasting stems entirely from the anticipated expiration of the Emergency Unemployment Compensation program at the end of this year. In 2014, the expected faster pace of aggregate demand growth is sufficient to narrow the unemployment rate gap slightly.

The inflation outlook is summarized in the two middle panels of the exhibit. Core PCE price inflation—the middle-right panel—has come in about in line with our expectations, and we have made essentially no change to our forecast. Headline PCE price inflation—the middle-left panel—has stepped down recently, led by a drop in retail energy prices that in turn reflects sharp declines in crude oil prices through June. As Steve Kamin will discuss in his briefing, spot prices for crude oil have backed up some since then. As a result, relative to June we have written down a somewhat smaller drop in retail energy prices in the third quarter but thereafter expect energy prices to post small declines rather than small increases. In addition, we have raised our forecast for consumer food price inflation as the effects of the drought on crop yields start showing through to retail food prices toward the end of the year. As a result, the current projection implies a pace of headline PCE inflation in the second half of this year that is slightly higher than our June forecast; further out, the projection for headline inflation is little changed.

All told, the revisions to our baseline projection this time are small and paint a very similar picture of the economy to the one that we showed you in the June Tealbook.

I would close by mentioning several important risks that surround the staff forecast. First, we remain concerned that fiscal policymakers may choose to push the economy off the fiscal cliff looming at the turn of the year. They could do this simply by giving in to gridlock—whether by strategy, or by inertia, or by accident—because if they do nothing, the 2001 and 2003 tax cuts will expire and the more abrupt reduction in spending mandated under sequestration will take full effect. As in June, we have assessed this possibility in the "Risks and Uncertainty" section of the Tealbook and estimate that the resulting fiscal contraction (which we assume would also adversely affect household and business confidence) would add about a percentage point to the unemployment rate by the end of 2014. Second, the future evolution of the housing market is difficult to predict with any degree of confidence, and as Andrew Figura discussed in his Monday briefing, there are a number of downside and upside risks attending our residential construction and house price forecasts. Last, but by no means least, the European situation continues to be a significant source of uncertainty for the U.S. economic outlook, as Steve Kamin will now discuss.

MR. KAMIN. Summer is a time for amusement parks, and European financial markets took us on a rollercoaster ride over the intermeeting period. When we got off, a bit confused and more than a little nauseated, we found we were more or less where we had started, with elevated stresses and deep forebodings about the future. As in the June Tealbook, we anticipate that European financial conditions will continue to worsen until European leaders are forced to take actions aggressive enough to stanch the deterioration.

The period started off promising enough. In Greece, pro-bailout parties managed to form a coalition government, thus averting a dangerous confrontation with its creditors that might have triggered exit from the euro area. And at their summit a few weeks later, European leaders agreed on the creation of a unified European bank supervisor and, once this is in place, use of the European financial rescue facility to directly recapitalize European banks. This would spare embattled sovereigns—such as Spain—the debt burden of supporting their weakened banking systems.

However, as Simon described, these developments did not reassure investors for long. Markets refocused on the fact that Greece's reform program has gone well off track, and that by September, the EU and IMF will be faced with the difficult decision of providing Greece with additional funds or pushing it closer to default and possible exit from the euro area. Investor sentiment was also damped by public statements following the summit that raised questions as to whether Spain would be able to take advantage of the provision for direct European recapitalization of weak banks. Finally, concerns mounted that deteriorating finances among Spain's provinces would further undermine the fiscal position of the central government.

Last Thursday, as Spanish yields spiked to new highs on these developments, ECB President Draghi pledged that the ECB would do "whatever it takes" to protect the euro, and affirmed that rising sovereign spreads, which disrupted the monetary policy transmission mechanism, were within the ECB's mandate to address. These words, which came the day after we put our gloomy Tealbook forecast to bed, sparked a dramatic market rally as investors came to expect new and aggressive actions by the ECB. Indeed, an open-ended commitment by the ECB to intervene in markets to cap yields on Spanish and Italian bonds, perhaps coupled with direct financing from the European rescue facility, could be a real game-changer and substantially improve the outlook for Europe. However, while the situation is extremely uncertain, our sense is that when the ECB meets later this week, it will likely signal a more limited course of action, as the ECB remains reluctant to get ahead of the fiscal authorities. Accordingly, and with sovereign spreads in Italy and Spain still quite elevated, we retain our view that the financial situation will become yet more difficult in the coming months, and, despite the ECB's July 5 rate cut, the euro-area economy will fall deeper into recession.

Outside of the euro area, there has been a great deal of monetary easing as well. Brazil, Korea, and China, among others, all cut their policy rates, while the Bank of England both expanded its quantitative easing program and introduced a new scheme aimed at reducing the cost of lending by banks. These moves do not reflect a sharp and sudden downshift in the global outlook, but rather the ongoing slowing of activity, some weaker-than-expected data, declines in inflation, and—as evidenced by some central banks' announcements—greater concern about prospects for the global economy.

We estimate that total foreign growth registered an annual rate of only 2¼ percent in the second quarter, a little lower than our estimate in the June Tealbook and down sharply from 3¼ percent growth in the first quarter. The decline partly reflects the deepening contraction in the euro area and its spillovers to other economies; in fact, GDP in the United Kingdom surprised us by plunging 2¾ percent last quarter, although some special factors were also at work. The deceleration in global growth almost certainly reflects the weakness of the U.S. economy as well. Finally, a number of idiosyncratic factors have been important. Most prominently, in Asia, the bounceback from the supply disruptions caused by the Thai floods is now about completed.

Going forward, our outlook is little changed from the June Tealbook: Total foreign growth remains around 2¼ percent for the second half of the year as the recession in Europe deepens while growth elsewhere picks up a bit. Assuming that financial conditions eventually improve and the European recession bottoms out, foreign growth should rise to 2¾ percent next year and 3¼ percent by 2014. This forecast depends not only on Europe avoiding a financial cataclysm, but also on China averting a hard landing and the United States not going over the fiscal cliff.

In regards to China, we are not out of the woods, but recent indications have been positive. Although first-quarter growth in China was revised down to 6½ percent, its lowest reading since late 2008, growth picked up to 7½ percent in the second quarter, and by late in the quarter we saw an acceleration of bank lending, industrial production, and investment spending. Our forecast has Chinese growth averaging

8 percent over the forecast period, a soft landing but still weaker than many outside analysts are writing down

Even if the global economy manages to avoid the many pitfalls in its way, our outlook is by no means bright. The advanced foreign economies harbor considerable resource slack, and with extremely weak economic growth—only about 1 percent—projected for the next year and a half, this slack should expand further. And although the emerging market economies (EMEs) are probably close to full employment at this point, the sub-trend growth we are projecting for them should also reduce resource utilization somewhat. Weak activity, along with the declines in oil prices earlier this year, pushed foreign inflation down to 2 percent in the second quarter. Foreign inflation should rise a bit as oil prices have turned up, but we still see it remaining reasonably close to central bank targets.

Of course, much depends on the future behavior of oil and other commodity prices. Since mid-June, the spot price of Brent crude oil has surged some $10 per barrel, retracing about half of its decline earlier this year. This run-up appears primarily to reflect concerns about disruptions to oil supply resulting from the recent heightening of tensions with Iran and violence in Syria; by contrast, metals prices declined further during the intermeeting period as the global economy continued to slow. A further heightening of geopolitical risks would likely push oil prices substantially higher, boosting inflation and creating difficult tradeoffs for central banks. So, too, could further rises in crop prices, which have surged on the severe drought in the United States. Higher food prices generally have only muted impacts in the advanced economies, but exert more pronounced effects in EMEs, where food comprises a larger share of consumer purchases.

All told, our downbeat outlook for the foreign economies crimps prospects for U.S. exports. After growing at a 4¼ percent pace in the first half of this year, we project export growth will slow to only a 3½ percent annual rate over the next year and a half, held down by anemic foreign GDP growth and increases in the dollar stemming from the European crisis. With imports running at a modestly faster clip over this period, net exports subtract about ¼ percentage point from U.S. GDP growth. We project that as the situation in Europe improves, the dollar will depreciate again and foreign growth will strengthen. This pushes U.S. export growth up to near 6 percent in 2014 and eliminates the drag on U.S. growth posed by net exports. To conclude, misery loves company, but the U.S. economy would be better off if the rest of the global economy did not also face so many travails. That concludes my prepared remarks. David and I will now be happy to take your questions.

CHAIRMAN BERNANKE. Thank you. Questions? Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a question on food prices. Can you give us some sense of magnitude of the increase? And related to that, how does ethanol fit into this? If corn prices go up, does ethanol get priced out of the market, and so more corn actually gets used for consumption for food? I'm just trying to understand how this works if prices keep going up.

MR. KAMIN. Referring to your first question on the magnitude of food prices, at least one aggregate—the Commodity Research Bureau (CRB) aggregate of daily food prices—has gone up roughly 20 percent from early June.

VICE CHAIRMAN DUDLEY. I am trying to think about it more in terms of the dollar magnitude of the shock. For example, think about it as we do oil prices where it's a little bit over $1 billion per penny on gasoline prices. So if corn prices double, what does that really mean for disposable income? I'm just trying to get a sense of whether it is a big shock or a little shock, with an automatic equilibrating mechanism like ethanol production just evaporates because you can't sell ethanol at really high corn prices.

MR. WILCOX. I don't know the answer in terms of dollar magnitudes. What I do know is that we had much bigger run-ups in grain prices in 2010 and in 2008. Although the level of grain prices now is higher than it was then, the jump from the level when the drought began to emerge to now is, at this point, smaller. We are calibrating our projection off futures prices, so we are taking our judgment from those who are placing real bets on this. We are also monitoring crop yield estimates from the USDA. The pass-through is pretty limited because in retail food prices the commodity share is a reasonably small part. And the other thing that is important to keep in mind is that the pass-through occurs over a fairly lengthy period of time. So this is not like crude oil prices getting into gasoline, which happens pretty quickly. We think that the effect is going to show up in retail food prices toward the end of this year and in the early part of next year.

VICE CHAIRMAN DUDLEY. Does farm income go up, or does farm income come down?

MR. WILCOX. We think that farm income is going to go up. The elasticity of demand we think is less than one. So prices are, we think, going to go up by more than quantities go down. Those farmers who still have a crop to sell are going to do well, and, in the aggregate, the farm sector is going to have a positive boost to income. We have raised our food price projection by just a few tenths this year, and by about 1 percentage point over the four quarters of next year, in response to these developments.

VICE CHAIRMAN DUDLEY. So this is a pretty modest shock at this point in time?

MR. WILCOX. As hard as it is for, obviously, millions of farming families in the middle of the country, at the aggregate level for retail food prices, at this point—with a lot of uncertainty still surrounding what the outcome will be—this is a reasonably modest development.

MR. KAMIN. To echo David's point, in terms of the effect on the foreign economies, again, what we have seen so far has not been enough to meaningfully lead us to nudge up our inflation forecast, nor have we translated that into strong implications for income abroad at this point.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. A question for David Wilcox. If I understand your discussion of the fiscal cliff, you assume it will be avoided in the baseline, but you treat it as a risk to the baseline. Are you picking up any indications that it is already here? That is to say, in terms of employment, investment, contract renewal, or procurement, have you seen any indications that there is a discounting of the possibility of it that is already affecting behavior in advance of the deadline?

MR. WILCOX. We haven't allowed for any of that. It might become increasingly difficult to maintain that assumption. For example, I would note that this morning's *Washington Post* ran a first-page article about the WARN Act indicating that there is a lot of controversy about whether employers will be required to send out notifications, I think it is 60 days in advance. At the moment, we haven't allowed for any sort of discounting back to now. We have maintained the assumption that nothing is going to happen in advance of the election, and that producers and households will have that same assumption for the moment. It is going to be something that we will have to evaluate on an ongoing basis.

Let me just be really clear about what we assume in the baseline and what is in the fiscal cliff scenario. We have a big step up in fiscal contraction, even in the baseline, because we have the 2 percentage point temporary payroll tax cut expiring, as under current law. And we have the emergency unemployment compensation program expiring at the end of the year, as under current law. That's quite a bit of current-law contraction going into force. In addition, we have the automatic sequestration being replaced by an equivalent set of federal spending cuts that accrue over the period between now and, I think, 2022. That represents a less abrupt restraint on aggregate demand on New Year's Eve at the end of this year than would occur under sequestration, but there is quite a bit of spending reduction built into our baseline. The most prominent pieces that are incremental to the spending reduction are the 2001 and 2003 tax cuts, which are scheduled to expire, and in our baseline projection we have assumed that those are extended. To happen, that extension requires affirmative legislative action. So if the Congress does nothing, those tax cuts expire. There are a number of other pieces of fiscal restraint that occur, too, but the expiration of the tax cuts is the biggest single piece that will go into effect in the cliff scenario that isn't already incorporated in our baseline assumption.

CHAIRMAN BERNANKE. President Evans.

MR. EVANS. Thank you, Mr. Chairman. A question for David. And your forecast summary chart might be useful, if anybody has a follow-up question. I thought you included some nice tables in the Tealbook this time on probabilities of particular events and risks that we could face. A particular tabulation that I thought was very interesting was your calculation of the probability that inflation would exceed 3 percent. That is pretty low in terms of risk, in the 5 to 10 percent range. I've got a different tabulation that I'm interested in, though, and it is related to looking at the constrained optimal control path—and Jon Faust's discussion had it in his charts—where you could see that inflation tops out at about 2.3 percent. And it is just convenient that that actually seems to be what your PCE prices forecast chart has as its upper bound. Inflation is stochastic, it is not fully controllable, and yet I have trouble thinking about it and fully embracing what that really means. But it seems clear from this chart and your tables that the standard deviation of the inflation forecast is about 1 percentage point, which means that 2.3 percent is just about the top of this range of a 70 percent interval. When we have an inflation objective of 2 percent, how likely is it that we would be able to avoid inflation above 2.3 percent? It is really not very well controlled, and we should expect to visit periods above 2.3 percent more often than we might really take on board. When I look at the optimal control path and see 2.3 percent, I say, well, that has got a lot of perfect foresight embedded in it and it abstracts from uncertainty. But that outcome is not that unlikely in a general distribution of inflation outcomes. Or another way to think about this is if you wanted to mean adjust this process so that 2.3 percent really was at the top of a 70 percent interval, it would be a lot like the inflation projection that you have here. It would be more like targeting 1½ percent. Is that a reasonable way to think through some of those issues or tensions? Any thoughts you have there would be welcome.

MR. WILCOX. I don't have a lot to add to your observations. The one important point that I would make is that the staff projection is constructed against a backdrop in which we need a mechanical assumption for monetary policy. So we construct that using the estimated outcome-based rule. And I think that is the central explanation for why, at least over the period that is shown here, our inflation projection is a little lower than is the case under the constrained optimal control simulation. I should note that there is no particular virtue in that specific rule, and my position has always been that if the Committee gave us some indication of an alternative rule that would better capture the center of gravity of the Committee's thinking, we would be very happy to adopt that rule. We could array for you exactly the same view about the fundamental underlying economic forces driving the macroeconomy using a different policy assumption, and we would show different projections. These are conditional forecasts based on a particular specification of a rule to which I feel no special affinity or fidelity.

MR. EVANS. Thanks.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. Just to Vice Chairman Dudley's question, I think food at home is about 7½ percent of PCE and about 8.6 percent of CPI. And then, if you add food away from home, that's another 5 percent, which is highly attenuated, as pointed out earlier, and takes a long way to work its way into the system. But what my private contacts are telling me is that, as you pointed out, rationing has not yet occurred; it is still not as extreme as it was before. Should rationing begin to occur, you might have another 15 percent movement in prices. The price movement has been very sharp, but, Vice Chairman Dudley, as far as the inflation impact—if that was your question—it is a lesser weight in the system.

And on the energy side, I just wanted to point out to Steve Kamin that, for what it's worth, my industry contacts aren't as worried about the specific issue that you mentioned. The issue they are more focused on has been the building of inventories. We have about 1.6 billion barrels worldwide, according to the best estimates. By the way, the best and only estimates you can really get come from the Exxon Intelligence Unit. That is above the 1.1 billion barrels we had at the end of 2011. The Chinese have been building their strategic reserve. They are aiming for 300 million barrels. They have 280 million, by the best intelligence that we can get. We are chock full of oil. Iran has about 40 million barrels floating inventory. So the expectation in the industry, given that we have lesser demand; Chinese demand, which has been running about 400,000 barrels a day, has been to fill their strategic reserve, offset by the decline in consumption here and in Europe, so it is kind of a wash. And setting aside the forward yield curve and the futures curve, the expectation in the industry is very little pricing power as these inventory builds run their course. It is less concerned about what passes through the Straits of Hormuz, which is highly paid attention to by the media. In terms of those that are planning their cap-ex, their refinery throughput, and so on, they are really looking at where the supplies may come from. And there is a significant amount of supply relative to demand presently. So for what it's worth, again, these are just pixels in a broader picture. They come from the actors on the scene. There is a very low expectation of significant sustainable upward price pressure on oil. Natural gas, we didn't talk about. We can defer that until a later conversation, but I wanted to point that out to you for what it's worth.

MR. KAMIN. No. I think it's useful, and it is actually consistent with what the futures markets are saying; the futures market curve is downward sloping. And so the implication is that whatever factors have pushed up oil prices recently are temporary—more likely to be some kind of idiosyncratic, transitory geopolitical risks—and that going forward the anticipation in the markets is indeed that oil prices will settle back down.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. I have two questions. One, I want to follow up on President Lockhart's question about the issue of the fiscal cliff. I thought his question—excuse me for paraphrasing—in part has to do with the fact that if the data we see today already reflect a slowing economy because people are anticipating a fiscal cliff and changing their behaviors now, then there is a question of how you would interpret the current data versus add-on effects that would come when the fiscal cliff actually occurs. I thought his question was, how are you parsing that assessment? Or are you assuming that the fiscal cliff is irrelevant until it actually occurs?

MR. WILCOX. The latter, for the moment. But what I had tried to indicate to President Lockhart was that we are not going to be dogmatically dug in on the view that no matter what happens we are not going to assume any sort of fiscal cliff confidence effects or anything like that, until it happens. It is a little hard, frankly, for me to judge, given that I live inside the Beltway and am subjected to orders of magnitude more discussion about this than I think businesses around the country and, to be sure, households are; it is hard to discuss. Setting that aside for the moment, I still think ours is the best assumption. But it is something we are going to have to watch.

MR. PLOSSER. I guess the point is that if you believe there was already some anticipation or preparatory behavior occurring, then you might question whether or not that is leading you to draw your fundamental forecast lower than it might otherwise have been, and it could change the way the forecast profile looks.

MR. WILCOX. I think it's a fair question. If it's there now—this is just intuition—my guess is that it is a pretty subtle effect.

MR. PLOSSER. Yes. I don't have any idea. I just wanted to clarify the underlying assumptions that are going into this and how changes in that might affect the forecast.

MR. WILCOX. We are going to be open to doing the best that we possibly can to take on board any sort of evidence. There is an epistemological question; I just don't know exactly how we will measure that effect going forward. But I think it is completely fair that that is something we are going to have to be sensitive to.

MR. PLOSSER. Yes. It would be very hard to do, but it's something we should think about. Turning to my second question, one of the things I always find interesting in the Tealbook are the alternative scenarios that get played out. I had a particular question about one of them. In most of them, you talk about what the implicit assumptions are underlying the different scenarios, but the European Crisis with Severe Spillovers left me a little puzzled, so I'd like a little explanation of what went into that. You've got a response where GDP is off something like 5½ percentage points and the unemployment rate is going up to over 11 percent. At the same time, we know that we are unlikely to get that much effect just from trade channels. What I am curious about is what your thinking is on that scenario? Were the results the model per se playing out, or were there add factors that you have played in, and, through what channels did you impose the spillover effects that led to these very sharp deteriorations in that scenario?

MR. KAMIN. You are entirely right that if you just took a standard kind of model where you put in the very most proximate effects of some shock, it would not necessarily give you the amount of spillovers, which are very severe, that you see in that scenario. There is a question, how do you even start to model something so complex and so far-reaching? And so we, like I think most analysts in the business that are thinking about modeling this cataclysm, take our cue—some general guidance—from what happened during Lehman Brothers and its aftermath. That is, in some sense, our model for how a severe financial shock can reverberate through the system. In practice, first of all, what we have done is put in extremely large shocks in Europe. These are exogenous, upward shocks to the level of credit spreads in those economies, and that gives you a large contraction in output. We have augmented that with confidence shocks in Europe that give you a further decline in confidence there. In addition to that, we have an upward shock to the value of the dollar or, conversely, a downward shock to the value of the euro. Those different shocks give you a very substantial trade effect from Europe on the United States because you have the contraction in European GDP as well as the increase in the dollar. On top of that, recognizing how well linked financial markets are in the United States and Europe—and that is something we also saw during Lehman Brothers—we have augmented the trade effects with substantial, although not as great, credit spread shocks in the United States that are offset, to a small degree, by shocks that reduce U.S. Treasury yields. Plus, I believe, we have some additional, albeit smaller, confidence shocks in the United States. And then, the rest of the model responses are indeed endogenous. In sum, what you get is a scenario of the types of outcomes we would expect to see if things truly went adversely in Europe.

MR. PLOSSER. To give me an idea, when you say you increase credit spreads by a large amount, (a) give me an idea of what the number is, and (b) across all securities or over certain types of securities. I'm just looking for a ballpark.

MR. KAMIN. Yes. For Europe it is a 400 basis point credit shock.

MR. PLOSSER. To sovereigns or corporates?

MR. KAMIN. This is actually to corporate spreads over safe German securities. Then, the German security lowers by 100 basis points, so you get a net of 300 basis points. And then, in the United States, it is a 200 or 300 basis point shock to corporate spreads offset by a roughly 50 basis point downward shock to the Treasury yields. The model doesn't have separate channels for credit spreads versus equities, but it is assumed that the same shock to interest rates that we have just been talking about also basically increases equity risk premiums and leads to a comparable reduction in equity prices commensurate with the credit spread increase, both in Europe and the United States.

MR. PLOSSER. Thank you. That is a good answer. I appreciate that.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. If I could just follow up on that question. I have often wondered about these forecast confidence intervals and alternative scenarios. And so in that scenario, the paths all go outside the 90 percent confidence bands. There is only 5 percent on that side I guess, so does that mean that you are assigning less than 5 percent of probability to that event?

MR. KAMIN. David can correct me, but I would interpret that as meaning this is an extraordinary event that is well outside the typical stochastic bounds that we have.

MR. BULLARD. Well, just looking at the picture. It is actually so far outside that it would be at the 99.9 percentile, so it would be way outside.

MR. REIFSCHNEIDER. The seemingly normal distribution.

MR. WILCOX. I think that if you took our forecast track record literally, that interpretation would be correct. I would also say that one of the things that we learned in 2007, 2008, and 2009 was that sometimes our imagination is not sufficiently rich to encompass everything that can happen, and that these confidence intervals, which are generated over what period, the last 20, 25, 30 years?

MR. REIFSCHNEIDER. These are taking shocks from the 1968 to 2011 period.

MR. WILCOX. Okay. I'd say that a lot of bad stuff happened over that period, but I'm not sure that the kind of cataclysm that's involved here with the European crisis with severe spillovers is really well captured in the error track record.

MR. BULLARD. I would summarize that as saying that a large part of the confidence intervals are constructed from the period of the Great Moderation.

MR. WILCOX. Yes.

MR. BULLARD. And, therefore, they're going to look a little constricted compared with maybe the true amount of uncertainty that might be sitting there.

MR. REIFSCHNEIDER. Actually I'd put it slightly differently. Not to keep citing work that I've done with John, but a paper that we did—

MR. WILLIAMS. That's okay.

MR. REIFSCHNEIDER. You'll like it, yes. This is a paper we did about a year or so ago in which we took six different models—two DSGE models, FRB/US, and three statistical models—and found that the episode that we are still in, but started in 2008, is way outside the probability bands that you'd get from a whole set of representative models. And our conclusion from that was that the standard models that the whole profession has been using just underestimate the probability of extreme tail events. Either that or we're unbelievably unlucky, take your pick. Well you can be both. [Laughter]

MR. LACKER. Yes, in both cases we're unlucky. We're unlucky to have the bad model.

MR. REIFSCHNEIDER. The way I would put it is the confidence intervals that are in the Tealbook are very wide, but when you take into account some of these infrequent but really devastating, rare events, they're probably too narrow. It also comes back to the point that the Committee makes in part of its SEP assessment of risk of saying that risks are elevated. Also, as I think Simon can say, it is what we do with the stress test and things like that. There's a strong effort to try to get across the idea that risks are more elevated now than under ordinary circumstances. That might be indicated by those sorts of error bands.

CHAIRMAN BERNANKE.[4] Thank you. As you remember, the Committee authorized me and the staff to do an experimental consensus forecast, which would be a step toward using a consensus forecast as a communication tool. We had two rounds in which people were asked to submit comments. I'm going to give just a very brief exposition of that forecast and how we got to it, and there will be a much more extended discussion tomorrow after the policy decision. I'm going to use the handout called "Material for the Consensus Forecast Exercise." If you turn to page 1, that basically gives the forecast for the SEP variables. It shows the comparisons with the June SEP median and with the July Tealbook; recall that the Tealbook was put to bed before the NIPA revisions, so those are not included in the Tealbook forecast. Let me just say a couple words about how we got to this forecast. Normally I think what we would do in a steady state would be to start with the consensus forecast from the previous meeting. This time, of course, we didn't have a previous forecast. So what we did was look at the June SEP numbers, particularly at medians both for the entire group of participants and for people who had policy assumptions closer to the consensus. The thinking was that, number one, the output and inflation forecasts for people whose view of appropriate monetary policy was very different from the consensus might be quite different if, in fact, they were forced to adopt the consensus policy, and

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

number two, that the consensus forecast ultimately will have to be used to rationalize whatever policy it is that the Committee adopts. That being said, the medians for the two groups were about the same for the SEP variables, and so that's where we started.

Given that, we updated using two pieces of information. First, we just used the delta between the June and July Tealbooks to take a first stab at updating the SEP forecasts. In other words, the idea was that as a first stab, the difference between the Committee and the staff would be roughly the same in July as it was in June. Second, we took into account the comments that we got back. Those comments basically suggested that people had taken down slightly their real activity forecasts and correspondingly were a little bit more pessimistic on unemployment, but they had not changed their inflation projections very much. We took that on board. As you know, we also solicited a second round of comments. We got a few asking for a slightly stronger outlook for economic growth. Also during that period, on Friday we got the NIPA revisions, which were a little stronger in the second quarter, and we took that on board. So what we have here is a projection that is a little bit more optimistic on economic growth and unemployment than the Tealbook, with slightly higher inflation numbers. If you turn to the third page, you'll see the same forecasts shown with fan charts using 90 percent confidence bands. The green dots are the central tendencies from the June SEP. You can see that there have not been major changes since the June SEP, but comparing the red line and the green dots, you see that GDP growth has been marked down slightly in the near term, and unemployment has been marked up slightly. Inflation has been marked up a little bit in the near term.

Now, we did one other exercise, which I don't want to go into in great detail, but I do want to alert you to. This baseline forecast is predicated on the policy assumptions from the June SEP— maintaining the low funds rate at least through late 2014 and the MEP. It seemed worthwhile to also use some alternative policy assumptions, first, because arguably the consensus forecast doesn't meet the condition that President Evans mentioned—inflation is below target and the unemployment rate is above target for the entire horizon. But more generally, if we do use this kind of approach for communication, we'll want to have forecasts conditioned on whatever choice we might make at the meeting. For instance, if we have two or three things on the table, we'll want to come into the meeting with two or three different possible forecasts, conditional on whatever action we decide to take. As an exercise, we did two things. If you turn back to page 4, exhibit 2, first we simply took the projections of inflation and GDP growth and unemployment and calculated an output gap—shown in the bottom—using a simple transformation between the unemployment gap and the output gap. We then applied various alternative rules to those data just to see what that would imply for policy, and the different variants are shown there. Notably you'll see, for example, that the outcome-based rule has liftoff early in 2014. Some of the other rules have takeoffs later in that year. The red line is inertial Taylor (1999), which rises more slowly, of course, because of the inertial feature. Now, these are static policy prescriptions. There's no feedback into the economy. Again, just for illustration, we also did forecasts in which we chose the policy and then allowed the economy to deviate from the baseline using FRB/US to calculate the deviations. Exhibit 3 shows the alternative forecasts for five different policies. The optimal control is in the green dashed lines, and the consensus forecast, the red line, is the baseline—it's basically the late 2014 liftoff plus the MEP. Then we look at three alternatives. The first is a mid-2015 liftoff. The second is a $1 trillion LSAP that follows the specifications in alternative A—about 60 percent Treasuries and 40 percent MBS, and the distribution of purchases is the same as in LSAP 2, that is, it's broadly spread across the range of maturities. This is described, by the way, on the bottom of page 2.

The other LSAP that we looked at was a greater-duration LSAP, in which, as we see in the bottom of page 2, three-fourths of the purchases are Treasury securities and one-fourth are agency MBS. But in this case the Treasury securities were purchased in the 3- to 30-year range, so it's more like a longer-term MEP-type of program. And because it takes out more duration, it's more powerful than an LSAP of similar size that is spread across the entire maturity spectrum. I'm not going to go through these in detail. I just wanted to point out that it's possible to calculate not just a baseline, but also alternatives, which would be subject to discussion in the Committee.

CHAIRMAN BERNANKE. Yes? Sorry.

MR. POTTER. So the LSAP with greater duration is a little bit light in 3-to 6-year purchases. It's going to replicate the MEP in terms of the amount of duration it takes out.

MR. FISHER. Sorry? It's a little light?

MR. POTTER. It's a little bit light in the 3-to 6-year range. It won't be like LSAP2. Is that right, Bill?

MR. ENGLISH. I believe that it is longer. The MEP buys in 6-to-30, but then there's an adjustment because of the sales. But it's aiming to be similar in terms of duration removed.

CHAIRMAN BERNANKE. I apologize. So the greater-duration program is like the MEP basically in maturity of purchases. The shorter one is like LSAP2; it's spread broadly across the entire range. I'd be happy to take any questions on this. Let me just suggest a few things. First, if you want to make reference to any of this in your go-round, of course, feel free but it's obviously not required. Tomorrow we'll have a fuller discussion of this forecast process, in which we'll do two things. One is I'll ask you, as we would in a real application of this, whether you are comfortable being described by this consensus forecast. That would be part of the discussion we would have if we were to use it. The concerns or objections of those who are not comfortable would have to be described in the minutes or in the press conference. And then the second thing we'll do tomorrow is just have a general discussion of whether we want to continue the experiment, how we might change it, and so on. But let me now take any questions just about the construction of this. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. You may choose to defer this question until tomorrow, but my understanding from what you just said is, in steady state, the goal would be to have this consensus forecast be conditional on whatever policy choice has been made by the Committee in the given meeting, is that correct?

CHAIRMAN BERNANKE. Yes, at least within a reasonable range of the forecast made by the Committee. That's how you would explain what you anticipate happening, given the policy choices that you've made.

MR. KOCHERLAKOTA. Okay. Thank you.

CHAIRMAN BERNANKE. Any others? President Lacker.

MR. LACKER. Mr. Chairman, I apologize. I didn't quite understand what you said about the extent to which the policy parts of people's submissions are reflected in the weighting that you used in combining these.

CHAIRMAN BERNANKE. Again, this was a one-time thing where we're starting up using the SEP. In the future we'll start with whatever consensus forecast has already been developed. But the question is the following: Suppose, for the sake of argument, that there are N people who agree on the consensus policy path, and that they have a certain expectation about economic growth, inflation, and so on. Now imagine someone who does not agree with that path and has a very different outlook for the economy conditional on their own view of appropriate monetary policy. It wouldn’t be appropriate to average that person’s outlook with the middle of the Committee because that person basically dissents from the whole forecast, but it’s academic because in practice it didn’t make any difference.

MR. LACKER. No, I understand. But, I interpret what we say about the policy path as a forecast of our future policy setting, not as an assumption that we will hold to. In other words, we’re not restricting it. I’m not restricting my forecast of GDP by assuming that all the shocks come out in a way that the policy equals one path. I’m just giving an unconditional forecast of GDP and an unconditional forecast of policy.

CHAIRMAN BERNANKE. But you’re not giving an unconditional forecast because you’re using your own view of appropriate monetary policy and that may differ from your own personal forecast of what the Committee will do.

MR. LACKER. But I’m also using my own model. Everyone is using their own model. So everyone has their own equations in their head, and they’re forecasting a lot of variables.

CHAIRMAN BERNANKE. Right.

MR. LACKER. Setting aside policy, you wouldn’t throw out someone’s GDP forecast because they differed on core inflation, would you?

CHAIRMAN BERNANKE. Again, it’s a question of what policy you’re assuming. There are two possible ways to do this. One is to assume appropriate monetary policy. If your view of appropriate monetary policy differs radically from the center of the Committee, then you will not agree with the forecast of the center of the Committee. Another way to do this, which we might consider, would be instead to say, “Here are two or three different possible policy paths or policy rules. What do you think will happen in each case?” That’s a different way to do it, but given what I had, which was the appropriate monetary policy assumption, what you wrote down for appropriate monetary policy presumably was not your best unbiased forecast of what will actually happen, or maybe it was, but it's not the same issue.

MR. PLOSSER. Excuse me, Mr. Chairman. Your exhibit 3 was an effort in part to sort of replicate what you might get if you came back to the Committee and said, "Okay. Here are three scenarios of policy actions. Give me back your forecast of GDP and inflation under the condition of those assumptions of policy."

CHAIRMAN BERNANKE. Well, I think these pictures here basically accept the consensus forecast and show deviations from that forecast. It would be a different exercise by asking each person around the table, "Here are three or four different policies. What do you think that would lead to?" You wouldn't get the same results. President Bullard.

MR. BULLARD. Mr. Chairman, what would be released to the public? Is it table 1?

CHAIRMAN BERNANKE. We're now getting into material we can discuss tomorrow, but I assume that what would be released would be only the forecast associated with the policy decision that the Committee actually took at the meeting.

MR. BULLARD. And what about these fan charts?

CHAIRMAN BERNANKE. And the fan charts, yes. The fan charts alone are worth quite a bit, in my opinion; they are good to have.

MR. BULLARD. Okay. So the basic vision is that two things would go out. There would be a table, and there would be some fan charts.

CHAIRMAN BERNANKE. You would get the first lines of table 1, and you would get the fan charts in exhibit 1, and that would be it.

MR. FISHER. You wouldn't send out exhibit 3 or exhibit 2.

CHAIRMAN BERNANKE. No.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. Not unless the Committee actually chose one of those alternative policies. Any other questions? [No response] Again, tomorrow we will have a fuller discussion of this and how we will proceed. We're ready for our economic go-round, and I'll start with Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. As everybody knows, I've been an advocate of relying less on prepared remarks and more on fomenting a conversation in these meetings, and as you can tell from the discussion of rules earlier today, I've been fabulously successful in getting everybody to come around to that view. Nonetheless, I thought that I should adhere to my own injunction. So I figured the only way I could get away with using prepared remarks was to go first, and that's what I'm going to do. Specifically, though, I would like to try, probably quixotically, to frame at least some of the conversation for the rest of the afternoon by identifying very briefly five propositions about which I'm relatively certain and where I hope there would be wide agreement among the Committee, and then by posing four questions on which I'm a good deal less certain, but the answers to which I think would significantly inform policy decisions, in some cases sooner and others perhaps not until later. My dual aim here is to see if we can establish at least a workable baseline for what most of us agree on and to help focus our collective attention and discussion on matters where there is significant disagreement and/or uncertainty.

First, the four propositions, and I'll preface them by saying they're not particularly profound, but I think they're still significant and would be an important starting point for thinking about policy were they to be widely agreed on. First, the economy is bogged down. It's unable to develop enough self-generated momentum to attain sustained, above-trend economic growth consistent with recovery from the deep recession that technically ended more than two years ago. The occasional bursts of upbeat news during this period have likely been the temporary byproduct of maximum effects of monetary and fiscal stimulus or idiosyncratic factors, such as Okun's law payback, rather than the beginnings of sustained, strong recoveries. Second, notwithstanding this last point, the recovery has been further hindered by confidence and uncertainty effects from a number of additional factors, notably the European travails and more recently fiscal tightening, with the low but not zero possibility of fiscal strangulation looming toward the end of this year. Third, the downside risks are substantially weightier than upside risks for the next several quarters. The indications of improvement on important fronts such as housing prices and household deleveraging are in some cases still more in the nature of improvement in second derivatives. Even where absolute improvement is detectable, it is both modest and not consistently distributed. Factors such as the shadow inventory overhang of houses taken off the market until prices firm and the 13 million homeowners who still have underwater mortgages make it hard to tell a story of rapid pickup any time soon. At the same time, the potential for serious adverse effects from Europe remains, well beyond the existing drag that the ongoing crisis may have placed on business confidence and expansion. Fourth, these first three propositions combine to make the economy unusually vulnerable to external or political shocks, whether from the known unknowns such as the euro zone and the fiscal cliff or unknown unknowns. And fifth and finally, as I already suggested but I think it's worth stating more explicitly, a few good data points over the next seven weeks would not materially alter the significance of the first four propositions.

Now for the questions I think are important for economic, including monetary, policy decisionmaking over the next year or two and on which I am somewhere between moderately and very uncertain. First, is a significant recovery in the residential housing market necessary and/or sufficient for a stronger general economic recovery? Or putting the question in a slightly weaker form, are policies directed at accelerating improvement in housing the most effective use of limited resources available for recovery efforts? I've been struck by the amount of recent academic work that focuses on the particular effect of the collapse of the housing market—whether work from a macroeconomic perspective in qualifying the Rogoff–Reinhart hypothesis on the severity of the recession and slowness of recovery, as in the Bordo–Haubrich paper that builds on other studies, or from a microeconomic perspective in finding that homeowners with high levels of housing debt may reduce consumption even more than standard wealth effects would predict, as in Karen Dynan's recent paper. All of this has reinforced my sense that the failure to develop a comprehensive set of policies on housing and mortgages in 2009 and 2010 was, indeed, the policy error asserted by many at the time. But I'm less certain whether, given all that has happened since, both in the housing market and the economy more generally, that treating mortgage and housing problems as a cause rather than a symptom remains the better policy.

Second, what is the magnitude of the effect of my second proposition, that various international and political factors have made the path to recovery even muddier? And this relates actually to the dialogue between Charlie Plosser and David Wilcox a few minutes ago. That is, how much faster do we think the economy would be growing were the dark clouds of the euro zone problems and dramatic fiscal uncertainty to disappear from the horizon? My intuition is no more than two- or three-tenths of a percentage point, which is a significant amount given actual rates of economic growth because that amount takes us so close to stall speed—to shift my metaphor in an intermodal way—but is not so much as to suggest that all would be well in the counterfactual case.

Third, how likely is it that household saving and spending patterns have been changed by the persistence of sluggish economic growth, low interest rates, high unemployment, and other factors? We all expect saving rates to bounce around quite a bit, particularly in uncertain times, and they have. So it's very difficult to develop an empirical basis for modifying conventional models. But at a purely anecdotal level, which includes both conversations with people thinking about their own investment decisions and conversations with economic policy types, I have heard quite a few muse aloud as to whether people need to change their assumptions about the returns they can expect on their 401(k) accounts over the next decade or two and, thus, whether the time has come to increase savings regardless of present wealth levels.

Fourth, to what extent has the last few years inflicted structural damage on the U.S. economy such that growth potential has been reduced? This may be the most important question of the four over the longer term, but it's also the one on which I, at least, am least certain. I still don't see much evidence of structural harm in labor markets. In fact, I'm a bit surprised there is so little, though it's nice to have at least one pleasant surprise through all of this. At the same time, some Board staff and others have been edging toward the conclusion that the behavior of the unemployment rate over the past couple of years may best be explained by at least a small reduction in growth potential. Again, intuition readily provides some possible explanations, but there is a big gap between plausible intuition and at least an arguable, empirical case.

I certainly don't mean for these four questions to be exclusive. They are just the ones that keep posing themselves to me over the last several months, and I would look forward to a discussion of these and similar questions either today or going forward. More immediately, I'd be interested in whether there are dissenting or qualifying views on the earlier propositions, which I stated as a matter of relative certainty. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. The recent data have confirmed that the economy slowed in the second quarter and is growing less rapidly than we had expected at the beginning of the year. I don't have a lot to add about the intermeeting data except that there seems to be a bit of a disconnect between some of the data and our reports from the Fifth District, which aren't nearly as soft as the fall in diffusion indexes and other data would suggest. Our manufacturing and services sector indexes both plummeted in July, as did a bunch of other ones. But we don't hear about firms slashing payrolls or dramatically cutting back on spending. One possibility is that the weakness is broad but shallow, and so changes in diffusion indexes make things look gloomier than they are.

Looking ahead, it is hard to see why consumers or businesses would recover enough confidence to warrant accelerating their spending commitments without resolution of a significant measure of the uncertainty emanating from Washington and Europe. However, one could conceivably make a case that some of the current slowdown stems from the sense that a significant degree of policy uncertainty could be resolved in the next year or two. This might seem paradoxical, but, as a general matter, the closer you get to a time at which a significant amount of uncertainty will be resolved, the greater the value of delaying an irreversible commitment, all else held constant. So it could be that the anticipation that uncertainty could be resolved soon is making it relatively more attractive now to defer spending commitments than it did maybe half a year or a year ago. In Europe, for example, negotiations over ex post bailout funding and ex ante surrender of sovereignty might be completed next year, or we might make significant progress soon. And our encounter with the fiscal cliff might turn out to be more of a bungee jump. I'm not sure how seriously to take these alternatives, but it is just worth thinking about because of the unexpected nature of the slowdown that we have seen this first half of the year.

All things considered, our forecast is fairly similar to the consensus. Our economic growth and unemployment rate forecasts are within a tenth. We are expecting headline inflation to return to 2 percent this year, though, rather than remaining below target at 1.8 percent. I'm not quite sure whether that is an essential difference or not. I guess I will have to think about that. Looking at the real growth forecast, the Tealbook is calling for an increase to around 3½ percent in a couple of years. I have been wondering about whether growth will, instead, remain stuck around 2 percent for a while. I'm not sure we can rule this out. In the middle of last year, we began talking about this, about whether we are returning to an extrapolation of the pre-recession trend, or, instead, tracking a new, lower trend line. I read the evidence since then as favoring the new, lower trend line view. And I think the premise that we are going back to 3 percent underlies your proposition 1, Governor Tarullo, and I'm not so sure whether that premise is warranted.

I guess the question of the degree of slack in the economy, which is the way we have been discussing it, is related to your fourth question, Governor Tarullo. That was the subject of a recent memo from President Kocherlakota, in which he said he is now persuaded that it was wrong to assert that the level of long-term unemployment implies less effectiveness for monetary policy. He cites the comments of President Williams at our last meeting, as well as papers by San Francisco Fed economists. President Williams pointed out that the rate at which the unemployed exit from unemployment is about the same for those who have been unemployed six months as it is for those who have been unemployed for two years. San Francisco Fed economists have found that if the rate of exit from short-term unemployment—that is, those unemployed for less than six months—were to return to pre-recession levels, then overall unemployment would fall to about 6 percent, suggesting that elevated unemployment is mainly attributable to the depressed exit rate from short-term unemployment. All of these observations are said to contradict the notion that long-term unemployment implies skills mismatch or some broader impairments in labor market effectiveness. I, frankly, was disappointed by President Kocherlakota's apostasy. I find his reasoning unconvincing, and I would like to explain why.

There are two interpretations of the observed negative relationship between how long someone has been unemployed and their likelihood of finding a job—the observation that for a given group that becomes unemployed in a month, the probability of exit is lower the longer that group has been unemployed. One is pure duration dependence, that the real probability of exiting from unemployment is just a function of how long you have been unemployed. And that is the approach employed by the San Francisco Fed economists that were cited by Presidents Williams and Kocherlakota. The alternative interpretation is unobserved heterogeneity among the unemployed. People differ in their probability of finding a job, independent of how long they have been unemployed. When a group of workers becomes unemployed in any one month, some enter unemployment with a lower probability of exiting, and some have a higher probability of exiting. And the observed exit rate for any given cohort is the average of the exit rates of those who are still around that many months after having become unemployed. The observed exit rate for a given cohort falls over time because the share of those remaining that have low exit rates increases. Those with the highest exit rates leave successively and represent a lower share of the unemployed over time. Both of these explanations for negative duration dependence—pure duration dependence and unobserved heterogeneity—have a long history in labor market research, and I think both deserve a shot at explaining our current situation.

Economists at the Richmond Fed have formulated a simple framework that nests both approaches. This framework can be used to estimate the contributions of unobserved heterogeneity and pure duration dependence using data on the duration distribution of unemployment. The framework extends Shimer's methodology. The framework is relatively simple—there are just two types of workers—but it is able to capture a lot of the dynamics of duration dependence. Allowing for more types can be done but doesn't appear to alter the results or add much. Applying this framework, here is what our economists have found. The data indicate that negative duration dependence in average exit rates is almost entirely attributable to unobserved heterogeneity. Pure duration dependence plays only a minor role. The framework matches the observations on duration dependence highlighted by President Williams and others, namely, average exit rates decline sharply up to a duration of six months and are relatively flat thereafter. The framework attributes negative duration dependence in average exit rates to rapid job finding by high exit rate types during the first six months of being unemployed. Thereafter, it is mostly low exit rate types that dominate the pool of unemployed, and that is consistent with the flattening in the exit rate that President Williams cited.

A large portion of the initial increase in the unemployment rate in the Great Recession was due to a sharp increase in the inflow of low-exit-rate types. Exit rates fell for both types of workers—low-exit-rate types and high-exit-rate types. Their exit rates fell in the recession, but fell relatively more for low-exit-rate types. And this is true even though the average exit rates at all durations fell by comparable amounts for those who have been unemployed on average for a while and not. So if you just take the pure duration dependence view, it looks like all exit rates fell the same amount. But if you take into account heterogeneity and look across types, exit rates of the low-exit-rate types fell by more than the high-exit-rate types. And the persistence of high unemployment is mainly attributable to the sharp and persistent decline in the exit rate of low-exit-rate types, relative to the decline in the exit rate of high-exit-rate type. If you set their decline in exit rate to similar magnitudes, you get much less long-term unemployment. Broadly speaking, the results indicate that the poor performance of labor markets in this recovery can be tied to the prevalence of workers who have entered unemployment with intrinsically low rates of exiting from unemployment. That is all this calibration can tell you. You can debate what it means about mismatch or structural damage, or the like. You can debate whether structural factors have a disproportionate effect on the long-term unemployed or the low-exit-rate unemployed, or whether aggregate demand deficiency has a disproportionate effect on long-term unemployed. Personally, I think it is most natural to interpret the low-exit-rate types as those with skills that are not that great a match for the vacancies that are out there. But in any case, it should be clear that the issue is far from settled. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Heterogeneity is unobserved, so how do you identify that interpretation versus the pure duration dependence? Do you have data on skills or something?

MR. LACKER. It’s a long story, but it is exactly identified.

CHAIRMAN BERNANKE. Okay. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. The very apparent slowdown in the second quarter prompted us in the Sixth District to question our contacts about what they believe to be first causes. In probing for underlying causes beyond weather effects, we were trying to get at the question of whether the recent numbers reflect the emergence of a sub-2 percent economic growth trajectory that is likely to persist in the absence of further policy action. We did not pick up a single common explanation for the slowing momentum and the change of outlook. We heard reference to a contraction of export trade bound for Europe and Asia, defense industry discounting of 2013 expenditure cuts, consumer reaction to slower job growth, widespread growing concern about developments in Europe and the fiscal cliff, and a wait-and-see posture as we get closer to the election. No new news in these explanations. If I had to extract one theme from the many conversations and reports over the last cycle, I would point to a resumption and heightening of caution in reaction to reduced visibility due to a range of uncertainties that are weighing on decisionmakers, be they business executives or consumers. This is prompting postponement or deferral behavior as opposed to outright reversal of plans that suggests to me some potential for pickup if—and this is a big "if"—the air clears somewhat. Again, nothing really surprising in that picture. The reduced visibility isn't a new observation. What did get my attention, however, was commentary around the Atlanta board table to the effect that businesses are becoming resolved to a high level of uncertainty and running their businesses accordingly. That is to say, businesses are institutionalizing their labor and capital strategies to an expected environment of quite limited visibility and heightened uncertainty, and the adamancy around this view was notable. It is conjecture, of course, but it raises in my mind the concern that the business community is increasingly impervious to stimulus delivered through low interest rates.

Now let me move to what we heard regarding recent trends in various sectors and some other anecdotal and survey input. Most retailers reported slower sales, except for those close to the tourism industry and auto sales. Trucking and railroad contacts noted a deceleration in shipments. Manufacturing has clearly slowed, especially in plants that produce consumer durables—with auto production, again, as the exception. A firm with a good perspective on IT investment reported that major firms are postponing planned investment, and this represents a change of behavior from the early part of the year. We did hear some upbeat feedback from some sectors. Energy-related activity continues to expand at a healthy pace. Significant investments in this sector are moving forward. Banking contacts reported that the mortgage business is up for both refis and home purchases. Several contacts associated with homebuilding reported increases in activity. Conditions in the housing sector seem to be improving on net. And to relieve the Chairman of one more consideration tomorrow, I will mention now, instead of in tomorrow's policy round, that the time may soon approach when "depressed" is not the right word to characterize the housing sector.

In our board meetings and contact calls, we heard a couple of points that may provide insight into prospects for employment markets. We were trying to determine whether or not to interpret the recent pace of job growth as oscillation around a longer-term trend of, say, 150,000 net new jobs per month. We heard support for the hypothesis that firms had staffed up to make up for deep cuts during the recession, and that hiring is now less a catch-up activity and more a function of the outlook. And notwithstanding the Supreme Court's decision on the Affordable Care Act, we again heard mention of uncertainty regarding health care costs. One large employer stated emphatically that it would not pass increased health care costs on to its shareholders, and would move as much as possible to part-time staff. We heard affirmation of this intent from others whose businesses would allow this employment model. I must emphasize that this is anecdotal information and has not yet shown up in the data.

As regards prices, we picked up little indication of worrisome developments. Businesses reported some relief on input price pressure and little change in wage plans. We did not hear reports indicating downside pressure building on prices or wages and, therefore, the prospect of significant disinflation. Our July business inflation expectations survey showed steady unit cost expectations. Its and June's results were just a shade lower than earlier in the year.

To summarize the sense of our contacts, the outlook for the second half of the year is more subdued. Most anticipate improvement, however, in 2013 from current levels of activity, but not a strong bounceback.

In response to both anecdotal reports and the incoming data, including Friday's report on second-quarter GDP and the revisions, I have reduced my estimate of 2012 GDP growth to 2 percent, and I have reduced my 2013 and 2014 growth outlook by about ¼ percentage point. This puts my outlook reasonably in line with the consensus forecast while a little bit more optimistic than the Tealbook. My outlook for inflation continues to run ¼ to ½ percentage point above the Tealbook projection and is close to the consensus forecast. Over the last quarter, we have seen a sluggish period materialize in what was already a slow-growth environment. It remains an open question in my mind what exactly we are observing. It is hard, at this juncture, to be sure whether the recent weakness is what should be expected on a continuing basis absent effective policy action, or a transitory episode representing just quarterly variability around a moderate growth trend with some improvement to be expected. The latter would likely produce slow but steady employment progress while protracted weakness along the lines of the second quarter would spell, again, absent effective policy action, no progress to speak of or even a reversal of employment gains. That is how I am framing in my mind the policy question related to the current economy. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. The circumstances we face today remind me of those that we faced this time last year. Last August, we were facing a range of disappointing reports on the economy, including a significant downward revision to the history of GDP with the annual update of the NIPA. There are certainly some similarities to the developments of a year ago, but I also think there are some important differences, which suggests that we may be in a little better shape than we were a year ago. As an example, GDP growth has faltered less in the first half of this year than it did in the first half of last year. Drawing, in part, on this broader context, the news of the intermeeting period has caused me to make modest, rather than substantial, downward revisions to my near-term forecast for GDP growth, and a small upward revision to my forecast for unemployment. Consequently, my forecast for economic growth is stronger than the baseline forecast of the Tealbook and slightly stronger than the proposed consensus forecast. With the stronger GDP growth in my forecast, the unemployment rate declines to 7.7 percent in 2013 and 7.4 percent in late 2014. My forecast for inflation is a little above the Tealbook path and very similar to the consensus forecast. While I see reason to continue to expect a pickup in growth in the second half of this year, I believe that the data coming in over the next couple of months will be telling. Continued weakness in the incoming data would likely corroborate the Tealbook's judgment on the outlook and would lead me to revise my outlook to be closer to where the Tealbook stands today. But at this point, I think the Tealbook's weaker economic growth is not the most likely scenario. I will use the remainder of my comments to explain why my outlook is more optimistic than the Tealbook and just a little more optimistic than the consensus forecast.

Broadly, there are three reasons that I expect a pickup in the pace of recovery this year. First, the auto sector, which plays such a large role in business cycle fluctuations, appears to be holding up rather well. Inventories remain lean relative to sales, based on the average inventory-sales ratio, and anecdotes from my District auto dealers suggest some desire to rebuild inventories. For the nation, both auto sales and production rose solidly in June, and a wide range of small- and medium-sized manufacturers in my District report that their businesses are still seeing decent orders, spurred in part by the strength in the auto industry. The second reason I expect a pickup in the second half is that the housing headwind that has been holding back the pace of recovery does seem to be abating. We are now seeing steady increases in housing construction and reductions in inventories. Importantly, it also looks as though prices may have finally really hit bottom, based on the indexes ranging from CoreLogic to Zillow. While a modest pickup in housing won't directly add much to GDP growth, it will help with consumer sentiment and spending, which will provide more important support to the economic recovery. In fact, one of my directors recently commented that with unemployment and home prices now stable, consumers are more confident about replacing their aging vehicles. My third reason is that the availability of credit to both businesses and consumers has been improving, which will support an increased growth rate of spending. C&I loans and consumer credit have both been increasing. Perhaps more importantly, the July Senior Loan Officer Opinion Survey generally showed that banks continue to report easing their lending standards for most types of loans. So it looks as though we are seeing some abatement of the financial headwinds to the recovery.

Turning to inflation, the recent news on consumer prices points to a stable rate of underlying inflation of 2 percent or a bit less, depending on the measure. The median CPI rose a little less than 2 percent in the three months ending in June. While this rate represented a slight decline from the preceding three months, my staff found that the distribution of inflation rates across all the non-energy components of the CPI were quite stable this year. They saw no signs of anything like the disinflation we observed in 2009 and 2010. So I have left my inflation forecast largely unchanged, with core PCE inflation just slightly below 2 percent.

Overall, while my forecast for economic growth, unemployment, and inflation is a little more optimistic than the proposed consensus, the differences don't seem to be large enough to be very meaningful in light of the uncertainty surrounding the outlook. My forecast is very similar to the version of the consensus forecast that includes an extension of the forward guidance on the federal funds rate to mid-2015, which means that with my forecast we do make progress on reducing the unemployment rate without additional policy accommodation. As I just mentioned, though, I realize that the uncertainty surrounding my forecast is considerable. In light of some of the recent weakness in the data, and with the potential for a fall off of the fiscal cliff or a meltdown in Europe, the risks to my forecast are to the downside for economic growth and to the upside for unemployment. I think the next couple of months will shed some much-needed light on these risks and the pace of the recovery for the remainder of this year and next. The risks surrounding my inflation forecast remain balanced. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. My views have not changed very much. Regarding Governor Tarullo's five propositions, I don't have any disagreements with your characterization. Today we are three years past the economic trough, and the outlook for economic growth is still unacceptably weak. Indeed, the outlook is even weaker than at our last meeting, and the downside risks continue to increase. At the same time, underlying inflation is not unacceptably high. To the contrary, in the consensus forecast, inflation over the medium term is expected to slightly underrun our longer-run goal.

The commentary from my directors and business contacts highlighted the slowing in activity and many of the risks that we face. Here is a quick example. I try to be efficient with a busy CEO's time when I am fortunate enough to have their attention. When things aren't changing very much from meeting to meeting, I might lightly begin with, “I’ll bet things aren’t that much different from our last call,” and we might be done very quickly. After a particularly detailed discussion with one auto sector CEO last time, I figured that would be the case. But when I talked to him last week, he responded, “Oh no, let me tell you, prospects are even worse than last time.” Ironically, even though the U.S. outlook is weak, corporations with a global footprint continue to see the United States as the bright spot for their business. Most of their European operations are clearly in decline now. They had feared this drop-off for some time, and now it is actually here. China is also decelerating markedly. Within the United States, business contacts express zero optimism that Washington will make significant progress this year on the fiscal cliff. And many of my comments here echo concerns that President Lockhart mentioned. Everyone is nervous about what the next several months will bring. With every day bringing us closer to the end of the year, intensification of risks is almost hardwired into their business outlook.

More broadly, risk aversion seems to be up. Looking at the whole of today’s risks, some executives I spoke with wistfully questioned whether their past cap-ex investments had been the right decisions. The cooler heads opined that these investments had been productivity enhancing, and so they were worth it. But such second-guessing suggests that any further expansion plans face a very high hurdle. For the most part, businesses are not yet cutting back noticeably, but they all talk as if they are preserving their optionality if matters continue to deteriorate. And this goes for both cap-ex and hiring plans. It is almost difficult to imagine that anybody is active on the hiring margin.

These reports accord well with the softer tone of the data we have seen since our last meeting. I think the consensus forecast captured the implications of these developments quite well. Under our current policy, we are facing unemployment well above our longer-run normal range all the way into 2017, and this is just the baseline. Most of us would say the risks are still tilted toward even worse economic outcomes. I have to say that I am not entirely surprised by this predicament. For some time I have thought that we have been overly complacent about the pace of the recovery. Yes, we took strong actions in the summer and fall of 2010, and then again in the summer and fall of 2011. While these have been beneficial, the headwinds facing the U.S. economy during this liquidity trap period following the financial crisis, with huge fiscal and global uncertainties piled on top, are still proving to be just too powerful. I think we simply failed to take on board the evidence that we need much more aggressive policy actions than we have taken to date to overcome these headwinds. The Tealbook's analysis of policy rules and the consensus forecast alternative policy scenario make a strong case that further accommodation can produce markedly better outcomes for employment while keeping inflation within a few tenths of our goal. But we have hesitated to embrace these prescriptions. I think what is holding us back are fears of repeating the 1970s economic experience if inflation were to pick up. I think we are putting too much weight on the possibility that resource slack is quite narrow. If resource slack were that narrow, our $3 trillion balance sheet, combined with our late 2014 forward guidance, would represent an excessively large degree of monetary accommodation, it seems to me. But if this view were correct, it is simply amazing that inflation isn't much, much higher, and, in fact, rising. That seems puzzling to me. After several years of this, it can't be happenstance that wages and prices are not accelerating. The economy simply faces very strong headwinds that call for strong levels of accommodation, and I think that most of the answers to Governor Tarullo's questions about how we should think about the economy would be addressed if we were to provide more accommodation and then see if, in fact, inflation were to take off. I don't think it would. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Thank you, Mr. Chairman. I took a different approach with my CEO contacts and with my board of directors. I must say, after listening to President Lockhart and President Evans, what popped into my mind was that very old song by Johnny Nash, "I Can See Clearly Now." I don't think anybody could argue that they can see more clearly now than they did before. It is not going to be a bright, sunshiny day.

I asked the following question of every contact I spoke with, "As you understand monetary policy, is there anything further the Federal Reserve can do that would impact your desire to expand domestic cap-ex or payroll?" And to a person, from a 32-employee-sized company to one with over 1 million employees, the answer was "no." And let me just quote the CEO of Wal-Mart. "We need to be able to expand certainty of our costs. The only thing we know for sure is that fewer people will cost us less." Let me quote a 32-employee firm. "Additional federal regulations from health care laws and other agencies, and a very negative federal tax situation, have caused us to change our hiring policy. If overtime is not able to meet production needs, only temporary employees will be utilized." President Lockhart pointed out a question about the efficacy of additional monetary stimulus when it was applied. And it is very hard for me to find, with regard to our dual mandate, a single woman or man who runs a company who feels that we are the problem. One very important point, Governor Tarullo, is that it is not so much fiscal tightening as it is the demon of all decisionmakers, which is uncertainty. And one thing we need to take into account is that a one-year fix of the fiscal situation—however that might stem the political concerns in this town and have some immediate impact—does not help business planners. Business planners plan cap-ex and payroll expansion over three-year cycles; they don't plan it on one-year cycles. Whether they are little or medium-sized or large, they have to take a longer-run view. And, again, to a person, regardless of size, around our board table, I am continuously hearing that what is of major concern is this massive uncertainty—and it seems to be intensifying—and that the issue is not access to capital. Someone else just pointed out—I think it was Sandy, in what I must admit was a brighter-eyed outlook than I share—that we have seen an expansion of C&I and other loans. I don't hear complaints about the cost of capital, nor do I hear concerns about the availability of capital.

As anybody can see looking at me, I have no prepared statement to make today. I have spread papers all around. I will omit, by the way, what I had prepared, which is to point out that of course Texas continues to outperform the rest of the country—that existing home sales are up 18½ percent year to date, that single-family permits rose at a pace of 35 percent through May in my District. This is despite the negative from our external balances, which I think is the most important point, because we are the leading exporting state. Our exports were down 2.8 percent for the first half of the year. So, in macroeconomic terms, I don't expect a lot of "umph" to come from our net exports, nor do I expect to see businesses make decisions, even if we see a little bit of clarity with regard to the fiscal cliff, as we like to think about it. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. Incoming information suggests that the pace of economic recovery in the Third District remained moderate over the intermeeting period. With the exception of manufacturing, most sectors show slow but positive growth. Both residential and nonresidential construction remains stable but at low levels. Service-sector contacts report little change from the slow but positive growth reported in the last Beige Book. Retail sales in the region were up somewhat in May, and automobile dealers are reporting modest to strong sales over the past few months. The region's employment growth accelerated to 1.2 percent for the three months ended in June, but the unemployment rate ticked up to 8.3 percent after holding steady for the previous four months. The rise in the unemployment rate reflects an outsized 0.4 percentage point increase in New Jersey's unemployment rate. New Jersey has always been a puzzle to me. [Laughter] However, there are statistical problems in New Jersey, particularly in the summertime payrolls, and they often get revised. Payroll numbers are actually up, but unemployment rate was actually up as well, leaving some confusion to be resolved in the coming months.

Our Business Outlook Survey (BOS) indicates that the Third District manufacturing activity remained weak in July, but somewhat improved relative to June. The indexes for new orders and shipments remained negative but recovered from June. More disappointing was the index for manufacturing employment, which took a sharp nosedive down. However, regional manufacturers have remained fairly optimistic about future conditions. The indexes of future activity, new orders, and shipments, which gauge expected activity six months and beyond, all remain in very healthy, positive territory. The index for future employment also remains comfortably in positive territory consistent with a steady improvement in manufacturing employment. On balance, there was little change in prices paid or received, indicating that manufacturing prices are stable in our District. I am not forecasting higher inflation in the near term, but I do think it remains a risk or a danger, given our outsized balance sheet.

Turning to the nation, the economic recovery is ongoing, but at a frustratingly modest pace. The Philadelphia Fed's Aruoba-Diebold-Scotti Business Conditions Index, which is a high-frequency index of economic conditions, suggests that the economy is currently growing at about the pace near its potential, which is exactly what the Tealbook numbers show. The labor market report for June was disappointing. The weather and seasonal adjustment issues make discerning the underlying trend in employment even more difficult than usual. Taking these special factors into account, the Tealbook estimates underlying payroll growth of about 130,000 jobs per month during the second quarter, which is about the average pace from early 2008 until now. While data on the first half of the year have been somewhat softer than I expected in January, my outlook for the medium term is relatively unchanged from June. The advance estimate of 1½ percent growth of real GDP in 2012:Q2 is what the June Tealbook anticipated and is stronger than what the staff anticipated in the July Tealbook. In addition, the forecasts of most of the forecasters we track are little changed from their forecasts at the time of the June meeting. This is particularly true when one looks at the medium-term forecasts for 2013 and beyond. Thus, for the most part, the Tealbook and other forecasters have not really seen deterioration in the outlook since June. And even the forecasts for the second half of this year are changed very little. That is not to say that economic recovery is proceeding at a comfortable pace. I continue to believe that uncertainty surrounding European debt and the potential for spillovers in the United States as well as heightened uncertainty about the fiscal situation are weighing on economic growth. We posed a special question to our July BOS that asked respondents about demand conditions they faced in the last two months. More firms reported moderate decreases in demand than reported increases. Of the firms reporting decreases, the two most important reasons they cited were increased uncertainty about the economy and increased uncertainty about future taxes and regulations.

Our own board of directors in conversations sounded very much like President Lockhart's board—lots of uncertainty, but lots of fundamental restructuring still going on in the economy. Virtually every one of our directors, whether they were from the manufacturing sector, the retail sector, or the nonprofit sector, talked about how their firms and their businesses are restructuring the way they do things to prepare themselves for leaner, more efficient operations, hedging themselves against risks and uncertainties, so that they can continue to survive and do well in this environment. That restructuring is continuing to go on, and I think that it will continue for some time, and that has clues for us about the fundamental nature of our economy.

It seems hardly a day goes by that financial markets are not whipsawed by positive or negative news from Europe, and heightened uncertainty about the U.S. fiscal situation is probably with us at least until after the fall elections. In the face of this uncertainty, we should expect firms to hold back on investment and hiring and for households to hold back on purchases of durable goods through much of the rest of this year. As President Lacker pointed out, the closer we get to resolving these uncertainties, the option value of waiting is higher. I remain optimistic that some of this uncertainty will begin to be resolved toward the end of this year, and that, as uncertainty declines, economic growth will gradually pick up and the unemployment rate will continue to move down very gradually, even without further monetary accommodation. In fact, we may even be surprised to the upside if timely, credible actions are taken by the European policymakers or the U.S. Congress. But I would caution about near-term growth prospects. I don't see that any data coming in over the next one month, two months, six weeks, or three months are going to be much different than what we have expected because that uncertainty will still loom large. So I don't think that meaningful information is going to relieve any of that uncertainty for at least another three to six months. I think that is important to understand, and we should not expect very big pickups in the near term.

To sum up, I don't see a significant deterioration in economic conditions since our last meeting. The economy is currently growing at a pace not too far from potential. Economic uncertainty remains elevated. Households and firms remain cautious about spending and hiring, and that will remain the case for the next several months. I am doubtful that further monetary accommodation—for example, reductions in long-term interest rates through asset purchases—will achieve much. It will add little to the noise that is already in global financial markets and probably not induce significant increases in aggregate demand. Thus, my outlook and policy path are somewhat different than that proposed in the consensus framework.

I would like to thank Governor Tarullo for his efforts at categorizing some of the issues. I found them very useful, and I just want to comment on a couple of them. One of the things that is important about policymaking and about the macroeconomy is that one's views on how the economy is evolving, and on the shocks that are causing it to do so, make a big difference in how one thinks about policy. Depending on which types of shocks we see to the economy, we could have very different outlooks for policy. I do think the economy is bogged down. I do think that over the next few weeks we are not going to get much resolution to any of this—I agree with that. I also agree with the point that we are being hindered by uncertainty and a lack of confidence. We can debate the magnitude of that, but that is palpable in the anecdotal evidence we have. And I do think that understanding the nature of the shocks makes a difference in how one views the right policy response. In my case, as I view confidence and uncertainty looming large, it is not clear at all that we can do much to mitigate the uncertainty about the European situation or even about what the U.S. Congress is likely to do.

I am worried—and I have been worried for some time—about listening to our corporate contacts and not-for-profit contacts talk about their restructuring. What does it mean for business? What has that done to the structural nature of the economy? A major question, in my view, is whether or not the underlying longer-term growth rate of the economy really changed? These kinds of questions are important not only for understanding the long-term health of the economy and employment, but also for the right policy response in that environment. They are the kind of challenges that we face, and the answers are highly uncertain. Several people have mentioned the distinction of whether this is transitory or permanent and how long will it last and what we can do about it. Those are extremely difficult questions, and I think that is why this Committee has the disagreements and the trouble we have in figuring out exactly what appropriate policy is. I will stop there, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. In January when we adopted the end of 2014 language, the full SEP range for real GDP for 2012 was 2.1 to 3 percent. Six months later, and with additional easing through the MEP, the revised consensus growth rate for real GDP in 2012 is 1.8 percent—weaker than any of us thought last January and with more accommodative monetary policy than many of us submitted. In retrospect, the economic data have come in much softer than any of us thought. How likely is it that we are repeating this mistake? I am concerned that while the consensus forecast has been written down from the June SEP, the consensus forecast for this year remains too optimistic. The July employment report produced only 80,000 jobs, and real final sales rose at only a 1.2 percent rate in the second quarter. The revised consensus forecast expects real GDP growth to be 2 percent in the second half of this year. With 2 percent growth in the first quarter, this would imply the weakness of the second quarter was an anomaly. An alternative viewpoint would be that concerns about Europe and the fiscal cliff intensified in the second quarter, causing households and businesses to retrench and that the second quarter to be much weaker than the first.

What is the likelihood that businesses and households will believe that the fiscal cliff or European problems will be of less concern very soon? My conversations with a wide variety of businesses and financial market participants suggest that they believe the problems will likely intensify in the second half of this year. They are not anxious to hire or invest until there is much clearer resolution of both problems. In particular, few on either side of the Atlantic seem confident that Greece is on a sustainable path, or that adequate firewalls exist. Furthermore, I don't know anyone who expects a quick resolution of the fiscal cliff. I, unfortunately, agree with this assessment, and, thus, I am concerned that the consensus forecast is too high. Without substantial additional accommodation, we will once again be underestimating the likely persistence of recent weak economic data.

While we can do little to resolve problems in Europe or to address the fiscal cliff, it does not imply there is nothing monetary policy can do. Mortgage rates have come down as a result of our actions and the flight to quality. There are tentative signs that this is having an effect on the housing market, which, as several people have noted, is beginning to improve. I am particularly heartened that we are seeing some regional variation in housing markets, with stronger markets, such as Boston, experiencing housing price appreciation. Not only prices of single-family houses, but also condo prices are increasing in Boston, and, interestingly, many Realtors are reporting a surprising number of all-cash sales. Given the improvement in sentiment, and the low interest rates for creditworthy borrowers, it is interesting that cash sales seem to be on the rise. With apartment rents rising in many markets, and real estate prices improving in many markets, now would seem to be a good time to clearly generate a self-sustaining domestic housing recovery, by looking for ways to convince people that both the costs and availability of financing makes this a propitious time to buy. Even if the cost and availability of credit is not the cause of the current slowdown, it can help prevent the slowdown from becoming more severe. I fear that monetary policy has been assuming we are the Roadrunner and that our momentum will carry us over any short-term chasms. In reality, we risk being more like Wylie Coyote as we once again realize that we have paused without solid ground beneath us. The Roadrunner accelerates across the chasm; the coyote does not. It is time to mimic the Roadrunner. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. At our last meeting, I downgraded my economic growth outlook based on the weak incoming data and the increased strains in Europe. And since then, the disappointing news has continued to accumulate. It is clear that the economy has less momentum than it originally appeared. And as a result, I have downgraded my near-term forecast yet again. The song remains the same: The economy continues to be weighed down by household sector deleveraging, tight credit, and fiscal consolidation. In addition, the looming fiscal cliff and the European financial crisis are undermining confidence and pose significant downside risks to the outlook.

Regarding fiscal policy, I expect—or, maybe more actually, hope—that some kind of agreement will be reached to prevent us from driving off the cliff. Even so, many of my contacts continue to tell me, as others have said, that uncertainty about government spending and taxes is already restraining hiring, spending, and investment. Moreover, the nation's broader long-term fiscal problems are unlikely to be resolved no matter what agreement is reached later this year or early next year. I'm echoing here a comment President Fisher made; the sad truth is that the best that we can hope for is that Washington kicks the can down the road. And that approach hasn't worked so well in Europe. I also want to think about this option-value argument. It is hard for me to imagine that in January of 2013 we are going to have significantly less uncertainty, given the fact that we are talking, really, about kicking the can down the road on the Bush tax cuts and a lot of other things. Maybe uncertainty is getting worse and worse right now, but I don't see it really becoming that much less next year.

For its part, the European crisis is damping our exports, squeezing corporate profits, and unsettling financial markets. European authorities have made some promising moves recently to support Spanish banks and establish a single euro-wide banking supervisor. And my forecast, like the Tealbook, assumes that the European crisis won't spin out of control, and the euro area will experience only a relatively mild recession this year. However, while my heart wants to believe that European policymakers will act decisively when the time comes, my mind reminds me that previous declarations and promises brought only temporary relief. In the future, the euro area now seems to hinge on whether Spain and Italy are, if I may use the expression, too big to fail. Alternatively, it could be that they are too big to save. The fact is that a concrete, comprehensive, and credible—those are three C's—solution to the European problem is still out of reach. That leaves Europe at a risk of a longer, deeper recession, which would undoubtedly intensify financial and economic strains in our own country.

These, then, are the hurdles the economy must surmount—relatively little underlying momentum, a looming fiscal cliff, and a protracted European crisis. Together, they are offsetting a significant portion of the monetary accommodation we are providing. This can be seen by a variety of private-sector and Federal Reserve financial condition indexes. Many of the variables in these indexes are forward looking, and as a result, the indexes can provide useful signals about future GDP growth during periods of stress, such as the one that we have been experiencing. Although these indexes show a clear improvement in financial conditions since the depths of the 2008–2009 crisis, they indicate relatively little additional progress since late 2010. More importantly, the recent readings are generally nearer their long-term average levels despite the dramatic increase in monetary stimulus that we have introduced. By my staff's estimates, current financial conditions point to, at best, only moderate economic growth.

Since our June meeting, I lowered my real GDP forecast for 2012 by about ¼ percentage point. I now forecast 1¾ percent growth this year and 2¼ percent in 2013. This moderate pace of economic growth is somewhat higher than the Tealbook projection, but that is only because I assumed considerable additional monetary stimulus. In particular, I assumed that the fed funds liftoff is in the first half of 2015. I also assume further expansion of the Fed's balance sheet through open-ended purchases of mortgage-backed securities. Absent this additional stimulus, my forecast would foresee no progress on our employment mandate until 2014. Even with this added stimulus, I expect only modest progress on closing the unemployment gap over the next two years. Finally, let me turn to inflation. The recent data have come in more or less as expected, and I haven't changed my medium-term inflation forecast much. I expect overall PCE inflation to come in below our 2 percent target, both this year and next, reflecting subdued compensation costs, as we saw in the latest ECI, and import price inflation. In terms of commenting on the consensus forecast, given the assumed policy path in the consensus forecast, my forecast would be more pessimistic about economic growth and the unemployment rate and would have lower inflation.

CHAIRMAN BERNANKE. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The 10th District economy has continued to expand at a moderate pace. Consumer spending has been stronger than expected because of stronger auto sales, and energy activity continued to fuel the District economy with higher energy prices leading to an uptick in crude oil drilling. The recovery in residential real estate markets strengthened further with stronger home sales contributing to increases in housing permits and the value of construction put in place. The District's manufacturing sector expanded only modestly in July, but contacts were more optimistic about future levels of activity. Expectations for future production and shipments held steady, and the expectations for new orders rebounded after falling the previous month. Some manufacturers noted that they would hire more employees and increase capital spending over the next six months.

Given the importance of agriculture to the District, I wanted to say just a couple of things about the drought. Almost half of the U.S. corn and soybean crop and cattle production is in regions experiencing severe drought. Livestock producers are going to suffer the brunt of these losses as high feed costs strain profits. For the crop producers, however, rising crop prices and an expanded use of crop insurance payments is likely to stabilize incomes in that sector. Similar to past occurrences, the effects of the drought on food price inflation should emerge in two waves, with those waves dissipating over time as the weather improves. Rising crop prices will boost the prices for cereal and bakery products in the near term. By contrast, meat prices are more likely to rise in future months as herd liquidations cut meat supplies for 2013. And, of course, as Steve Kamin noted in his report, similar to last year, rising food prices are a bigger burden on poor households in the United States and globally that spend more of their household budget on food.

At the national level, we have seen a number of signs of softening in economic conditions consistent with last week's GDP report that showed deceleration in growth. And while bumpy, the housing recovery continues to progress, which is an encouraging sign. Dissecting the causes of this deceleration in economic growth is difficult. The combination of unusual weather, seasonal adjustment problems, and some payback for the robust rebound in auto sales following supply chain disruptions, is likely one cause. But I also hear numerous anecdotes related to uncertainty and caution, from risks to the outlook coming from Europe and from U.S. fiscal policy. Businesses in particular, but also households to an extent, seem to be acutely aware of these risks and are, therefore, acting cautiously. In terms of the outlook going forward, I have reduced my growth outlook for this year a bit in light of recent data, but I continue to expect a gradually building recovery ahead. As such, I see modest improvements in the unemployment rate at a bit faster pace than in the Tealbook, and I expect inflation to remain near our 2 percent long-run target over the forecast horizon. Thank you.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Economic conditions in the Eighth District appear to be generally stable with some signs of a slowdown. Reports from District manufacturers are mixed. There is some evidence that consumer spending may be slowing somewhat. According to retailers, event-based purchases continue to be made closer to the date of the actual event than was the case in past years. In addition, the use of credit for necessities rather than for discretionary purposes has increased. Drought conditions for most of the District have changed attitudes in the agribusiness section dramatically. For many crops, yields will be markedly depressed, and it remains to be seen whether price increases will be sufficient to keep farm income constant. Those businesses using raw crops as inputs are likely facing sharp cost increases as a result of the drought conditions. District home sales year to date are up substantially from last year: 15 percent in Louisville, 7 percent in Little Rock, 21 percent in Memphis, and 19 percent in St. Louis. Approximately 98 percent of District bankers rate commercial real estate conditions as either fair or poor. This is a more pessimistic assessment than I have heard in some time. The District unemployment rate is about 7.7 percent, somewhat lower than in the nation as a whole. Vacancies in the District are about 30 percent above the peak last reached in November of 2008.

Nationally, weaker outcomes than I expected for the first half of 2012 have caused me to mark down my near-term forecast, while largely keeping my longer-term forecast in place. I maintain that the most reasonable expectation is for an improvement in the pace of economic growth during the remainder of 2012 and continuing into 2013 and 2014. I also think it is reasonable to expect unemployment to continue to tick down as the expansion continues. Over the last year, not a year of stellar growth, unemployment fell about 0.8 percentage point, about as far as unemployment has ever fallen in a one-year period in the United States since the mid-1980s.

I continue to view the risks emanating from the European sovereign debt crisis as among the most threatening for the U.S. economy. I spent a considerable amount of time in Europe during the intermeeting period talking to many contacts both inside and outside the policy process. These discussions reinforced my view that there’s very little clarity concerning the ultimate course of events for the EMU and even the EU. I received little reassurance that there is a very promising path to a more stable outcome. As of now I view the most likely outcome to be restructuring of sovereign debt for even large countries via a process that is likely to be cumbersome and uneven. I see little relief in sight for global markets unless this reality is completely priced in.

This is a relatively weak macroeconomic outlook, but, in my view, monetary policy is appropriately calibrated to the situation. We've taken a lot of action, which I think has put monetary policy in a particularly easy setting. Moreover, we can take additional action should the macroeconomy weaken still further. I caution, however, that last year at this time we were talking about a 75 percent recession probability in the United States. That did not materialize. This year's slowdown and market turmoil has not matched the magnitude of what occurred last year. According to the St. Louis Financial Stress Index, the level of stress experienced last summer and last fall was much larger than what we have at this juncture, at least so far. Last summer's GDP revision was actually a shocking event in the macroeconomic forecasting community. We didn't get that shock this time around.

I thought I'd turn for just a few minutes to Governor Tarullo's excellent comments and assumptions. Is it a bogged-down economy? Certainly so. I've tried to think about that as a lower rate of trend growth for the U.S. economy over the medium to long term. There is a lot of the rhetoric around the table: Some people say that the trend growth rate is high, but that there are many restraining factors that are going to last for years and years. Other people would say that the trend growth rate is lower at least over the medium term. That's one way to reconcile some of the things that are said here. Are there uncertainty effects coming from the EU, the fiscal cliff, and other government actions? I think there are. Monetary and fiscal policies are like having a gorilla in your living room with your family hanging around. It's much better if the gorilla is not jumping up and down. [Laughter] We'd like the gorilla to sit quietly. The gorilla right now isn't sitting quietly. The gorilla is jumping up and down. This makes everybody in the family very nervous. On the question of whether downside risks are larger than the upside, again, I'm not so sure I like to go in this direction. For instance, a lot people are talking about a bond bubble. If interest rates should happen to rise, I would say that that would surprise a lot of people and cause disruptions in ways that are not being anticipated right now. Maybe it's a question of whether we could get a lot of inflation out of our monetary policy. I think we certainly could. So there are also upside risks as well. I don't think we really know the finer points of the distribution of risk, and I don't like to put too much weight on trying to characterize those tail risks. We're certainly vulnerable to additional shocks. I do think better data would be very helpful. I'm not sure it would alter these basic points. I agree with that.

On the four questions: Is housing recovery necessary? What I've tried to say on this issue is that the rhetoric that we have about a housing bubble is inconsistent with the notion that the housing sector has to get going again in order to have a robust recovery. The notion of a bubble is that the bubble collapses, and there aren't any incentives to restart the whole process that led to the bubble in the first place. You wouldn't want to re-inflate the bubble; that would be poor policy. Moreover, the extent of the debt overhang problem, even though we talk about it a lot, is somehow understated in our discussions. There are about 50 million U.S. households that have some type of mortgage debt. From 1970 until the crisis, they would run a loan-to-value ratio of about 60 percent. After this crisis has occurred, those loan-to-value ratios have gone to 90 to 95 percent. If you took as the steady state the 60 percent loan-to-value ratio for those that have mortgages in the United States, and you think of households as trying to get back to that steady state, they're going to have to pay off about $3.7 trillion. That's about one-fourth of one year's GDP. That kind of adjustment just can't occur in any kind of business cycle frequency. It has to be thought of in decade terms, and it's just not realistic to think that all of a sudden everybody is going to jump back on the housing bandwagon when you've got loan-to-value ratios of that magnitude. It could be that the old 60 percent ratio is not the right ratio and now people will be willing to permanently carry loan-to-value ratios of 90 to 95 percent, but I don't see that happening. There are good reasons why they wanted to keep their loan-to-value ratios lower. I think that housing is improving and that prices have bottomed, but I don't think that we should expect rapid improvement in that sector. Also, it's not just housing, although sometimes people say, well, housing is kind of small, and it can't just be housing. But if you add together through the input–output tables all the other industries that feed into housing, the overall effect is actually quite large and accounts for a large fraction of the entire crisis. It's a big factor; I don't expect it to come back soon. For that reason I would describe the economy as having a lower trend rate of growth.

What is the magnitude of the EU situation and the fiscal cliff situation and the uncertainty surrounding that? I'm not sure about the fiscal cliff, and I put less weight on fiscal policy than many at the table. However, in my opinion, the EU crisis is evolving into the most significant macroeconomic event of our time. Unified Europe is the largest economy in the world. You're talking about possibly altering the entire path of the entire European project going forward. In addition, and echoing some of President Williams's comments, it looks like it's "too big to solve." Lincoln's surgeon can say, "I'm going to do everything in my power to save the President." He might not be able to help him. The "too big to solve" combined with the chaotic political process and the inability of European institutions to come together to address the situation—and at the end of it all, possibly bleeding to the United States and to Japan, which are also carrying very high debt loads—is really a crisis for the Western powers. I really think the situation is careening out of control, and I'm very concerned about that.

Have household savings patterns changed? I think they have, and our low interest rate policy may be unwittingly hurting savers in the economy by changing behavior. If you had business cycle policy that called for low interest rates for a year or 18 months or something on a business cycle time scale, then our models make sense. Our models start to not make sense when we start talking about years and years at very low interest rates. Then you do get people in the middle part of their lives looking toward what their savings opportunities really are and how much they're really going to have to save. They have to alter their behavior. This starts to alter the entire structure of the macroeconomy instead of just mitigating a business cycle downturn, which would be the normal event that the theory is aimed toward explaining. I am concerned about this. The policy has been appropriate up to now, but I am concerned about getting into many years of very low interest rates and the effect on saving in the U.S.

Has growth potential been reduced? I think it has, and this explains why inflation has remained near target instead of dropping precipitously. The typical models that we use here have constantly been predicting that inflation is going to go lower; that hasn't occurred. I think that's because policy has been appropriately calibrated to stop that from happening. It also explains why we're seeing such slow economic growth. If you view the output gap to be large and maintain that view, it seems to me that rapid growth should be just around the corner because you're a long way away from the trend and the historical behavior is that the economy snaps back to trend. That hasn't been occurring. I think as that continues to not occur, then you have to start reducing your estimates of trend growth in the United States. I will just say one other thing about that. The poster child for recovery from a financial crisis is Sweden. Sweden had a crisis in the early 1990s, and it is often lauded for the way it handled this crisis. However, if you look at Sweden's GDP path, it had a one-time downward shift, and it never did recover to the previous path. That's a good baseline to have in your head about what has happened in the United States as a result of this financial crisis. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. There's been a lot of previous remarks that I feel compelled to respond to, but the first one is, of course, David Wilcox's attack on dressage. [Laughter] I will just say that if it was in my household, and the FOMC meeting was trying to complete against dressage, the FOMC meeting would lose big time.

MR. WILCOX. Precisely my fear. [Laughter]

MR. KOCHERLAKOTA. I'll touch on my apostasy, to use President Lacker's term, at the end of my remarks, but I wanted to open with Governor Tarullo's questions. I would say that I agree with all five of your opening propositions, Governor Tarullo. As President Bullard and President Plosser talked about, I think the tension is really about what are we being bogged down by, and this gets to your last question about structural damage. As my remarks will highlight, I think there are differences of views about that around the table, and I will be the first to admit that I will probably sound a lot more certain than I really feel about the issue. In fact, I'm going to be talking about the role of supply and demand shocks, Mr. Chairman, in shaping where we are today. I'm not going to talk about the consensus forecast memo much at this time. I think the consensus forecast is really a communications tool about policy. That's one of its main roles. I'll talk about it in the next go-round.

If you go back and look at the SEP in January 2010, FOMC participants thought that appropriate monetary policy would give rise to an unemployment rate of around 7 percent by the fourth quarter of 2012, and it seems likely that we're going to miss this forecast by a wide margin. Now, this miss has come even though I think monetary policy has certainly been more accommodative over the past two-and-a half years than the Committee thought it would be in early 2010. I have mentioned unemployment, but of course, other measures of economic activity like real GDP have also recovered more slowly than the Committee expected. I think most observers have ascribed this miss to one of two factors: Either aggregate demand is weaker than the FOMC expected it to be or monetary policy is less effective than the FOMC thought it would be. But—and this builds on what President Bullard just said—I think both of these explanations are inconsistent with the evolution of inflation. In particular, surprisingly weak demand or surprisingly weak monetary policy should give rise to surprisingly low prices, that is, surprisingly low inflation. In fact, we've seen the opposite. In January 2010, the FOMC expected that desirable monetary policy would lead to a PCE core inflation rate of around 1½ percent over the course of 2012. The consensus forecast is now that the PCE core inflation rate would be 1.8 percent over the course of 2012, and my own expectation is, in fact, it will be even higher. I would say the behavior of inflation suggests the surprisingly low level of economic activity is not due to surprisingly weak demand or surprisingly ineffective monetary policy. So what's left?

Well, I talked about this at length before and so I won't go through it in any detail today, but the decline in net worth and in credit availability we've experienced in 2007 are often emphasized quite rightly as having been a big shock to aggregate demand, but they have also been a shock to aggregate supply because they hamper new business formation as well as the ability of firms to engage in new projects. Today what I've described is how—and page 31 of Tealbook A, depicts this—economic activity has been unexpectedly low, and inflation has actually been unexpectedly high. When you see this combination of low quantities and high prices, it suggests that, on net, it is aggregate supply not aggregate demand that has proven to be weaker than the Committee expected.

It may be useful to put these qualitative observations onto a slightly more quantitative footing, using a Phillips curve framework. In January 2010, the FOMC expected that if unemployment was 7 percent in late 2012, the inflation rate would be nearly 50 basis points below target. Currently speaking, these observations are consistent with the Phillips curve slope of around minus one-third, and a natural rate of unemployment of around 5½ percent. Instead, the inflation rate is going to be less than 20 basis points below target—I would say actually at target for the year—and the unemployment rate is going to be around 8 percent. If we stick with the Phillips curve slope of around minus one-third, this sounds like the natural rate in late 2012 has turned out to be above 7½ percent and not as low as 5½ percent. The main counterargument that I've heard to this line of reasoning—trying to use inflation as a guide to figuring out the mix of supply and demand shocks—is the argument that inflation expectations have just proven to be surprisingly well anchored, which I interpret as meaning the slope of the Phillips curve has been surprisingly close to zero. But I think the co-movement of inflation and unemployment over the past few years argues against this perspective. Over the course of 2009 and 2010 when unemployment was high, core PCE inflation fell well below target. Then over the past 18 months, as PCE core inflation normalized, unemployment fell sharply. Now, these data are admittedly quite scanty; I essentially talked about two data points. However, I don't think they suggest that the Phillips curve has been surprisingly flat over the past few years. Indeed, quite the contrary, I would say these recent data depict a stronger connection between economic activity and inflation than many of us would have expected in 2010, given, say, the work of Atkeson and Ohanian.

To summarize my perspective, I've argued for some time in this Committee that the radical decline in net worth and tightening credit availability since 2007 had an adverse effect on both aggregate demand and aggregate supply conditions. I believe that the behavior of PCE core inflation—a behavior that I think we have to call welcome because inflation has been closer to target than we would have expected—shows that this Committee through its actions has successfully offset much of the demand component of the shock. What remains then is the supply component, which is serving as the mud—to use Governor Tarullo's analogy—that is holding us back. How does the conclusion matter for policy? Adverse demand shocks pushed down on both employment and inflation, and this means that at least qualitatively the Committee's response is somewhat easy to figure out. The response to a demand shock is independent of how you weight the two elements of its dual mandate. In contrast, adverse supply shocks push down on employment and up on inflation, and so when you're determining the appropriate response to such a shock, you face a distinct dual mandate tension. In the next go-round I will argue the determination of appropriate policy depends on how we want to resolve that tension. Just as importantly, I will argue that the effectiveness of current policy measures depends critically on how the public believes that we will resolve that tension going forward.

Now, let me quickly talk about President Lacker's concerns about my memo. I actually don't think I see as big a gap between our points of view as you do, President Lacker. I came away from President Williams's remarks and the work at the San Francisco Fed in general convinced that the high long-term unemployment rate in and of itself does not mean that monetary policy should be regarded as being less effective at reducing unemployment. I think what you're touching on is how effective do we think monetary policy can be in terms of reducing the exit rate from short-term unemployment, and that remains an open question, given the work that's been done. I'd be very interested in seeing the identification scheme that underlies the Richmond work more clearly explained because I think that really is the heart of the question of what we learned from that work. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY.[5] Thank you, Mr. Chairman. I'm going to start with Governor Tarullo's five propositions. I am generally supportive of all of them, although on the fourth one, the unusual vulnerability to shocks, I would say, yes, we are still vulnerable to shocks. But I would argue that at the margin we are probably a little bit less vulnerable to shocks in the sense that I feel like the economy underneath the surface, despite all of the really good reasons for pessimism, is actually improving in some regards. One, the housing sector does appear to have bottomed. And judging from both prices and activity measures, the United States is in the midst of a pretty significant energy revolution in terms of rising natural gas and oil production. That is going to be important, not just in supporting U.S. economic activity directly, but also in ancillary investment in petrochemicals and other industries that are going to be trying to locate here to take advantage of low natural gas prices. In addition, household deleveraging has gone a long way, and so we are actually in a much better place than we were a few years ago. For example, if you look at the household debt service burden, we are back to the levels of the early 1990s. The U.S. banking system is also in better shape. It has more capital, it has more liquidity, and I think we are seeing in the Senior Loan Officer Opinion Survey a very, very slow normalization of credit availability. That said, I agree that the economy is bogged down, that the recovery is hindered by confidence, and that downside risks predominate. I wouldn't overweight a few data points. I think we are still vulnerable to shocks, but the economy is probably a little

[5] The materials used by Vice Chairman Dudley are appended to this transcript (appendix 5).

bit more resilient now because the imbalances aren't quite as out of whack as they were a few years ago. Those are the optimistic part of my remarks. [Laughter]

Let me turn to the things that make me a little bit more cautious. The economy is obviously not growing very fast, and it is very hard to see what will provide a pickup in momentum over the near term. You have Europe in a recession that, if anything, looks like it is deepening rather than subsiding. Economic growth among the emerging market economies has slowed. The dollar has strengthened, which suggests that U.S. export growth, if anything, is probably going to continue to soften. Also, real income growth, if you abstract from the decline in gasoline prices, has been on a very slow trajectory, and that certainly is going to restrain consumer spending. And without greater job growth, you won't have a lot of income to really support consumer spending. The fiscal contraction continues at the local, state, and federal levels, and we are likely to get more of that in early 2013, especially at the federal level. I started to ask myself the question, how does the economy pick up speed in this environment? Presumably, you would need some sort of a spontaneous improvement in confidence that caused households and businesses to become more optimistic about the future and willing to voluntarily reduce their saving rates. But I don't see what over the near term would generate that improvement in confidence, especially given the issues of Europe and the fiscal cliff, which still loom over the horizon.

I think Europe is by far the biggest downside risk. And while I take some joy from Mario Draghi's remarks that the ECB is now prepared to do more, I am a little confused about what that actually is going to be because I wonder about the intersection between what Mario would like to do and what he is allowed to do under the ECB charter and what the Germans would actually agree to. I feel like the kinds of things that we would like to see the ECB do that are broad enough to really provide significant support to the European situation are probably inconsistent with what the ECB charter allows or what the Germans are willing to sign onto. I think the Securities Market Programme, if it were brought back in its old form, would be deeply flawed. One issue was that it was focused primarily on the secondary market rather than the primary market. It was really getting the cost of debt issuance down for the sovereigns, and that is important. But it also wasn't an effective backstop because it was very episodic, and people didn't understand the rules of engagement of when it would actually be forthcoming. It didn't really crowd in private investors. It actually sort of displaced them by allowing them a way to exit. And the way that the Greek restructuring was handled meant that ECB purchases, at least under the old regime, were viewed as subordinating existing debt holders. If the Securities Market Programme is brought back, I am hoping it will be in a somewhat different form where it can actually be more effective.

Broadly, in terms of the European situation, I don't really have much positive to say. There are some good developments—Mario's remarks are one, and the ECB, as the pan-European banking regulator, has gained some traction. But, in general, I don't think we are really moving in the right direction. We keep talking about muddling through, but I don't really think that is an apt characterization. So I handed out these four charts just to illustrate the fact that, if this is muddling through, then I don't want to keep muddling. If you look at these charts, sovereign debt loads in the peripheral countries are going up; European stock prices are going down; activity measures, looking at the European purchasing managers' indexes, are deteriorating; and foreign investors in Spanish and Italian debt are exiting. I don't really see how you would view this as a sideways path. I think the crisis is deepening in its economic dimension, in terms of the breadth of the crisis, and in terms of the political support to provide an appropriate backstop for Italian and Spanish debt. We are in a particularly difficult situation.

In my view, for the euro zone to come through this crisis two things have to happen. First, the 17 countries of the euro zone have to move to a much closer fiscal union. And, second, the individual countries have to demonstrate that their budgets are on a sustainable path because that is essentially a necessary condition for all 17 countries to agree to the fiscal union. That is a really tall order. The fiscal union destination is very difficult to reach for three reasons. First, credible fiscal union requires treaty change. That means all 27 countries of the European Union have to say yes. Now, think about what that really means in terms of parliamentary meetings, referendums, and treaty changes. That's pretty difficult. Second, the politics to support that outcome are increasingly difficult. The stronger countries will balk at providing a credible backstop because of their lack of confidence that the weaker countries are going to actually meet their commitments. And the weaker countries will balk because fiscal union will require them to give up their sovereignty. Third, the process for the weaker countries getting the support through embarking on fiscal austerity is a really bad dynamic because it just keeps leading to bad macro outcomes. Spain is pretty interesting. They are really doing all the things that they are supposed to be doing, but the macro outcomes in Spain are worse and worse. That results in slippage in terms of achieving targets, it leads to more problems in the banking system, and it leads to loss of credibility, both at home and abroad. This is the biggest issue facing the outlook for the U.S. over the near term. I wish we had more control over the circumstances. I'm hoping that the ECB will come up with something new and vastly improved on Thursday, but I'm not holding my breath. I think it is a very difficult situation.

CHAIRMAN BERNANKE. Thank you. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. Over the intermeeting period, I have been pleased to see positive signs of progress in the housing market. Nonetheless, in response to incoming data on broader economic activity, I have slightly marked down my projection for GDP growth this year, and I have become even more pessimistic that we will see sustained progress in the labor market. Before elaborating on my assessment of the broader economic outlook, I would like to comment more specifically on some developments in the housing market that have attracted my attention.

Governor Duke has pointed out in recent meetings that housing prices are moving up quite strongly in metropolitan areas like Miami and Phoenix, which were hardest hit by the housing bust. As she noted, some evidence suggests that tight inventories are the likely cause. For example, Zillow data reveal that within the Phoenix metropolitan area, the largest decline in inventories has occurred in the lowest priced tier of homes, and price increases in this tier have been largest. In particular, the stock of homes for sale in this bottom tier dropped almost 66 percent last year versus 33 percent in the top tier, while prices in the bottom tier have been rising about twice as fast as in the top tier. The cause of these movements in inventories may, however, be important in assessing price trends going forward. In this regard, Zillow finds a striking relationship both across and within metropolitan areas— that the change in inventories of homes for sale is low where the prevalence of negative equity is high. Apparently, negative equity is working to suppress the supply of homes for sale by even more than it is suppressing demand, by inducing underwater homeowners to withhold their homes for sale. The question is whether robust house price increases are likely going forward, and Zillow argues that it is questionable. They point out that with so many underwater homeowners, price appreciation, once it has become significant, will induce many homeowners currently trapped by negative equity to dump their homes on the market—a response that will moderate further gains. In effect, this large stock of underwater homes constitutes shadow inventory that is poised to come onto the market.

It seems to me that negative equity is also relevant when we evaluate the effect of house prices on consumer spending. Nationally, Zillow estimates that 31.4 percent of homeowners are currently underwater on their mortgages. A Rasmussen poll of homeowners released just last week finds that an even larger fraction—39 percent—believe their home is worth less than their mortgage. For this sizable share of homeowners, the impact of house price appreciation on spending is apt to be small or nonexistent. After all, the lion's share of the benefit accrues not to the homeowner but, instead, to the mortgage holder. Moreover, the analysis I just described suggests that house price increases may be disproportionately large in precisely those areas where negative equity is most prevalent. All in all, such considerations give me considerable comfort with Tealbook's assumption that house price appreciation going forward is likely to be quite gradual, and any upside risks to the forecast from housing are unlikely to be so large as to vitiate the need for further policy action.

Turning to the broader economic outlook, my view of the economy accords closely with that incorporated in the consensus forecast, conditional on its underlying policy assumption. In particular, given the enormous uncertainty depicted in the fan charts, any differences I have with the modal forecast pale into insignificance. From the standpoint of policy, the most important feature of this forecast is that it envisions almost no meaningful progress in lowering unemployment over the next few years. The 90 percent confidence interval around the modal unemployment forecast is quite wide. Even so, it appears that the odds of a return to full employment by the end of 2014 are under 5 percent. My views on inflation also coincide closely with those incorporated in the consensus forecast. In particular, I expect that well-anchored inflation expectations, continuing downward pressure from high unemployment on wage growth, and moderate increases in import prices will keep inflation running below the Committee's 2 percent objective. The fan charts portray the risks to the consensus forecast as symmetric. In contrast, I agree with Governor Tarullo. I view them as weighted to the downside because of continuing risks relating to Europe and fiscal policy. I hope we can devise some way going forward to incorporate such asymmetry of risks into the consensus forecast, because from a policy standpoint, it is not just the modal outlook but also the distribution of risks around that path that should inform our judgments. In particular, weaker economic outcomes than those associated with the baseline entail unusually large costs, given how far we already are from full employment. Moreover, should such risks materialize, our scope for response will be limited.

I don't want to jump too far into the policy debate today, but the alternative paths depicted in table 2 and exhibit 3 of the consensus forecast are an invitation to do so. As the Chairman noted, the suboptimality of the baseline consensus forecast is striking. Our forecast violates a key principle of optimal monetary policy that several of you cited. It is known as Qvigstad's criterion, and it states that both the inflation and output gaps should normally not be simultaneously positive or negative. If both gaps are negative, as in the consensus forecast, a more accommodative policy is called for to bring both inflation and output closer to their targets. Were we to make this forecast public at a meeting where we failed to take further action, I think it would be a challenge to articulate how any identifiable costs of deploying our remaining tools could conceivably outweigh the benefits. Exhibit 2 also illustrates one of the key lessons I took away from the rules memo. It appears that the policy path incorporated into the baseline consensus forecast lies close to the prescription of the outcome-based rule. As the rules memo emphasized, the performance of this rule is quite suboptimal under the current circumstances. The consensus forecast drives that point home.

In conclusion, I agree with at least the first four of Governor Tarullo's propositions without reservation. My modal outlook, conditional on policy consistent with our June statement, involves moderate growth and excruciatingly slow progress in lowering unemployment toward normal levels. I envision inflation running below 2 percent. Unfortunately, the bulk of the uncertainty around that outlook is due to downside risks. So in tomorrow's policy go-round, I will argue that unless the outlook over the next six weeks improves substantially, we should prepare to take strong action at the September meeting.

CHAIRMAN BERNANKE. Who is Qvigstad?

MS. YELLEN. He is the deputy governor of the Norwegian Central Bank.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I am going to take just a minute or two to also engage in dialogue with Governor Tarullo about his propositions and his questions. But knowing how difficult it is for Governor Tarullo to sit still during all of these discussions, I bet that if I spend long enough he won't ask any questions next time. [Laughter]

First of all, I would say on the five propositions that I would agree that the economy is generally pretty cruddy, and I would emphasize the importance of low confidence and high uncertainty. I would also agree with the Vice Chairman that improvements in the financial condition of the financial institutions, of businesses, and of consumers have made the recovery a little less fragile and more sturdy and resilient to shocks.

As to the questions, on the first one, I don't think anybody would be surprised to know that I believe that a significant recovery in housing is necessary for our economy to recover. I am not certain that it is sufficient, and I am certainly pleased that Governor Yellen now at least sees some signs on the horizon of a recovery in housing.

On the second, what is the magnitude of drag from potential fiscal and euro shocks? While I think there is a question of the magnitude, for me, the other question is the timing of when these headwinds finally dissipate. I think that if you go back and look at forecasts over the last couple of years, and you read the narrative, a lot of the forecast misses have to do with assumptions about when these headwinds would be reduced, much more so than they do about policy or the efficacy of any policy we employed. Even in the current Tealbook, the narrative assumes that the Europeans figure it out in another year or 18 months, and then the sun comes out. I don’t know whether that is going to happen.

As to the third question, whether household spending and saving patterns have changed fundamentally, I am not sure that is the case, but I do believe that access to credit has been changed fundamentally by the regulatory response to the crisis, particularly with credit cards, home equity, and mortgages. I don’t think that is something that is going to change. And I don’t, frankly, have an opinion on structural damage, so that’s the end of that piece.

As to the consensus forecast, I wouldn’t necessarily take exception to the baseline forecast, but I would lean closer to the lower values in the second half of this year that are in the baseline forecast of the Tealbook. The reports from the banks are that there is a lot of caution out there, and the reasons vary from stresses in Europe to China slowing to the fiscal collapse. But, regardless, there seems to be a growing reluctance on the part of businesses to make any long-term decisions until after the election, which to me seems to make sense. Certainly, our own forecasts are heavily dependent on assumptions about fiscal actions. And although David Wilcox talks about the tyranny of having to write something down, all we really need to do is assume a dollar value. For most businesses, the relevant assumptions are some very specific choices about tax rates, tax deductions, spending categories, specific programs, et cetera. So I am beginning to believe that the effect of everyone hitting the pause button until after the election will slow the economy even more than the fundamentals might suggest through the end of this year. More broadly, when I think about the evolution of forecasts over the last several Tealbooks—and as I just said—the timing of when underlying economic growth starts to show through to better results seems to depend importantly on judgments about the resolution of problems in Europe. And I'm at a loss as to when and how they will resolve, so I think the Tealbook assumptions are as good as any.

On a more positive note, signals of improvement in the real estate market are more widespread. I wouldn't call the improvement strong yet, but it seems to me likely to be sustainable. In my conversations with bankers, those who were in markets or had business models that were more heavily influenced by real estate activity were the most upbeat. And those who were focused more on manufacturing or agriculture were more cautious. Loan growth and demand is still centered in C&I lending to large companies and auto lending to consumers. Still, several bankers cautioned that even this demand seems to be flattening recently. Banks with mortgage origination businesses reported record volumes and earnings with refinance volumes dominating. For these banks, mortgage revenues are helping to offset the steady decline in interest margins. For all banks, asset yields are steadily coming down as maturing assets are replaced at lower rates, and deposit costs are down to remarkably low levels as CD portfolios shrink and funds move to money market or transaction accounts. Indeed, the total cost of funding for the industry, which includes deposits and wholesale funding, is down to 58 basis points. One very large bank reported deposit costs of 19 basis points.

While the level to which banks have been able to push down their deposit costs is encouraging, it also raises some caution flags. First, there is not much room to lower deposit costs much further. And, second, while banks still consider most of these to be stable core deposits, the bunching up into overnight accounts indicates that they may be poised for flight—into CDs, into investments, a change of banks, under the mattress. It's really hard to tell. Right now, banks are also looking to expense reduction to offset these lower margins. After interest, the largest bank expense category is people, so this means reducing head counts. Larger banks with bigger footprints are looking at ways to move jobs from high labor cost markets into lower-cost locations. In addition, many banks are trimming branch networks and reevaluating their products and their business lines.

All of this is to say that I don't see much change in the outlook since our last meeting, except for a more pronounced damping of activity in the second half of this year as businesses wait for clarity. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. My outlook for the economy hasn't changed much since the last time we met. I've been concerned for several months that the pace of consumer spending wasn't sustainable. So the bad news we received on that front—that PCE growth slowed considerably in the second quarter—wasn't particularly surprising to me. In my view, the economy will continue to be characterized by unacceptably high unemployment and below 2 percent inflation for quite some time. Because my views about the most-likely outcome for economic activity haven't changed much, in my remarks today I'd like to mention some slow-moving forces that could continue to hold back growth.

First, the economy as looked at from the perspective of real GDP is weak. Of course, real GDP growth bounces around from quarter to quarter, so I wouldn't want to take too much signal from it. But an alternative indicator of the state of demand is private domestic final sales. This measure strips out government spending, net exports, and inventories, not because they aren't important components of spending, but because they can be pretty noisy and misleading. Unlike the relative bounciness of real GDP quarter to quarter, the growth of private domestic final sales shows quite a bit of persistence from quarter to quarter. Significantly, this measure slowed appreciably in the second quarter, falling to its lowest growth rate in nearly two years. To me, this doesn't bode well for the state of the recovery. With demand rising this slowly, businesses might start to find themselves with an unwanted accumulation of inventories and need to pare back production. At the same time, weak demand for their products will likely make them even more reluctant to hire and expand capacity than they already seem to be. Typically it is just these kinds of dynamics that bring on recessions, and once this negative cycle gets under way, of course, we get slowing incomes and even weaker demand. The slow pace of growth in demand in the second quarter seems dangerously close to the growth rates we often see as the economy stalls out just before it turns down. I consider this outcome to be a quite salient risk to my baseline projection. If the economy did tip into a recession, it probably wouldn't turn into a particularly deep recession because we don't seem to have the same kinds of imbalances and overbuilding that we often do before a deep downturn. However, with the unemployment rate still above 8 percent, any nontrivial weakening of the economy would obviously be devastating. Moreover, if we're vulnerable to stalling out right now, it seems pretty unlikely we could weather any negative shocks, such as a fiscal cliff or more weakness from Europe.

Of course, in the baseline forecasts of most of this Committee we're expecting some controlled acceleration over the next couple years. I am not sure exactly what the source of such momentum would be, but it seems likely that once the uncertainties hanging over our heads right now dissipate, there will be some modest improvement in economic growth. In that case, the positive momentum, which is just the reverse of the story I just described, might take hold. But in my view, the acceleration is doomed to be very gradual and subpar because I think there are slow-moving forces in our economy that will continue to keep momentum from developing. I think of these forces as more persistent than temporary headwinds, more as elements that require significant attention by particular groups of policymakers to mitigate. One example of a slow-moving force is the pace of reform in Europe, which of course, we've been discussing for years. Another is the existence of deteriorating state and local government finances. In addition to the cuts in spending and jobs that have resulted from cyclically low tax revenues, many cities and counties increasingly are finding themselves in the midst of some stresses that have been brewing for years. These stresses include soaring pension, Medicaid, and retiree health-care costs. Indeed, a number of big, local government entities have declared bankruptcy.

To conclude, we seem to be at a point where the potential for significantly enhanced economic growth in the quarters and even years ahead is limited and doubtful. Moreover, in my view, remaining at such a low level of growth exposes the economy to further setbacks. Thank you.

CHAIRMAN BERNANKE. Thank you. Governor Stein.

MR. STEIN. Thank you, Mr. Chairman. I'm coming to appreciate the challenges of my place in the rotation in terms of being able to say anything blindingly novel about the outlook at this point in the discussion.

MR. POWELL. Tell me about it! [Laughter]

MR. STEIN. Let me just say that I'm quite close to the consensus forecast that you put forward, albeit maybe a tenth more optimistic on GDP growth for 2013–2014. But either way, I think Governor Duke put it just right—it's pretty cruddy.

Let me instead say a few words about the state of play in credit markets and what we might be able to infer about the effects of our policies to date. To frame a specific question, what do we know about how credit risk is being priced right now? Clearly, one of the things we're trying to do with LSAPs, the MEP, and accommodative policy more generally is to put downward pressure on credit risk premiums. At the same time there is implicit in this some kind of Goldilocks notion that presumably we don't want to go too far, and therefore you want to know where we are. So where do we stand? A simple first cut is to look at credit spreads. Now, if you look at credit spreads, I would say they seem relatively unremarkable, and if anything, somewhat above the typical values that we saw before the crisis. I pulled some data from the St. Louis Fed's website. For example, if you look at the spread on the AA-rated to Treasuries, the data show that the spread is 114 basis points versus a pre-crisis norm of 63 basis points, where by "pre-crisis" I'm using 2002 to 2006. Similarly, if you look at sort of deep junk, the B-rated spread is currently 617 basis points versus a pre-crisis norm of 456—again you would characterize it as sort of on the high side. These data certainly wouldn't make you think there's a lot of reaching for risk, and it would instead, if anything, make you wish you could push a little bit harder to narrow those spreads.

But the main point that I wanted to make here is that I think you need to be a little bit careful in interpreting credit spreads because they cobble together three distinct factors. First, there's just actuarial expected default risk, that is to say independent of investor appetite or willingness to bear risk; if the world gets more uncertain as everybody has talked about, that's going to tend to widen spreads, but it doesn't mean higher returns for investors. Second is really the credit risk premium. That's the item of interest that we'd like to understand and that corresponds in some sense to investors' net expected return, net of defaults or downgrades. Third, and potentially relevant in the current environment, is what you might call the safe-haven or "moneyness" effect in Treasuries. That is to say that if there is powerful safe-haven demand and a scarcity of Treasuries, Treasuries are going to appreciate; there will be downward pressure on Treasury yields. That will give the appearance of heightened credit spreads, but not due to credit, but due to demand for safe assets. In other words, the safe-haven and the reaching-for-risk effects may be pulling in opposite directions, making credit spreads harder to read, at least naively.

How do you think about disentangling these three things? One thing that I fooled around with is to look at the historical relationship between, say, B-rated spreads and AA-rated spreads and to ask to what extent current spreads are deviating from that relationship. The idea I had in mind is that the AA-rated spread is in a relative sense more likely to be informative about the safe-haven stuff because credit risk is minimal. So variation due to the credit risk piece should be smaller, whereas of course the B-rated spread should be more likely dominated by credit risk. But here's a curious fact. Although both of these spreads are high in absolute terms, given their relative historical relationship to one another and given where AA-rated spreads are now, B-rated spreads look anomalously low. I did a regression—my most advanced piece of empirical work in my life. [Laughter] If you take the regression, and then you take the historical relationship and you plug in what we know about AA-rated spreads, it predicts that the B-rated spread should be 900 and some basis points. In other words, it is 300 basis points surprisingly to the low side.

You can just turn that statement around and say that the AA-rated spread is curiously high. That is to say it is 40 basis points higher than you would expect given your knowledge of the B-rated spread.

There are two logical possibilities. Either there's an abnormal safe-haven premium in the AA-rated spread or there's an abnormally compressed credit risk premium in the B-rated spread or, quite likely, some of both. To parse further, one thing you could do is to look at data on issuance volume. Consistent with what I'm claiming are the relatively attractive terms on the low-grade bonds, the fraction of nonfinancial public bond issues that have been junk bond issues has been on the high side lately, not extraordinarily so, but on the high side. For example, for the three months ending in May 2012, the high-yield share of bond issues, the share that were junk, was 43 percent, whereas the norm since 1983 has been about 32 percent. So it's about 1 standard deviation on the high side. Just as a benchmark, the average value during the credit boom period, 2004–2006, was also in the 40s. I don't want to overstate this—the series has been choppy, and in the last few weeks it has fallen off a little bit—but basically there's been relatively healthy issuance of junk bonds.

Now, a very interesting fact—and this is due to a couple of my colleagues, Robin Greenwood and Sam Hanson—is that if you want a forward-looking measure of credit risk, that is to say, if you want a model that forecasts how you will do as an investor in low-grade credit, the best forecasting variable is not credit spreads, but it's this issuance measure. You can forecast how junk bonds will do by looking at the share of bond issues that are junk bonds. The firms are market timers; when there is a lot of demand and a lot of appetite for credit, you'll see a lot of issuance of lower-grade credit. Moreover, the magnitude of this effect is such that if you plug in the current values of the high-yield share, you get estimates—and of course, these are noisy, big standard errors—that for a junk bond investor, the expected return over Treasuries over the next three years is on the order of minus 1 percent a year. This forward-looking measure—and it's consistent with my other little exercise—is low, though of course, again, there are many caveats.

What does this all mean? In terms of the overall financial market conditions facing firms, and especially lower-credit-quality firms, it suggests that things are somewhat more accommodative than you might get out of just the simplest credit spread measures. Now, to be clear, I view this as a good thing at this point. It's an indication that at least the first leg of our policy proposition is working. In other words, we've been trying to push spreads down, and I think we're closer in some sense to the Goldilocks point than we might think. Of course, it is silent on whether these lower spreads have been successful, as President Fisher was talking about, in creating more investment. That's a different question that can't be answered with these data. I will say that going forward, one wants to monitor this. If you think you're almost at the Goldilocks point now and if this kind of exercise was to lead you to a significantly more negative view, you might want to think about it from a financial stability perspective. This is an appeal as we go forward, and especially if we find ourselves doing another LSAP, to be attentive to these sorts of quantity-based measures because, especially as we buy more Treasuries, we're going to naturally tend to make credit spreads look big because we're going to be pulling down on Treasury yields. Going forward, there's a chance we'll not really get much information from conventional credit spreads. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Powell.

MR. POWELL. Thank you, Mr. Chairman. I will make just a couple of comments on Governor Tarullo's five propositions and four questions, which I found to be enormously useful.

Quickly, I agree the economy is "stuck in the mud," and I see it as continuing to try to get out, but being turned back because it's so vulnerable to shocks. In my model I'm not impressed particularly by evidence and arguments that there's a lot of structural damage. I see the economy as capable of returning to above-trend growth and closing the gap over a period of two or three years. But for me the euro-crisis cycle is big and, therefore, I might disagree as well with your answer to question number two. The timing seems to me to line up pretty well with our repeated attempts and failed attempts to reach escape velocity, and therefore, I disagree with proposition five, which is the proposition that a little bit of good data wouldn't impress. Maybe I'm just new enough to put some stock in a lifting of the gloom around Europe and a few months of good data.

Moving on to my comments, I see the economy's performance since the last meeting as having been a little bit weaker on balance than expectations, with a handful of positives, mainly housing and autos, and a greater number of negatives, including government spending, household spending, and significantly weakness in the industrial sector. I see the employment sector, the June employment report and the six unemployment claims reports, as being slightly lower but broadly consistent with the lower end of expectations. In fact, if I look across the whole range of data since the last meeting, I see an economy performing at the lower end of the range of expectations as they stood on June 20. Taking that in, I see the likely path for activity for the rest of 2012 to be a bit stronger than the amended Tealbook and pretty much in keeping with the proposed consensus forecast. That means continued slow growth, around 2 percent, which I expect will strengthen as the year goes on despite the likelihood of periodic shocks from Europe, Washington D.C., and maybe the Middle East. I note that neither the Tealbook nor the consensus forecast materially reduced their medium-term forecasts, and I think that's the right approach. I continue to see U.S. inflation, at 1.8 percent, as low and under control. I see us as running just below 2 percent, but I wouldn't characterize that as missing the mandate.

While the broader economy is moving along with moderate economic growth, that is not the case in the industrial sector. My contacts in the industrial sector anecdotally confirm what many around the table have said and the Tealbook suggested—that the weak numbers are not just due to special factors, but rather to a fundamental weakening in conditions. Since our previous meeting a substantial number of industrial companies, about 10 of which I have spoken to, have experienced or publicly reported further weakening in June and July. Forecasts for growth and profitability have come down for some. Forward-looking indicators for the sector point to continued weakness. I should point out that there is very little light vehicle manufacturing in my sample, so that's a positive that's missing. Also the companies that I talked to that are in housing are feeling real strength there. When industrial companies see themselves missing plan, they take cost actions to protect profitability, and that means hiring freezes and layoffs. You see a number of announcements around the second-quarter end to that effect, and that trend will certainly strengthen if the poor indicators going forward prove accurate. So far, there's no sign of it in the claims data, but at a minimum, this sector seems unlikely to be a source of job growth for the time being. Uncertainty comes up in every conversation, and it revolves around the direction of the economy and Europe. In my small sample, there's less discussion of the fiscal cliff except for companies with defense exposure. That could change easily as the year goes on.

Investors that I speak to are also very conservatively positioned—to generalize, they are long the dollar, long fixed income, underweight or short equities and short most commodities. They report low liquidity and little conviction in the markets, a very tough environment. Rather than be chased by low rates into taking more risk, some are happy to stay in cash. Again, uncertainty about the economy, Europe, and the fiscal cliff come up a great deal. Intermeeting events caused one investor to volunteer that he saw a 50-50 chance of an attack on Iran by the end of the year, and that was before the recent visit to Israel by one of the presidential candidates and related comments. So that risk may be working its way back onto the list and into energy prices.

In conclusion, I see things as broadly consistent with the picture at the time of our previous meeting, although modestly weaker, and I think that the next couple of months will be important in clarifying the direction of the economy and the question of whether the Committee should do more. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you very much. Thank you all. This will be a good time to adjourn. I'll start tomorrow morning at 9:00 a.m. with my summary. There are drinks and dinner options on the terrace. See you in the morning.

[Meeting recessed]

August 1 Session

CHAIRMAN BERNANKE. Good morning, everybody.

ALL. Good morning.

CHAIRMAN BERNANKE. Everybody had a good rest?

MR. LACKER. No. [Laughter]

CHAIRMAN BERNANKE. Let me start with a summary of our discussion from yesterday, and then I'll add a few comments of my own. The economy has decelerated in recent months and was characterized by some as "stuck in the mud." Slow growth can put the economy close to stall speed, making it more vulnerable to shocks or even recession. Private domestic final sales, which tend to be more inertial, have slowed appreciably lately. On the other hand, one participant noted that the slowdown is reminiscent of what happened this time last year and that factors such as the strength in autos, the housing recovery, and a possible reduction in uncertainty could lead to stronger growth. The next couple of months could be informative in this regard. Others noted that they had not marked down their medium-term forecast by much. There are important downside risks to economic growth, including the European situation; U.S. fiscal issues, such as the fiscal cliff; and possibly Middle East developments. Ironically, with weakness spreading in the global economy, including China as well as Europe, the U.S. economy looks relatively attractive. Inflation appears stable.

In the household sector, the data suggest that consumer spending has slowed. Consumers are using debt to buy necessities. Households have made progress in deleveraging but have further to go. Cutting through weather and seasonal issues, the June labor market report was disappointing, and slow growth in wage income is restraining household spending. Progress in reducing unemployment looks likely to be quite slow given modest economic growth. Housing continues to improve, with sales and construction up. Low mortgage rates are helping. Prices are up, though artificially low inventories in cities with lots of negative equity may explain part of the rise. Higher home prices won't raise the consumer spending of people who are underwater on their mortgages. LTVs are well above pre-crisis norms and will require a while to return to those levels.

A key question is whether there has been structural damage that is reducing the economy's potential growth rate. If so, much of the output lost during the crisis may never be regained. The alternative view is that we are seeing the effects of pervasively weak aggregate demand punctuated by short periods of faster economic growth. Participants debated the question of how much slack there is. One issue is whether duration dependence in the probability of finding a job is due to unobserved heterogeneity in skills. If so, labor market slack may be less than it appears. The behavior of wages and prices was argued as evidence both that slack is important, because wage and price inflation is very soft, and that it is not important, because inflation has not fallen by more. In particular, over time, output forecasts have been downgraded while inflation forecasts have been marked up.

Businesses have reverted to cautious behavior, given the range of uncertainties in the outlook and the limited visibility about matters ranging from Europe to the fiscal cliff to tax and regulatory matters. Cap-ex and hiring plans are being pared back. Firms are still restructuring to improve efficiency when they can, however. In principle, even the possibility that uncertainty will be resolved in the near term can lead people to put off decisions. The industrial sector is generally weaker, with the important exception of autos. Export demand is down. The energy sector is doing well, and low natural gas prices will spark investment in related industries. The drought has hurt agriculture, though farmers' income may be protected by higher prices and crop insurance.

In the financial sector, the European news has been whipsawing markets. European policymakers have taken some steps to address the situation, but key trends, such as sovereign bond yields, point to steadily worsening conditions. Spain and Italy may be "too big to save," and the ECB's options are limited. Political factors make the search for a solution very difficult, and projecting the course of the crisis is hard both for the private sector and for policymakers. U.S. banks are becoming stronger, better capitalized, and more liquid. They are seeing more mortgage business, both refis and purchases, and have healthy C&I lending, especially to larger firms. CRE conditions are still only fair to poor, however, and net interest margins are falling as assets mature. Credit spreads remain above pre-crisis norms that are consistent with fairly accommodative policy. Spreads are also increased by safe-haven demands for Treasuries. Investors are conservatively positioned, but it was suggested that financial stresses remain generally less than last year.

Regarding inflation, the data have come in more or less as expected, and inflation is stable at or slightly below target. No disinflation like that of 2009 or 2010 is expected. Businesses report less pressure on input prices and no change in wage plans. Oil prices have risen a bit. The drought will raise food prices, though the effect on overall inflation will be modest. Although near-term inflation looks tame, the size of the Fed's balance sheet is a longer-term inflation risk. Any comments or questions?

MR. PLOSSER. Mr. Chairman, I have one question—could you explain your use, earlier in your remarks, of the phrase "households are using debt to finance necessities?"

CHAIRMAN BERNANKE. Someone made that comment, I thought.

MR. PLOSSER. Given that consumption was down and savings were up, I was trying to square that phrase with the data showing that saving rates are rising.

CHAIRMAN BERNANKE. Whoever made the comment can jump in if they want, but I take it to mean that some consumers, the ones who are more financially stressed, are doing that, not that it's an average.

MR. PLOSSER. Not an aggregate statement. You may want to qualify that, the way you put it.

CHAIRMAN BERNANKE. Okay. Well, this conversation, I think, will be viewed as a qualification.

Let me talk a little bit about my own views. I want to come back to the debate from yesterday about slack and inflation, and I'll try to make the prepared part of my remarks relatively quick. I would take note that the NIPA revisions were obviously less of a shock than last year, but they did in fact move economic growth in both 2010 and 2011 closer to 2 percent, and so we have a very consistent pattern of about 2 percent growth through this entire recovery. Of course, the problem is that 2 percent growth is just simply not enough to give us significant improvement in the labor market or to provide protection against adverse shocks, and the recovery continues to be, I think, in somewhat fragile condition. Now, a question is, why is the recovery so weak? To get a little bit of insight on this question, I made some use of work by the staff—Greg Howard, Robert Martin, and Beth Anne Wilson, who have a paper that analyzes recoveries from banking and financial crises. The part of the paper that I used to look at this issue was their series of spider charts that compares typical cyclical patterns in a wide variety of variables both against previous postwar U.S. cycles and against the average of banking and financial crisis recessions from other countries.

Looking at those comparisons, while a few things were obvious, I thought a couple of the comparisons were interesting. Unsurprisingly, relative particularly to other U.S. postwar recessions, housing and mortgage credit have been important drags. Housing is now, of course, a positive contributor to economic growth, but it's still less than normal in a recovery, and therefore is still one of the reasons for slow growth. I thought more interesting was the fact that spending on consumer durables and nonresidential investment both seem to be behaving more or less normally compared both with previous business cycles and with other financial crisis cycles. Indeed, arguably, durables purchases are increasing more strongly than might be expected, which I take to be at least a little bit inconsistent with the view that pervasive uncertainty is the dominant factor. If people are willing to make investments and are willing to buy consumer durables, that at least suggests some willingness to make commitments. Of course, stock adjustment may be a factor as well. Likewise, broader consumption spending also seems to be relatively normal, given the slow pace of the recovery. Now, that's a bit of a tricky statement because, of course, consumption is such a big part of the economy that, obviously, it can't diverge by too much, but I still find that interesting. The one exception is consumption of services, which is slower than normal. But with further investigation, it turns out that a lot of that difference is because of slow growth in housing services and financial services, which is certainly understandable. So consumer behavior also looks relatively normal.

I thought the most interesting finding that came out of these comparisons was the role of fiscal policy in this recovery. What really sticks out in the spider charts is how weak government spending and government transfers are in this recovery compared with all of the references. To give some numbers, government consumption and investment—both federal and state and local—have averaged declines at an annual rate of about 2.3 percent for the past two years. And for the federal government alone, the contraction has been going on for about six quarters at almost a 3 percent pace. If you do the simple math, it comes to a negative of about ½ percentage point on economic growth being the result of unusually tight federal, state, and local fiscal policy; I think that is an interesting finding.

On the external sector, I got less clear results from looking at their work, and I should say that they're not in any way implicated in any of what I'm saying here. Exports are growing close to normal, but foreign advanced economies are clearly weaker than they are in a normal recovery. Here I would refer you to the interesting presentation at the last FOMC meeting where the staff tried to estimate the effects of the European crisis on growth and came up with something on the order of 1 percentage point. All told, if you put together the European crisis, fiscal restraint, and maybe a little something for housing, you can easily account for something like 1½ percentage points, maybe a little more, of economic growth. And the difference between 2 and 3½ clearly is very substantial and helps explain at least part of the reason why this recovery is so unsatisfactory.

Let me jump from that now to the question of slack that has been so central to many of our discussions in the last few meetings. Just to give my own bias, which I'm sure everybody is familiar with, I do believe that insufficient aggregate demand is an important reason—not the only reason, but an important reason—for why the economy is growing so slowly. And I think it's interesting that when we go around the table and ask people for their explanations of why economic growth is slow, most of the factors cited are aggregate demand factors. For example, uncertainty and lack of confidence are basically aggregate demand determinants, not aggregate supply determinants. Fiscal factors, as I mentioned, are important; that's an aggregate demand factor. Europe appears to be affecting us not only through exports, but also through risk aversion, stock prices, investment decisions, and the like; I would interpret that as primarily aggregate demand. And I would interpret the weakness in housing coming from credit constraints and the end of the bubble as affecting output not entirely, but primarily, through aggregate demand. So it seems that when we try to identify the specific factors, aggregate demand is a big part of the story. I think it's important to recognize, if you think about what determines aggregate supply, that the best analysis we have of that is the Solow growth model. And the Solow growth model tells us that basically there are two factors that determine aggregate supply. One is technological change—and I haven't heard anybody say that technological change has been permanently altered—and the other is the growth in the labor force. Now, it's true that there have been declining participation rates, but that has been incorporated into the Tealbook analysis and doesn't really change the basic result that output is below potential. Again, I think if we look at the factors that people are citing as important, aggregate demand factors are certainly part of the story.

At this point, I should acknowledge that there are certainly results in the literature suggesting that financial crises are often followed by permanent loss of output—that is, you could think of it as a parallel shift down in the growth path that never fully recovers the loss of output. And indeed, the Howard et al. paper that I referenced earlier has a conclusion something like that. But I think what makes me skeptical that a permanent loss of output is the whole story comes from looking at what we call the unemployment gap—the difference between the current unemployment rate and what we think is the sustainable rate of unemployment—instead of looking at potential output. In order to argue that this is completely an aggregate supply story, you have to explain why the sustainable rate of unemployment suddenly jumped from 5 percent to 8 percent. And I don't think there's any plausible story about labor markets that can explain that. In particular, there have been many studies on this issue, and many factors have been examined, including the weakness of the job market for new graduates, patterns of skill mismatches, geographic mobility, and so on. And I think it's fair to say that a very substantial part, if not the majority, of the studies that have looked at this would conclude that a considerable part of the increase in unemployment is cyclical in nature. I don't claim any more from that than to say that we certainly don't have strong evidence that it's purely structural; I think there's still a lot of uncertainty about that. But again, it would be very unusual for the sustainable unemployment rate to jump by 3 percentage points without any obvious cause.

Now, there was an interesting discussion yesterday about the inflation data and what implications they have for the measurement of slack. And here I think that inflation is a useful datum in this discussion, but it's hardly dispositive about the degree of slack. I would note some historical examples. From 1934 to 1939, inflation averaged 1.5 percent. From 1940 to 1941, the unemployment rate fell by 12 percentage points as the war geared up. Japan has had persistent inflation close to zero or a little bit below zero; it seems impervious to gaps. So it does seem to be the case that inflation can be difficult to explain, particularly close to zero. Moreover, in general, inflation has many determinants. We've talked a lot about the effects of well-anchored inflation expectations, but in the last few years we've also seen some very big swings in commodity prices, which in turn are influenced by global conditions. And those commodity prices have, to some extent, gotten into core and account for at least some of the movement in inflation. I think inflation is a useful thing to look at, but because many factors affect inflation and because there are many puzzles and gaps in our understanding of inflation, I don't think it's, again, dispositive.

I would also note that there's been a little bit of a flip in the argument here. A few years ago, some folks around the table were arguing that the amount of slack in the economy was not going to protect us against inflation and were citing work like Atkeson and Ohanian, which says that there's very little relationship between the output gap and inflation. And now the argument seems to go the other way; people are claiming that there must be a very strong relationship—which would imply that inflation should be falling now—or, alternatively, that if we were to be more expansionary, we would get an inflation problem. I think we've got to agree on what we think the coefficient is in the Phillips curve.

To summarize, I want to recognize that there's a great deal of uncertainty here, a great deal of uncertainty. And I guess my last comment would be that I hope, as we think about policy in the next round, that we take an appropriately humble but also probabilistically based—Bayesian, if you will—approach to our policy thinking. In particular, while we should be taking into account the uncertainty that we have, we should also be considering the costs not only of action but also of non-action, the costs of being right and the benefits of being right, and the costs of being wrong. And of course, that's a parallel calculation. The one observation I would make is that if you do believe that 8 percent unemployment is far from the sustainable level, and that inflation is close to target, the usual objective function would suggest that the marginal cost of more unemployment is much higher than the marginal cost of more inflation, and that should enter into your thinking as you make that calculation. I'll stop there. Any questions or comments? President Bullard.

MR. BULLARD. Mr. Chairman, modern monetary theory is based on sticky prices. And I think one of the things that we've talked about around the table, maybe at cross-purposes, is that if a big shock hits the economy and prices are flexible, unemployment is going to go up and output is going to go down. But because prices are sticky, you're going to get a little bit different reaction on those variables than you would otherwise get, and according to the theories I know, it's that gap that's supposed to be the important one for monetary policy. We don't seem to want to do that. I don't understand why we don't want to do that.

CHAIRMAN BERNANKE. Do what?

MR. BULLARD. Look at that gap, analyze that gap, use modern macro theory to make our policy decisions.

CHAIRMAN BERNANKE. What would we look at to make that decision?

MR. BULLARD. It's the gap between where you think the economy would be under flexible prices and where you think the economy is under sticky prices. If there was no gap of that sort, according to the theories we like to cite, there would be no rationale for what we're doing.

CHAIRMAN BERNANKE. Well, I'd welcome an analysis that tried to put that together. I think the historical evidence is that there's a pretty smooth component in unemployment. It does, obviously, vary over short periods, but in the medium term it tends to come back to a relatively smooth trend. And it's not clear what's different in this case from those cases.

MR. BULLARD. I think we flip between sometimes using the arguments that come out of Woodford and his coauthors, which are based on what I'm talking about, and sometimes going to just straight empirical evidence that might be kind of distant from what that theory is talking about. And that creates confusion around the table.

CHAIRMAN BERNANKE. I think it boils down to asking the question of whether, given that the recession started almost five years ago, there are identifiable reasons why mismatch or other such issues are persisting. Again, my sense of the research that's been done is that most of it—not all of it, but most of it—finds that that gap, or a reasonable approximation of that gap, is still pretty big. President Evans.

MR. EVANS. Could I just say that, as I listen to this discussion, I don't think there's a tremendous disagreement between the two of you on this. Mr. Chairman, you cited Solow growth, where you had the opinion, which I agree with, that technology explanations for reductions in potential output are unlikely to be very large. Labor issues could be a part of that. But the construct that President Bullard is talking about in terms of output in the flexible-price economy is roughly going to be related to precisely those same issues when the economy is well functioning. And then in the sticky price economy, there are going to be impediments to achieving that. That's what the gap is about. Empirically, I agree with you that it seems to be very slow in adjusting. The real question is, why is the slope of the Phillips curve as flat as it is? Or why is inflation determination in these models, or any economic analysis we look at, heavily dependent on intercept terms like inflation expectations? Those are the kinds of puzzles that you're talking about, which I think have challenged everybody's explanations. But I don't really see a lot of disagreement between the two of your explanations. All of those things are fundamental in our own DSGE analysis in the Chicago Fed model, and they're explained in the context of that theory.

CHAIRMAN BERNANKE. Did you have something, David, on this point?

MR. WILCOX. Yes. I just thought I'd offer that we inspect a variety of tools, both statistical and more theory based. One of the pieces of evidence that we look to is evidence on shifts in the matching function, which is based on research by Andrew Figura and Regis Barnichon. That shows an increase in the NAIRU of 1 percentage point or a little more. Another statistical framework that we use is a state-based model due to Charles Fleischman and

John Roberts, and that yields estimates that are broadly similar to what we have built into the staff forecast. We do have, and carefully maintain and invest a lot of resources in, a DSGE model. And so I thought, to be response, Michael Kiley could just say a word about what that DSGE model shows because it is based in the sort of optimizing framework that President Bullard is referring to and it's among the stable of pieces of evidence that we look to.

CHAIRMAN BERNANKE. Michael?

MR. KILEY. We maintain a dynamic stochastic general equilibrium model with sticky prices and sticky wages and a number of financial frictions. That model has a particular model of the labor market that does include unemployment, and so there is a natural rate of unemployment that corresponds to the flexible price natural rate. When we look at that, it's really quite smooth, consistent with other research like that of Galí, Smets, and Wouters, where it looks like the natural rate of unemployment is quite smooth, and you can attribute most of the fluctuations in the unemployment rate within a DSGE framework to fluctuations in "aggregate demand," although within the DSGE framework, people don't use that kind of language very often. I would also note that in a framework like that, it's exactly true that when there are only sticky prices and wages and not much dynamics and not too much capital, the social welfare function basically has in it the output gap that President Bullard described. In a more complicated world, though, other factors may be involved. For example, our DSGE model takes into account the fact that there are different sectors of production, that the prices in different sectors might be different, that there might be different wages and different wage adjustment processes in those different sectors, and that there may be financial frictions. In all of those distortions, the world is just not the same as one in which welfare is maximized simply by closing the output gap. For example, research at the Cleveland Fed shows that you want to take into account impediments in the credit system—that those lower welfare and those enter the social welfare function. So I do think that the analysis we have—and it's only one model; other models would provide different answers—is perfectly consistent with the view that a modern macro model would have a reasonable unemployment gap in it. And that theory is consistent with the view that, like you do around the table, you want to take into account many factors in thinking about how to achieve social welfare.

CHAIRMAN BERNANKE. Thank you. Any other questions? [No response] Okay. Well, I guess that sets us up for the policy discussion, and I'll turn it over to Bill English.

MR. ENGLISH.[6] Thank you, Mr. Chairman. I'll be referring to the handout labeled "Material for FOMC Briefing on Monetary Policy Alternatives," which includes the small changes to the statement language that we distributed yesterday.

The first page of the handout draws on the material the Chairman referred to yesterday to illustrate a couple of different policy paths. The black lines in the charts indicate the experimental consensus forecast, which is based on a path for policy roughly consistent with alternative B. The top-left panel shows the funds rate path, with liftoff in late 2014. And the charts at the bottom trace out the associated unemployment and inflation rates over the next several years. As was noted, this combination of unemployment and inflation trajectories could be seen as difficult to square with the dual mandate.

The red dashed lines in the charts show the results of simulations based on a more accommodative policy, as in alternative A, with liftoff delayed until mid-2015 and the addition of a $1 trillion LSAP program (shown in the balance sheet data at the top right). This policy change results in a more rapid economic recovery, with the unemployment rate falling to about 7¼ percent by the end of 2014, about one-third of 1 percentage point below the black line, while the inflation rate is a bit higher but remains near your 2 percent longer-run objective. Moreover, as Simon discussed yesterday, the staff memo on market functioning and limits on asset purchases indicated that the Desk should be able to implement an LSAP program of this size and pace without significant effects on market functioning, and that doing so would still leave considerable room for providing additional accommodation if that were to become appropriate.

However, Committee members may be hesitant to make such a policy change at this meeting for several reasons. First, having just eased the stance of policy six weeks ago, you might prefer to wait for additional information about the effects of

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

that move and the likely trajectory of the economy before taking additional steps. Second, you may be concerned about the efficacy of further LSAPs. And third, you may see the possibility of significant associated costs and risks.

If you wanted to take more time to assess the prospects for an improvement in the economic outlook and to weigh the possible benefits and costs of alternative policies before deciding on your next move, you might choose to leave policy unchanged at this meeting but use the language in the statement to indicate that additional easing might be appropriate before long, as in alternative B, on page 5. Compared with the June statement, the first paragraph of alternative B updates the description of the economy, and the second paragraph offers the option of mentioning the downside risks to the economic outlook associated with “issues relating to U.S. fiscal policy.” This latter change would be consistent with the Chairman’s monetary policy testimony, which put the risks posed by the European situation and the fiscal cliff on equal footing. However, some of you may think that it would be better to avoid commenting on such a contentious issue at this time.

Paragraph 3 gives the option of extending the forward guidance to mid-2015. With the passage of time since the late-2014 benchmark was set, and the lack of progress toward your policy objectives since then, some of you may see such an extension as a logical step. Additionally, if you saw the economic outlook as significantly weaker than at your last meeting or you wanted to indicate a more accommodative stance of policy, you might see such a shift as appropriate. However, some policymakers may think that such a change would be more effective if coupled with additional asset purchases, for if the date alone were changed, it might suggest that the Committee would be unwilling to take any stronger easing action. In addition, some of you might prefer to make such an adjustment in conjunction with an SEP in order to reinforce the change in the policy outlook. The fourth paragraph concludes with the sentence indicating significantly greater willingness to provide further accommodation than in June, consistent with the view that further easing could well be appropriate soon if the economic outlook does not improve.

Absent a change in the forward guidance, a policy decision along the lines of alternative B would be largely in line with the expectations of market participants. Although some might be disappointed by the lack of action at this meeting, the stronger wording regarding the Committee’s willingness to provide additional accommodation would likely lead investors to price in higher odds of a change in policy at the September meeting, most likely in the form of a new LSAP program. Effects in asset markets would likely be small: Longer-term interest rates might decline some, stock prices could rise, and the foreign exchange value of the dollar might move a little lower.

Alternative A, page 3, may appeal to those of you who see the benefits of further action at this meeting as outweighing the potential costs and risks.

The first and second paragraphs of alternative A are identical to those in alternative B. Paragraphs 3 and 3′ then provide two versions of a new asset purchase program. The “flow” version, in paragraph 3, announces that the Committee intends to make monthly purchases of $45 billion of longer-term Treasury securities and $30 billion of agency MBS until “it observes sustained improvement in labor market conditions” subject to the proviso that “projected medium-term inflation is close to its mandate-consistent level and longer-term inflation expectations remain stable.” This version notes that the Committee will regularly review its purchases “in light of the economic outlook and its ongoing assessments of the efficacy and costs of the program, and is prepared to make adjustments as appropriate.” Policymakers might prefer this incremental, open-ended approach if they believe that business and consumer confidence would receive bigger boosts from a signal that the Committee was prepared to make whatever purchases prove to be required to support a stronger economic recovery, so long as the benefits of such purchases outweigh the costs.

Paragraph 3′ provides a “stock” version of a purchase program, more along the lines of what you have done in the past, with purchases of $600 billion of Treasury securities and $400 billion of MBS by the end of the third quarter of next year. Because this style of program has several precedents, the statement retains a more standard sentence indicating that “the Committee will regularly review the size and composition of its balance sheet in light of the outlook for inflation and labor market conditions and is prepared to make adjustments as appropriate.” Policymakers might prefer this approach if they were concerned that the flow version could leave financial markets confused about the ultimate size of the program, and so diminish its effects. Both versions of paragraph 3 indicate that the previously announced MEP will be ended.

Paragraph 4 shifts the commencement of policy firming in the forward guidance to mid-2015 and changes the wording of the paragraph to put that decision in a more positive light by noting the Committee’s intention to maintain a highly accommodative stance for monetary policy as the economic recovery strengthens.

Policymakers favoring alternative A may also want to consider reducing the remuneration rate on reserve balances. In this case, the Board could release an accompanying statement announcing a reduction in the rate paid on required and excess balances to 15 basis points beginning with the start of the next maintenance period. The risks to the functioning of money markets that such a change might entail may appear smaller now that the ECB has cut its deposit rate to zero without apparent significant complications. However, you may feel that not enough time has passed since that change to allow for a definitive assessment.

An announcement along the lines of alternative A would prompt a sharp reaction in financial markets. The Desk’s survey indicates that primary dealers place only moderate odds on additional asset purchases or a reduction in the remuneration rate on required and excess reserves at this meeting. As a result, longer-term interest rates and the foreign exchange value of the dollar would likely fall, and equity prices would rise.

Policymakers who see limited benefits to policy accommodation and potentially significant risks and costs may prefer alternative C, page 6. These policymakers may see the recovery as proceeding and judge that the accommodative measures already in place are providing conditions for as strong a recovery as can be expected given the structural adjustments required in the wake of the financial crisis. Moreover, they may doubt that a new LSAP program or extension of the forward guidance would put much additional downward pressure on longer-term interest rates, and some may see any additions to the SOMA portfolio as complicating the exit process and increasing the risk of a run-up in inflation later on that might more than outweigh any near-term benefits from the purchases. Or they may be worried that more accommodation could undermine financial stability over time in ways that would be difficult to detect and address successfully by supervisory action.

The first paragraph under alternative C has a more positive tone, and the second paragraph suggests that inflation will run at "about" the rate judged consistent with the dual mandate, instead of "at or below" this rate, as in alternative B. There are two versions of paragraph 3: The first maintains the forward guidance from June, but with the option of moving the anticipated date of liftoff to "late 2013." The second version, labeled 3′, replaces the existing forward-guidance language, including the date, with language describing the factors that the Committee would consider in determining the appropriate time to raise the target federal funds rate. The fourth paragraph is similar to alternative B except that the final sentence suggests a more balanced outlook for policy.

Investors would be surprised by a statement along the lines of alternative C, particularly if the duration of the forward-guidance period was shortened or the date was dropped from the statement. Interest rates would likely rise, stock prices fall, and the foreign exchange value of the dollar increase.

Draft directives for each of the alternatives are presented on pages 8 through 11 of your handout. Thank you, Mr. Chairman. That completes my prepared remarks.

CHAIRMAN BERNANKE. Thank you. Questions for Bill? President Rosengren.

MR. ROSENGREN. I have a question on alternative A. We had some very good memos on market functioning, but I'd be curious to know your view of the effect of reversing the numbers between Treasuries and mortgages and to hear you quantify a little bit more what the market functioning argument would be, particularly if we're successful in bringing rates down and presumably there's more refinancing and other opportunities for dealing with the flow of mortgages. Could you talk a little bit about how those numbers were chosen and, if we reversed the numbers, what you view the costs of that to be?

MR. ENGLISH. I think the numbers were chosen to roughly match the total purchasable amounts that we found in the memo that showed the capacity for purchases, which showed that there was greater capacity on the Treasury side than on the MBS side. It seemed natural to have a purchase program that included a larger Treasury component than MBS component. But I think if you were buying $1 trillion and wanted to shift that more in the direction of MBS, it would be feasible.

MR. POTTER. The issue would just be the reinvestments as well. At 45 plus 25 to 30, that's getting—if you go to the Desk briefing from yesterday—quite high as a percentage of the gross issuance.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. You might also want to alter this proportion over time. The MBS flow might be pretty high at first as rates are pushed down, and then the MBS flow might be somewhat less later on. So is it fair to say that the optimal division might not be fixed over time, that you might want to shift it?

MR. ENGLISH. I think that's right. The idea was that these are the numbers you would be starting with, but over time, as issues arose with regard to market functioning or there were changes in the flow of new MBS or whatever, there would be the opportunity to make those adjustments.

MR. ROSENGREN. Just to follow up, I like the idea of having a little more flexibility between mortgages and Treasuries. If the constraint is the ultimate capacity—let's say if you're doing $1 trillion—would there be any reason not to start with more heavily weighting the mortgages at the outset and then, if there were issues that were cropping up, to reduce the amount of mortgages over time? Alternative A has fixed proportions over time, but would it be beneficial to have a more flexible program that focuses more on mortgages at the outset and then, as problems crop up, if they do crop up, to alter that allocation?

MR. ENGLISH. Certainly that would be feasible. I think it's up to the Committee, in some sense. I know there are some on the Committee who have strong feelings about buying MBS versus buying Treasuries, but I don't think there's a technical reason to not do that.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. I think there's an issue of what actually gives you the most bang for buck. On the one hand, you could argue that buying Treasuries gives you a bigger bang for buck because of the longer-duration asset. On the other hand, you could argue that agency MBS gives you more bang for buck because you're working on two margins—not just the level of long-term rates, but also the spread between mortgages and Treasuries—and it's more directly related to the housing market. I think there are two separate issues here. One, what's the magnitude of bang for buck for Treasuries versus agency MBS? And then, two, what are the capacity constraints, and how quickly do you run into the market functioning issues? My personal opinion—I was going to save this until my comments later, but I think it's probably germane to say it now—is that I would like the staff to do a little bit more work on these issues of what gives you the most bang for buck and what are the cost–benefit tradeoffs as you push further down in terms of the potential risks to market functioning. I look at the alternative A numbers as a little bit of a placeholder until we do some additional work that will allow us to have a deeper discussion about what that split should be and how much flexibility there should be as it evolves over time.

MR. ENGLISH. If I can add just one further complexity, it matters which Treasuries you're buying as well.

VICE CHAIRMAN DUDLEY. Yes, sure.

MR. ENGLISH. This, I think, came up yesterday. You can get potentially more bang for buck by buying longer Treasuries relative to buying more smoothly over the yield curve.

VICE CHAIRMAN DUDLEY. But then you run into market functioning issues in those issues faster.

MR. ENGLISH. Yes.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. May I follow up on that point? I just wanted Simon to clarify because, if I recall correctly, when we went through your exhibit 19 yesterday, the Chairman asked for clarification of the numbers. We would, at the end of this program, own 54 percent of the outstanding Treasuries between 3 and 30—is that correct?

MR. POTTER. That's our estimate including the MEP.

MR. FISHER. Yes.

CHAIRMAN BERNANKE. So that's the MEP plus the two-year program?

MR. POTTER. Yes. That's the way we did the calculation, yes.

MR. FISHER. But to go to Bill's point, between 6 and 30, would there be a higher concentration? And what would that concentration be?

MR. POTTER. Do you have the numbers?

MS. LOGAN. For which program?

MR. POTTER. The 6 to 30.

MS. LOGAN. The 1 trillion or the 2.6?

MR. FISHER. For both. Let's stick with the apples to apples, which is the two-year program first because that's what I asked about. I think we discussed this a little bit yesterday.

MS. LOGAN. I don't have the distribution of the two-year program for 2.6 with us.

MR. FISHER. And for the program under alternative A for both?

MR. ENGLISH. Okay. Under alternative A, we stop the MEP and we buy $1 trillion, and with that assumption, we get to about 35 percent of Treasuries over 3 years and a little over 40 percent beyond 10 years.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. Governor Duke.

MS. DUKE. I think it is important to maintain some flexibility about how this is structured between Treasuries and MBS because the gross issuance number may actually fluctuate a bit. There are some indications right now that the originators are at capacity, and there have been announcements that would indicate that some of those originators are further reducing capacity. At the same time, FHFA announced yesterday that Freddie is going to move toward more HARP refinancing. And then the third piece is, as the rates come down, you have some risk that the serial refinancers are the ones that are back using the available capacity, and these higher-rate HARP refinances get crowded out. So I think it makes sense to really pay attention to gross issuance and maintain that flexibility and move slowly.

CHAIRMAN BERNANKE. Governor Stein.

MR. STEIN. Yes, more on the same theme of being attentive to market spreads. Obviously, we want to worry about capacity, but to me, a situation in which the Desk's execution on an intraday basis is eroding would be much less troubling than, for example, one in which Treasuries seem to just detach from the rest of the curve. We might have plenty of liquidity in the market, but if we fool with just pulling Treasuries and not getting much pass-through to spreads—this is essentially consistent with what President Rosengren was saying—

we would want to start moving on the other spreads instead. It's a little harder to conceptualize and to measure, maybe, than the really narrow market functioning stuff, but I think it's ultimately more important from a macro kind of perspective.

MR. POTTER. That was Vice Chairman Dudley's point as well.

MR. STEIN. Yes.

CHAIRMAN BERNANKE. Governor Powell.

MR. POWELL. Further to what Vice Chairman Dudley was mentioning, I'd like to understand better how much of a bang for buck from buying MBS we think is in the housing market through lower rates and how much of it is just from removing duration, as though we were buying Treasuries. I don't know if you have that now, but if not, then during the intermeeting period.

MR. ENGLISH. I don't have specific numbers, but I think the point is that the housing market is now very small, and so the benefits from narrower spreads through mortgages to the housing sector are probably not that large relative to the broader effect of just pushing down longer-term rates.

MR. POWELL. Thank you.

CHAIRMAN BERNANKE. Of course, there are house price effects and other channels.

MR. ENGLISH. Yes.

CHAIRMAN BERNANKE. Any other questions for Bill? Governor Raskin.

MS. RASKIN. I just want to make sure whether the outcomes for the alternative A LSAP that were shown on page 1 are 3, or are we looking at 3′? And given that there is just one path here, are we to assume that there is no difference?

MR. ENGLISH. Because these were calculations done for the consensus forecast, they aren't exactly alternative A, but basically a $1 trillion purchase program. You could think of it as either 3′, just the stock version, or the flow version, but it happens that you bring it to a close in the fall of 2013 because the unemployment rate has fallen by, I think, about 0.4 percentage point by then, and you declare that to be enough of a move in the unemployment rate that it's time to bring your purchases to a close.

MS. RASKIN. Okay. I imagine that when we do our policy go-round, we will probably want to elaborate on differences between 3 and 3′. This suggests that there aren't any, but I'm not sure analytically if that's correct.

MR. ENGLISH. I think the question is, when would you choose to end the flow of purchases under the flow version? If the hurdle for bringing that program to a close is more substantial, so it would be in place for longer, then it would be a bigger purchase program and you'd get a bigger kick on the economy. I think we didn't know exactly what threshold you would want to apply, and so we tried to write down a $1 trillion purchase program as something that plausibly might be roughly in line with paragraph 3. The other thing to keep in mind is, beyond what the purchases are expected to be at the outset, there is the thought that the flow version may provide greater reassurance that the Committee is going to keep buying until something good happens. If there's a negative shock, then the amount of purchases could be increased in a flexible way in order to potentially provide greater confidence effects, aside from the amount of purchases that people anticipate.

MS. RASKIN. Right, but we don't see that confidence reflected here.

MR. ENGLISH. Absolutely—quite right.

CHAIRMAN BERNANKE. President Bullard, question?

MR. BULLARD. Yes. On page 1 of the handout, I guess there could be confidence bands around the unemployment rate and PCE inflation. How confident can I be that these are statistically different, these two lines? That's one question; I have another question, but go ahead.

MR. ENGLISH. On the confidence bands, we know the confidence bands around these things are very large. This is our best estimate. We haven't calculated correct confidence bands given the nature of the exercise. But presumably these are not big effects relative to the uncertainty around our estimates.

MR. BULLARD. Could I map some of the confidence bands that are around, say, the consensus forecast exercise? Could I put those on this?

MR. ENGLISH. I don't think so because those are, in some sense, unconditional confidence bands. Those confidence bands would be relative to all sorts of shocks that could play out over the next few years. This is saying, this is, in effect, the outcome, given a particular way that the economy plays out.

MR. BULLARD. Okay. So we're not putting them on the picture, but we think that they're pretty wide.

MR. ENGLISH. Yes.

CHAIRMAN BERNANKE. If you apply this methodology not to the two individual paths but to the difference and ask the question whether there was a positive effect, the methodology would guarantee that it would be a very small confidence band because the same shock hitting with or without the policy would give you exactly the same differential. It would be independent of the shock. I'm not saying that's truth. I'm just saying that that's what the model would give you if you did this methodology in terms of the difference.

MR. BULLARD. I have one more question. On the unemployment path, one of the things I mentioned yesterday is that because of long-run neutrality there should be payback periods so that unemployment is temporarily lower, but then later it must be temporarily higher—these often don't show up in this picture. It does seem as though it is going to show up here starting at about 2020. Is that a fair way to think about this—that, yes, you can temporarily lower unemployment, but you can't permanently lower the path of unemployment?

MR. WILCOX. I don't think that is correct, because the unemployment rate throughout the adjustment period is above the NAIRU, and so if we were driving unemployment materially below the NAIRU, it would have to come back up ultimately to the NAIRU. But are you suggesting that there would be some sort of a stock of payback?

MR. BULLARD. This looks like a permanent effect on unemployment. Is that what we're seeing?

MR. WILCOX. No, I don't think so.

MR. REIFSCHNEIDER. The simulations go out through 2075 [laughter], but we're not showing you those. They're all converging. The unemployment rate is converging to 5½ percent just a few years after 2020, and inflation is going to 2 percent.

MR. WILCOX. And there's no permanent effect. It's 5½ percent either way.

MR. REIFSCHNEIDER. Yes. The policies in both cases are designed to cause the economy to settle down at the assumed equilibrium, which is an unemployment rate of 5½ percent and inflation at 2 percent.

MR. BULLARD. Okay. So you're saying there's monotonic convergence. Is that what you're saying? It's all monotonic convergence.

MR. REIFSCHNEIDER. Is there any wobble? The wobbles, I think, are what you're talking about. There are wobbles past 2020. They are very tiny; they're irrelevant.

MR. BULLARD. Okay. The model is built to not change the natural rate of unemployment so that there's no permanent tradeoff.

MR. REIFSCHNEIDER. Sure—yes.

MR. BULLARD. So this means that if you provide a more aggressive policy in some phases of the business cycle, you can have higher unemployment in other phases of the business cycle than what you would otherwise have if you did not provide that. The business cycle would go like this, the unemployment rate would go like this, and then you would attenuate that cycle, and that's how you get the same average over a long time. So we must be attenuating the cycle.

MR. WILCOX. No.

MR. BULLARD. If you're not, then you have a permanent tradeoff.

CHAIRMAN BERNANKE. No. You're filling in the gap.

MR. WILCOX. You're simply filling in a gap along the adjustment trajectory.

MR. ENGLISH. Yes, I think it really is just faster convergence back to potential.

MR. BULLARD. I'd like to see longer-term simulations of the model, and you show me how the economy would behave, say, under poor policy or something and then under a better policy, and show me the unemployment dynamics over a very long period of time where the average doesn't change but the business cycle is attenuated through our policy. That's what I'd prefer to see.

MR. REIFSCHNEIDER. I can send those to you.

MR. BULLARD. That would be good.

CHAIRMAN BERNANKE. Okay. President Lacker, you had a two-hander?

MR. LACKER. It was just a comment on the exchange you had with President Bullard. I think you were right to point out that the relevant confidence band isn't around any one of these two forecasts, but it's around the marginal effect. Now, I would just point out that the intermediate steps in constructing that would involve crucially this estimate of the effect of an LSAP on longer-term yields.

CHAIRMAN BERNANKE. Of course.

MR. LACKER. It wasn't my impression that those were estimated terribly precisely, and so I'm not sure why we'd suspect that the error bands would be very tight around these differential effects.

CHAIRMAN BERNANKE. I was just making a narrow comment. You don't take into account coefficient uncertainty, right? So in the methodology used here, given the coefficients, you are just hitting the equations with shocks. Then that uncertainty you are referring to, which is real, would not be captured in that exercise—that's all I'm saying.

MR. LACKER. Right. Well, the coefficient uncertainty in the model is yet another source of uncertainty.

CHAIRMAN BERNANKE. Of course.

MR. LACKER. This key delta—how many basis points an LSAP gives you—is imprecisely measured as well, and that's the linchpin to these effects.

MR. WILCOX. I think there's more agreement here than meets the eye. The relevant confidence intervals are around the policy multipliers, not around these particular trajectories. And I think that's the point that we're all struggling to articulate.

CHAIRMAN BERNANKE. Okay. Not seeing other questions—have we finished the policy go-round yet? [Laughter] Why don't we start with our policy go-round, and I'll call on President Lockhart to begin.

MR. LOCKHART. Thank you, Mr. Chairman. I support alternative B at this meeting. On the question of the extension of the funds rate forward guidance, I accept that there is a valid rationale. Most here have downgraded their outlooks, and a move to mid-2015 could be justified based on the revised outlook or perhaps on consistency with the logic of the January move. That said, I prefer holding off on changing the guidance until the September meeting. I see benefit in making any change in the forward guidance bundled with other policy actions if it turns out that that's the Committee's decision in September. I agree with the staff assessment that such a change in isolation might actually undermine public confidence in the outlook. I'm prepared to support the change in language from the June statement in paragraph 4, the language that notches up the policy bias, and I'll add a comment in support of that in a moment.

I feel strongly that this is not the meeting to take the step of adopting one of the LSAP options outlined in alternative A. I much prefer full discussion at this meeting and consideration of that option at the September meeting. Apart from the benefit of full discussion and the usefulness, in my view, of accumulating more evidence of the economy's path, I think a move of this magnitude needs to be complemented with the use of the arsenal of communications tools, including the Chairman's press conference. In my thinking, there are a number of reasons to discuss now and act then if deemed appropriate by the Committee. As of this meeting, my policy position is captured well by some of the points in the case for alternative B in the Tealbook. Despite the weak incoming data, my outlook has not worsened materially since the last meeting. I continue to expect some strengthening in economic growth over coming quarters.

I expect a gradual reduction in the rate of unemployment and little inflationary pressure. There is certainly a risk, and maybe a material probability, that the conditions we've seen recently might not improve or could become more pronounced. So I'm comfortable with the forward lean signaled in the alternative B language.

Because the change to paragraph 4 will increase the expectation of policy action at the next meeting, I think the policy options in alternative A should be the focus of discussion in this round. Obviously, either of the two options of LSAP, or QE3, is a significant action. In my view, the decision to undertake another LSAP is a momentous one and requires a careful weighing of benefits versus costs. On consideration, I would expect the ultimate tradeoff between benefits and costs to boil down to one of limited benefits opposite uncertain costs, but in most respects, manageable risks. I currently prefer the open-ended option because I think the commitment to keep applying accommodation until satisfactory conditions have been achieved is the stronger and more flexible of the two approaches. I think it has the better chance of producing meaningful results. I also think it's possible that it will involve expending fewer resources. That said, we should have restrained expectations for another LSAP round. Lower interest rates and more liquidity are unlikely to move the needle much. A boost to risky asset prices would likely be mood enhancing for some period but won't alter fundamentals, in my view. Outcomes such as lower rates and higher risky asset prices will probably help and will probably produce improvement of economic conditions over what would have transpired in the absence of further stimulus. As of this time, I'm not projecting inflation so measurably below our target as to view a new LSAP as similar in purpose to LSAP 2. At the same time, I see the costs as mostly contingencies in the form of longer-term risks. If the risks were to materialize as actual costs, they are unlikely to be apparent in the near term. If the Committee decides to implement a new LSAP program, I see value in communicating clearly that the program would be ended early if the effects are judged to be smaller than expected or if the associated costs look to be more substantial than originally thought.

Regarding the option to cut IOER, I also think there are reasons to be cautious at this meeting and hold off. I'd like to have more confidence that the move will not disrupt the functioning of money markets with spillover into the economy. I doubt that reduction to 15 basis points—or to zero, for that matter—will encourage more lending. I think there is a chance that banks would move to replace lost income by raising charges to customers, and I'd like to have some time to watch the European experience, even if just for a few weeks. Overall, I don't see this as a powerful tool in and of itself. With more certainty on some of these concerns, I could see including an IOER move in a bundle of stronger actions.

Finally, even though the circumstances calling for additional policy actions seem to be becoming more evident, I expect that the outlook will be murky at the next meeting; we will still be guessing. Another LSAP is a big decision. I'm not yet fully convinced it will be the right decision to pull the trigger in September, but my mind is not closed on the matter, and I hope the Committee will use this meeting for full discussion and take up the question of action in September. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. I strongly favor alternative A, and, like President Lockhart, I am going to use my time to talk about alternative A, because I do think that getting the wording right is important. At our last meeting, the situation called for action, and we took a step in that direction. The news since then confirms that progress toward our policy goals will likely remain stalled unless we take further, more-significant action. In the Tealbook, the unemployment gap remains sizable and does not close for the next two years. And all the while, inflation remains below our 2 percent target. Simply put, such an outcome is inconsistent with appropriate monetary policy. We need to be on a path that brings us measurably closer to our goals over the forecast horizon. To accomplish that, we should take the strong actions described in alternative A, including further asset purchases and extending the forward guidance to mid-2015; I also favor lowering the interest rate on reserves to 15 basis points.

In reaching this conclusion, I weighed two counterarguments. One is that we should wait for conclusive confirmation that the economy has lost momentum, and the second is that we should keep our powder dry, saving it in case we go over the fiscal cliff or Europe implodes. But I find neither argument for inaction compelling. As I mentioned in our discussion of policy rules, the key lesson from research is the need to act quickly and aggressively in situations where we have limited firepower remaining. Delay is costly because the opportunity to add stimulus may be lost. The same logic equally applies to the use of asset purchases. Furthermore, the memo on capacity constraints indicated that if another big negative shock hits, we still have room to do quite a bit more. Even if we act today, we will still have plenty of powder left in reserve.

Turning to the specifics, I, too, support the open-ended option in paragraph 3. This approach has a number of advantages. Given all of the uncertainties we face, we cannot be sure of how long we'll need to keep buying assets until they get the economy on track. Therefore, pre-announcing the total purchase amount could be counterproductive. In addition, the open-ended approach allows us to apply a more rule-like structure around the asset purchases, as President Bullard has argued. On a small detail, I prefer the final sentence in 3′ to the final sentence of 3. Everyone knows that there are potential costs to LSAPs and their effects are uncertain. That's why we move cautiously. But publicly fretting about that in the statement diverts attention from our main message, which is that we will do whatever it takes to make measurable progress on our goals. In sum, I'm convinced that further action is needed at this time. I can go along with pushing this off until the next meeting, but I worry that our delay is only making matters worse. In terms of alternative B, I prefer keeping the "late 2014" language for now, if we're going to go with alternative B. Thank you.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Just to follow up on this DSGE analysis, I do appreciate that there's a suite of models, but what I would do going forward is to put the DSGE model front and center in the staff analysis. And I think that would facilitate debate around the table about what the differences are between various assumptions. One of the advantages of putting out explicit models is that you can actually talk about where disagreements are. I also think that the notion that the flex price equilibrium is a very smooth one, and the sticky price equilibrium is way off from the flex price equilibrium, is hard to swallow. But if we put the model on the table, then we can argue about what kinds of assumptions have to be made to get that kind of result, and then what kinds of welfare improvements we might think that we're getting with our policy action. So I'd very much like to go in that direction; maybe that's something we can discuss. Of course, this has been a long-running issue in macroeconomics, but I think other central banks do it this way, and I think it would be good for this Committee as well.

For today, I'm supporting alternative B. I prefer to keep the "late 2014" date for now. The language, as it stands in alternative B, already says "at least through late 2014," so I think that gives us some cover and it's wise to put that in there. In general, if we're going to put dates in the statement—I have argued against it—I'm in favor of changing the date with the data. And really, I'd be willing to change it at every meeting—move it up or move it back. But I can appreciate that not everyone wants to be that flexible about changing the date, and for that reason, it might be prudent to wait until the September meeting. We don't want to get some stronger data and then feel as though we shouldn't have pushed the date back. I think we could wait until September to change that, partly because we have the cover of "at least" in front of the "late 2014."

The urgency of considering further action for this Committee is not so clear to me. I think that rates are already low. We're benefiting from an extreme flight-to-safety effect globally, and I think we can put that in our pocket and wait to see what happens. I agree that the economy is not looking as good as we'd like, and everyone has been talking about that over the last day or so. But because we're getting the flight-to-safety effect, I think that we may not have to be taking action the way that people are talking about. I usually don't like policy coordination arguments. However, I am struck by the idea that Fed easing is not helping the situation in Europe. Europe is where the recession is; in principle, they should be easing aggressively. If we ease aggressively and they stand pat, that's going to, all else being equal, make the situation in Europe worse. Again, I think that isn't always a key—something I like to cite. But on the other hand, I think this EU situation is the key problem in the global economy, and we probably don't want to take steps that would be counterproductive on that dimension. We did take what the Chairman has termed a substantive step at the last meeting. I think a tenet of central banking is, you wait and see what happens after you take an easing action. We do have two jobs reports between now and the next meeting.

I don't think it's that clear at this stage that some kind of large action will be required at the next meeting in September. In my view, inflation and inflation expectations are nothing like they were in the fall of 2010. And if you look at what was going on at that time, all measures of inflation were quite low. Some were extremely low—below 1 percent measured from a year earlier—and inflation expectations measured in the TIPS market had fallen dramatically. Those indicators were trending down all through the first three quarters of 2010. We're not really in that situation now. It could develop into that, and I definitely would want to keep an eye on that. But as far as I can read the inflation and inflation expectations data, they are really pretty close to our target. And I'd want to see more evidence on that dimension to see that the deflation threat was more real than it appears right at this juncture.

If we did take further action, I have been an advocate of doing a meeting-by-meeting flow approach, as outlined in alternative A. In this respect, I actually agree with President Williams, President Lockhart, and many others around the table. I think that this is much closer to the way the Committee behaves in the nostalgic normal times, where the Committee will adjust its policy instruments a little bit in response to subtle changes in economic conditions. It would also help us enormously to get into a pattern that reestablishes the continuity in monetary policy. I see it as absolutely critical that this Committee gets out of the crisis mode and gets more into the stable and sensible, measured reaction to incoming data that characterizes good monetary policy. The notion of taking very large steps creates thresholds for action, which confuse markets. It tends to put out end dates, which have haunted the Committee because the end dates seem to always occur at a juncture when the data are going in a different direction from the one that the Committee would prefer, and in those senses, I think, have been very counterproductive. So if we did take further action, I think it would be wise to take the meeting-by-meeting approach. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I want to briefly comment on the ongoing work that President Plosser, President Williams, and I have been doing—largely carried by our staffs, frankly—on rewriting the statement in a more explicitly state-contingent way. Our vision of how we want that work to proceed right now is, we plan to rewrite the statement coming out of this meeting and the statement that will come out of the next meeting. At that point, we'll probably open up conversations with the communications subcommittee about whether this is something that maybe we could get ready for "prime time," as it were, and go forward. Because President Plosser serves on that communications subcommittee, it seems as though that would be a very natural conversation to open up. In the interim, we certainly welcome any feedback or any input that you have about the work that you've seen and ways we could make it better.

In terms of policy, I'm going to divide my comments, Mr. Chairman, into three pieces. I'll make a brief suggestion on alternative B, and I'll talk about the implications of my supply shock perspective for policy—the idea that it has been a shock to supply that's been affecting the economy. And I'll close with a discussion of the implications of this same perspective for alternative A. I'm going to follow Governor Tarullo's recommendations and try to wing it a little bit here and try to provide a little bit of context. I think you'll hear from my words that I don't think the perspective we bring to why we are stuck in the mud matters as much as what we're communicating about what we're likely to do about being stuck in the mud. I think—and this links back to comments that Governor Yellen made about Qvigstad's criterion yesterday—

that the Committee's communications about how it's likely to deal with tensions between unemployment and inflation are more important than how one approaches why those tensions might exist. Anyway, I hope that was helpful in the way of context.

Let me talk first about a brief suggestion on alternative B. In paragraph 4, I would recommend strongly that the reference to "financial developments" be dropped. I think we're only interested in financial developments insofar as those developments affect our ability to achieve the dual mandate. I think that interest is readily subsumed in the term "economic developments."

Now, let me turn to my supply shock perspective and its implications for policy. I suggested in the economic go-round that additional accommodation would be largely trying to offset a supply shock. And because we're facing a supply shock, we face a traditional dual mandate conflict. Using policy to lower the unemployment rate well below 8 percent will require PCE core inflation to rise above target. We actually see exactly this tension in table 2 on page 2 of the consensus forecast memo. And I think we see it on page 1 of the monetary policy handout that we got today. Table 2 of the consensus forecast memo implies that something like the additional accommodation in alternative A would reduce unemployment but would lead inflation to rise as high as 2.2 percent in four or five years. So table 2 helps to frame the policy debate, I think, in a useful way. The debate has two pieces to it, as far as I can see. First, what kind of inflation price do we think that we have to pay to reduce unemployment by 30 or 40 basis points? Table 2 suggests that the answer to that is, we would have to pay about 15 or 20 basis points of inflation. Now, my own view would be that the price could well be considerably higher than that. I don't consider my own view necessarily determinative in any way, but I think we should be talking about that. It's more that I think that's what the conversation should be about—what inflation price do we have to pay to reduce unemployment? And as I promised in my labor market slack memo that circulated before the meeting, we'll be trying to do some survey work in Minneapolis to follow up on this issue.

The second part of our debate is about our objective functions over inflation and unemployment. That is, given the price of inflation, how much of an unemployment reduction are we willing to purchase? And as I argued last fall, I think we really should be working harder to establish some commonality in the answers to this question. Now, to give credit to the work we've done, we said in January something on exactly this issue: We will use a balanced approach to the two elements of the dual mandate. At a minimum, I think such an approach would imply that under appropriate policy, inflation should rise at least somewhat above 2 percent if unemployment is above a level that the Committee views as desirable. This is in contrast to the consensus forecast, which forecasts that core inflation will stay at or below 2 percent if we adopt a policy like alternative B.

This framing of our policy debate in terms of inflation and unemployment tradeoffs flows naturally into my closing comments on alternative A. Alternative A offers a wide array of possible additional accommodation, but all of those tools require the public to perceive the Committee as being ready to follow through by delivering stimulus over a relatively long period of time. Given current Committee thinking and current Committee communication, I do not see such follow-through as credible. For example, the consensus forecast is that, under appropriate monetary policy, the Committee believes that the unemployment rate will be 7.6 percent in 2014 and the core inflation rate will be 1.8 percent. To the public, and really to ourselves, this forecast is saying that even though unemployment might be as high as 7.6 percent, the Committee sees it as inappropriate to provide additional accommodation, because such accommodation would lead core inflation to exceed 1.8 percent. Now, I want to try to offer a little bit of nuance here. The goal here is not to generate inflation. The goal here is to try to communicate something about how much of a party we're going to allow to happen on our watch. That is, when do we want to take the punch bowl away? That's really, what are the conditions when the Fed will start to take the punch bowl away? If we communicate that we're not going to take the punch bowl away until unemployment is low, that signals to people that they don't have to save as much today, they don't have to worry about conditions being as bad in the future, and that will actually stimulate more demand today. There are some effects on real interest rates through higher inflation expectations, but I view those as modest. Really, the kick is, things are going to be better today than you might have thought, because the Fed is going to allow more of a party to take place, and that means you don't have to save as much for the future. But that's a nuance.

The forecast that we offer, and the consensus forecast that we're offering, is communicating to the public that the Committee is just not all that committed to monetary accommodation. If you look at exhibit 1 of the consensus forecast memo—this is the one with all of the fan charts—there's a significant probability that PCE core inflation will be above 2 percent in 2013. And the consensus forecast seems to suggest that the Committee is likely to react to such an outcome by curtailing accommodation. As I've said, I see us as facing a persistent shock to aggregate supply. That means that before undertaking the steps in alternative A, the Committee needs to be able to communicate credibly that it's committed to pursuing low unemployment in the face of above-target inflation. I don't see the consensus forecast as being consistent with that, because it says that the Committee, in 2014 at least, will be happy with unemployment being 7.6 percent as long as inflation is not above 1.8 percent. I don't think alternative A can be effective if the public believes that the Committee's future choices will be made according to those unemployment/inflation preferences. That's a negative way to say it, but let me say it in a more positive way. The effectiveness of alternative A could be greatly enhanced if the Committee is able to communicate credibly that its future choices will be governed by the balanced approach to the dual mandate that is described in our January principles statement. And such communication will only be credible if the Committee's current choices are in fact clearly being governed by this balanced approach. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. I have little problem with the language in alternative B, with one critical exception, which is the forward guidance language. My comments yesterday afternoon emphasized the enormous uncertainty associated with your forecast, and you echoed that in your statement this morning, Mr. Chairman. At present, we do not have a collective view about the amount of slack in the economy. The natural rate could be anywhere, in our collective view, from 5 to 8 percent. Moreover, we don't know whether economic growth is bound to pick up and bring us back to pre-recession long-run trend potential or whether potential has suffered a one-time downward level shift and we're now tracking a new lower trend line. A staggering amount of uncertainty associated with point forecasts of the economy is well illustrated in the fan charts and the staff memos. For example, the 90 percent confidence band for real GDP growth in 2014 goes from 0 to 6 percent in the consensus forecast memo. And that even understates uncertainty because it conditions on just one model and just one policy rule. The uncertainty about future policy-settings is staggering as well. As we discussed yesterday, staff calculations of the distribution of future liftoff dates are quite flat across a number of years. A 70 percent confidence interval for liftoff in the Tealbook, for example, appears to run from as far out as early 2016 to as early as this meeting. The net result of my preparations for this meeting and participation yesterday has given me a deeper appreciation of the uncertainty attending our efforts to foresee future policy choices. The implication for me is that liftoff dates as far out as late 2014, or even 2015, now seem to me less implausible than they once did. However, the provision of forward guidance via a calendar-based modal forecast now seems even more problematic to me than it once did. If our forward guidance is simply a forecast designed to help the public understand what we foresee, I think it's problematic the way it's forecasted now, because it implies a spurious and overinflated sense of precision. If our forward guidance is a commitment designed to convince the public we'll do something we might otherwise not do, I think it's problematic as well, because, first, it's not written that way; and, second, we've not been consistently describing it that way. And it's not clear it's a sensible commitment to make, given how often simulated rules have us raise rates before then. So, accordingly, I'd oppose the inclusion of forward-guidance language in alternative B at this meeting. I think we should omit the description of the time period over which the Committee anticipates that economic conditions will warrant an exceptionally low level of the federal funds rate.

The broader implications of an appreciation of the profound uncertainty—which you highlighted, Mr. Chairman—are relevant here as well. In the past, we've taken actions with our balance sheet under a tremendous amount of uncertainty about how effective they would be. I think that we've naturally been very reluctant to undercut the potential effectiveness of those actions by emphasizing in public the limits to our understanding of those effects. And so I think the public comes to believe that we have more faith in their effectiveness than I think we really do. This has promoted an inflated view of what we think the effectiveness is and, in some quarters, an inflated view in the public's mind about the potential effectiveness of our balance sheet actions in promoting economic growth. I think that this has come to promote a sense that we are more responsible and more capable of influencing unemployment and the path of unemployment than we really are, than we really collectively think we are, and it promotes widespread expectations that we should act at times. It's fine to say "whatever it takes," but you need to accompany that with a sense of what we're capable of. If it's like getting blood from a stone, then to say that we're going to do whatever it takes to get blood from a stone is counterproductive as a communication strategy, and in some sense, it's literally quixotic.

President Lockhart's urging to discuss the options in A is correct, because they'll obviously get some serious consideration at our next meeting. I think that the probability of an LSAP having a material effect on economic growth is negligible; conditional on it having an effect on growth, it's quite likely it will have an effect on inflation. And when I consider what effect a monetary stimulus could have, I naturally gravitate to the last 30 years of empirical work—including some you've done, Mr. Chairman—that produces estimates of the impulse response as consisting of a transitory effect on real activity and a permanent and sustained effect on inflation. And I'm not sure I've seen any reason to doubt that the general pattern would hold in this case. I think that an LSAP of a substantial size is quite likely to complicate our exit strategy, and sometimes, at times like this, it is easy to just mention that and go on. But picture that process where we're raising the interest rate on excess reserves. We have a sense, I think, but a very rough sense, of how the size of our excess reserve balances and our asset holdings affect other yields now with the interest rate on reserves at 25 basis points. But with the interest rate on reserves at 25 basis points, zero is not far away. Picture trying to assess, based on the experience we have now, the effect of a $2 trillion excess reserve balance when the interest rate on reserves is up at 2, 3, 4 percent. Now, I don't think we have a lot of confidence that it wouldn't put a substantial depressing effect on other yields despite the interest rate on excess reserves being high. And we're going to need to be flexible; we're going to need to be agile. We're likely to start slower than we're going to end up being in reducing the size of our balance sheet. I think we'll find that our initial attempts don't reduce the balance sheet rapidly enough and that it is just going to be a more complicated process the more trillions we add to our balance sheet.

"Funding for lending" has come up at this meeting. As you might suspect, I approach that with deep, deep skepticism. If the staff comes forward with a proposal, I think we should insist that they provide us with their best welfare analysis of it—and that's not something that we saw often over the last five years for our credit market intervention programs. That analysis should include an assessment of the extent to which such a program withdraws credit from other borrowers. It is one thing to intervene in the MBS market in November of 2008, where it was quite plausible to think that there was some correctable impediment to the functioning of wholesale finance markets. That there's some identifiable, correctable impediment we're overcoming is a much more difficult case to make now. I don't think that's what motivates this. I think this would be a political nightmare for good reasons. It would be quite clearly a fiscal policy operation. I could imagine someone trying to make the case that this is not credit allocation because the banks, and not us, are choosing whom to lend to. But not all borrowers in this world are dependent on banks for credit. Many large corporations go directly to credit markets and issue securities. We ought to ask ourselves whether this is withdrawing or displacing the flow of credit to someone else. So I'd be skeptical about a "funding for lending" program. That concludes my remarks, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. Taking on board the recent data, my outlook for the economy over the next year and a half or the medium term is little changed since June. For example, I've maintained my forecast for 2013 and 2014 at about 3 percent, and I believe that looking at the horizon of 18 months to two years is a better horizon for which policy ought to be judged, and ought to be the relevant metric we should look at. I'm very dubious that we can do very much in the very short term. As a result, I see no further need for another round of policy accommodation, either in the form of increased asset purchases, as in alternative A, or in the form of extending the date of forward guidance, as in alternative B. And there has been a lot of conversation already by President Lacker and others about that.

The BEA's advance estimate for 2012 quarter-two real GDP came in a little stronger than what was projected in the July Tealbook that we've been discussing, and at about the pace the staff predicted in June. So by this metric, the economy does not look particularly worse and has not really deteriorated over the intermeeting period. Of course, this first estimate may well get revised down toward the Tealbook estimate, but the data in hand suggest a somewhat stronger pace of activity in the first half of the year than the Tealbook and the baseline forecast. The uncertainty surrounding my outlook is similar to last time as well, and I do not believe we have an effective monetary policy antidote to the negative effects of high uncertainty surrounding the European debt crisis, which I believe is very large, or U.S. fiscal policy. Moreover, I think it's dangerous and misleading to suggest to the public and the markets that we can do something that we cannot do. I think we're in danger of overplaying our hand, leading the markets and others to believe that we can accomplish goals that we cannot achieve. In terms of interest rates, save-haven flows have done far more to lower long-term rates than we could ever hope to do with any likely LSAP. Our efforts will be adding noise, with little chance of real economic outcomes against our unemployment mandates.

My own threshold for further easing continues to be that the risk of deflation becomes very significant, and thus we must act to defend our inflation goal—and, as President Bullard mentioned, I don't think we are at that point yet—or that a financial crisis materializes and we require significant effort on our part to shore up financial markets. The cost–benefit analysis suggests that the bar should be high for further expansions of our balance sheet. There's a growing body of evidence that raises questions in my mind about how effective large-scale asset purchases are likely to be in stimulating economic activity in the current environment. I am thinking about uncertainties, as we've been discussing, over the magnitude of the announcement effects that large-scale asset purchases have and over whether or not they are transitory or more persistent. I don't believe that tweaking the relative price of particular assets is likely going to solve the "muck" that our economy is in. And the costs of expanding the balance sheet further, though hard to quantify, are real nonetheless. First, we will have more portfolio risk, which I believe could negatively impact our independence. Second, if the action is largely ineffective in stimulating the broader real economy, our credibility is eroded. Third, a larger balance sheet will complicate our exit strategies in the renormalization of policy and make it more difficult for us to stay ahead of the curve. Fourth, if financial markets come to believe that policy will lead to higher inflation or that we are deliberately seeking to fund large fiscal deficits, we could find ourselves in an even more challenging economic and political situation—again, including our independence. Thus, I'm concerned that rather than mitigating downside risks, aggressive further actions, especially of the type mentioned in alternative A, are actually adding risks to the economy for minimal, if any, short-term benefit. We've spent too little time, in my view, discussing the downside risks that our policies actually impose on the economy and what those actions might imply, either of the unintended nature or intended nature, over the longer term for ourselves as an institution and for the economy as a whole. We are in uncharted territory, and our actions do impose risks that we must take into account. I think we've been too cavalier in the way we've treated those.

Turning to statement language, as you know, I've been uncomfortable since the start with the use of calendar-date forward guidance to shape expectations about policy. I continue to believe that it's important to describe our policy actions as much as we can in terms of state-contingent, systematic rules, even if they are qualitative in nature, which is what the Kocherlakota, Plosser, and Williams effort is trying to illustrate. The briefing on simple policy rules underscores why we should be wary of calendar dates, and I'll echo the remarks of President Lacker about the staff's work on the distribution and uncertainty over optimal liftoff dates. This is highly uncertain even in the case where we ignore model uncertainty and confine ourselves to the FRB/US model. Our best analysis suggests significant uncertainty about the date when we'll need policy tightening, and I don't believe that the time-contingent language in alternative B contains any sense of that uncertainty. Moreover, I think that switching the calendar date from 2014 to mid-2015, as in one of the options in B, is misleading regarding the lack of precision with which we can gauge liftoff—again, as indicated by the analysis of the staff.

Finally, I'm very uncomfortable with the changes in the last sentence of paragraph 4 in alternative B. It now reads, "The Committee will closely monitor incoming information on economic and financial developments and will provide additional accommodation as needed." Financial markets, as Bill English indicated, are likely to read this as saying that we are now committed to doing something in September. In my view, pre-committing today to do something in September is the wrong kind of forward guidance. If we use that language today, then come September, our discussion around this table and the policy decision are going to be tied up in whether we want to disappoint market participants who will have come to believe that we were going to do QE3. And if the data come in stronger, we will presumably disappoint them. I think this is a dangerous commitment and a dangerous signal to send. Once again, this gets back to the idea that in the interest of transparency, our policy path is best laid out in terms of what we are conditioning our policy actions on, not pre-committing to doing something at the next meeting. Instead of this language, I strongly recommend that we keep the language that we used in June and wait to see how the economy performs between now and September. I might add that given the uncertainties and other factors that I believe are retarding economic growth, I don't expect a great deal of improvement between now and September. And nothing we are likely to do now or in September is likely to change that path between now and early next year. In my judgment, to signal that we will act unless we are getting significant improvement in employment would be mistaken, because the primary retarding factors are beyond our ability to mitigate with monetary policy actions, whether you want to call them aggregate demand or aggregate supply shocks. Put another way, in my view, it would take a significant deterioration in the outlook, not simply disappointing progress, to warrant more accommodation. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I favor alternative A today wholeheartedly. I agree with the views that President Williams expressed. I also agree with President Kocherlakota and his comments about how emphasizing our balanced approach to our monetary policy strategy would really enhance the effectiveness of alternative A. I think that that would be very helpful as well. That's what our strategy says we're supposed to be doing, after all. I prefer the flow version of the asset purchases with a clearly stated economic conditionality. That seems most consistent with analyses indicating that strong accommodation is beneficial today. The composition of any asset purchases is important, but frankly, for me, the signaling component that it adds to our forward guidance is where I see the maximum benefit from a policy action like that. I think they're highly complementary. I would not unduly delay any actions today in order to study the composition effects, and I do favor flexibility in the percentages of the purchases.

Frankly, I think the best defense that we have against adverse shocks that may be coming our way is to have the most resilient economy possible; we don't have that today. We've seen a host of, I think, very credible analyses saying that more-aggressive accommodation of various forms would yield a better outcome. For example, this is clear in the trial-run consensus forecast's analyses that the Chairman discussed yesterday. Comparing outcomes under the consensus policy assumption with those under alternative A, we see that the latter are clearly better outcomes. Alternative A would bring unemployment down to the range that we've judged to be sustainable, but it would come down at a significantly faster rate, and, it seems to me that it would do so with no worse of an inflation outcome. Instead of running a couple of tenths below our target, inflation would run a couple of tenths above that target. Because we've said that deviations around the target are to be evaluated symmetrically, it's a wash when it comes to inflation. And on the point that President Kocherlakota mentioned about how there's an inflation price for bringing unemployment down, I agree with that. But I would state it more in terms of, we really need marginal utility pricing against these policy goal variable developments, and so we need a policy loss function. When the unemployment rate is 8.2 percent, a reduction in the unemployment rate is unbelievably valuable. The marginal utility of that's very high, but when inflation is very close to its goal variable and it doesn't change in relation to its goal, the policy cost is much lower. I would think the cost–benefit analysis would run that way.

I believe that someone asked yesterday whether, if we were doing the consensus forecast exercise for real today rather than as a trial run, we would be showing the public the forecast under the alternative policies. And I thought I saw a sense of relief from some in the room when you, Mr. Chairman, said, "No, we would not be doing that." But why would that be? For me, I think it's because, if the public saw the two outcomes side by side, it would be very difficult to defend the consensus outlook with no additional actions relative to alternative A. These are good analyses and viewpoints that should be communicated publicly, and I once again thank Governor Yellen for publicizing such views to some extent in her speeches. Of course, anyone unsympathetic toward embracing alternative A may feel that the Board staff analysis underlying the projected outcomes for that alternative is somehow lacking. That's understandable. Humility is very important, of course. There have been some times over the years that I thought I might have had a better take than the Board staff on some particular issue. I personally have found the Board analyses to be among the very best I've ever seen. There's a lot of accumulated macroeconomic wisdom, as well as cutting-edge technique, embedded in these forecasts and analyses. As a result, the Board staff has a pretty good track record relative to other forecasters—Romer and Romer have written papers on that, and other analyses have documented that as well. It seems to me that most alternative views are more of the nature of opinions and discretionary judgment; it seems to me that there's not really a good paper trail for these alternative analyses. I go back to our discussions about structural unemployment, where we had lots of hypotheses that were floated, but then when we sat down and looked at hard analyses, we found there to be a lot less than many of us expected going into that.

Finally, there's a great temptation to stop doing anything right now—do nothing more. After all, our balance sheet is very large. Surely history will credit the Fed with being the smartest policy player in the game today. We did as much as anyone thought we could; that's all we could do. But the paper trail of analyses, to me, is long in telling us that more accommodation is necessary and appropriate. For policymakers entrusted with great responsibilities—and without a compelling alternative view—personally, I think we would imperil our credibility by doing less. I favor alternative A. Thank you.

CHAIRMAN BERNANKE. Thank you. Did you have a comment?

MR. KOCHERLAKOTA. Just a quick comment on the pricing issue for inflation. I agree that marginal utilities have to be taken into account. I was trying to do that by thinking about the comparison of relative prices with the slope of the objective function, but you could do it the way you were doing them in terms of just weighting things by marginal utilities. I think it is not as obvious what a balanced approach would imply for marginal utilities when the unemployment rate is as high as 8.2 percent, but I think this is exactly the kind of conversation we need to have. Thank you.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. Several people have alluded to their concern about how we prepare for when we will have significant clarity about the outlook. I don't think that's the issue that we have right now. Given the very substantial downside risks, I think we should be preparing to avoid a wake. While I support alternative A, as does President Evans and President Williams, it appears the Committee needs more time. However, with a forecast that misses on both elements of the mandate, there should be a strong presumption that we implement alternative A at the next meeting.

I am concerned that alternative B is still too restrained. I would change the language from “late 2014” to “mid-2015.” Failing to do so would indicate that we are impervious to the fact that six months have elapsed and the outlook is worse than when we implemented the “late 2014” guidance. I also support lowering the interest on reserves. With three-month Treasuries much lower than 25 basis points, I see no reason to maintain such an elevated rate. As was highlighted in the staff’s comments, the ECB’s reduction of their deposit rate has not generated severe dislocations in money markets in Europe. In terms of the asset purchases, I would prefer a heavier weighting toward mortgage-backed securities. As Governor Stein mentioned yesterday, we should be focusing on programs where spreads remain wide. I would support paragraph 3 in alternative A if it was clear that we currently expect the program to last at least a year. The LSAPs will not be effective if the markets expect that the action could be quickly reversed. Finally, I would consider how we could utilize the discount window to more clearly signal a desire to increase Main Street lending. It is becoming increasingly difficult to explain that we still have tools but we are not using them despite a weakening forecast and missing on both elements of the mandate. Given the strong possibility of further weakening, I am concerned that a shock from Europe not only places us in danger of continuing to miss on both elements of the mandate, but also raises questions about whether we can credibly hit either element of our mandate. The least-credible central bank in the developed world right now is Japan—not because of too much inflation; not because they didn’t increase their balance sheet, as the balance sheet has increased significantly. They’re not credible because they did too little too late. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. I expect only a modest improvement in the rate of growth for the remainder of this year in the face of an ongoing European sovereign debt crisis and our own fiscal issues. These headwinds are factored into my forecast, and unless they worsen, I expect that economic activity will likely improve in 2013. With subdued economic growth and elevated levels of unemployment, the impulse to take action seems natural, and I do consider carefully the cost of inaction. I remain cautious, however, about creating expectations that further accommodation can have a meaningful effect on employment or speed recovery. The future cost of more accommodation and an extended period of exceptionally low rates concerns me in terms of the potential unintended consequences related to financial market distortions and mispriced risk.

As the Committee considers further asset purchases, I think about how longer-term measures of inflation expectations or breakeven inflation appeared to respond strongly to past LSAP announcements. Given that longer-term breakeven inflation measures are currently consistent with our stated 2 percent goal, I'm concerned that another LSAP program could push longer-term expectations above a level consistent with our objectives. If this were to occur, I think that we would face a very difficult tradeoff between allowing longer-term expectations to drift higher, which could bring into question the Committee's commitment to the 2 percent goal, or risking a reversal of course by reducing the size of the balance sheet. Either option, it seems to me, would be damaging to the real economy and to our credibility. Thank you.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I support alternative B. The incoming data since our last meeting have been weaker than expected and led to some small downward revisions to my forecast. It turns out that for the first time in my almost 10 years on this Committee, I have one of the more optimistic forecasts. I still expect the pace of recovery to improve in the second half of this year and next year. With my outlook, I believe this pace of recovery will yield some progress on the unemployment rate while preserving price stability. And taking into account the costs and benefits of further action, I believe that the current stance of policy is appropriate. I would prefer to leave the forward guidance on the path for the federal funds rate unchanged for now. In general, in the absence of large changes in the outlook, I think that it is better to wait for an SEP meeting to change forward guidance.

My preference for holding off on further action until we see a more significant downgrade in the outlook reflects my current judgment of the potential benefits and costs of the tools available to us. At this point, I am concerned that the risks and costs of further LSAPs could be higher than they were in previous instances, making the cost–benefit comparison less favorable. One reason is that further LSAPs could have more adverse effects on market functioning than did previous LSAP programs, because the Federal Reserve's purchases would become a somewhat larger share of the market than a year or two ago. I worry that many risks to market functioning identified in the memo from Board and Desk staff on LSAP capacity may not be as manageable now as in earlier LSAPs. Another reason that costs may be higher now than in the past is that the size and composition of our balance sheet, after completing the LSAP program proposed in alternative A, exposes us to risks that we could incur larger capital losses and we may not be able to make remittances to the Treasury at some point in the future. That may be an acceptable risk to this Committee, but before deciding to pursue another LSAP program, I think it would be helpful to see an analysis of the effects on our balance sheet—as we talked about yesterday—of adding an additional $1 trillion LSAP program under a variety of interest rate and economic growth scenarios—essentially updating and extending the analysis that was prepared at our April FOMC meeting. I am also concerned about the potential risk to financial stability that would be associated with a protracted period of very low interest rates. We are in territory, as others have said, where we have never been before, and I would like to better understand the risks and costs that we could be facing.

Based on my current view of the costs and benefits and my forecast of gradual progress on the unemployment rate consistent with price stability, I believe that it would be better to hold off on any further action to see if the outlook for economic growth and inflation deteriorates significantly more. If my forecast does materially weaken in the next few months, I would become concerned about the chances of a lost decade and permanent structural damage to labor markets. Still, I would like to gain more comfort about the risks we are facing, including balance sheet risks, if we take further action. To me, gaining more comfort will require a careful Committee discussion of the potential longer-term risks and costs of policy actions that are contemplated in alternative A. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Thank you, Mr. Chairman. First, a quick response to Eric’s point—I believe that the reason Japan has lagged is that it did not address too-big-to-fail, not that it did not do enough—it has done more than enough. I think it’s a different issue; the transmission mechanism is critical.

I learned a lot from listening to yesterday’s conversation. I heard a few key points, in addition to the fact that dressage elicits giggles and no one knows who Johnny Nash is except for my friend Narayana, who seems to have an encyclopedic memory for almost everything. The first is that, according to almost all participants at this table, inflation is running at or below the

2 percent level. I did not comment on inflation yesterday. Last night, we did go through the revised BEA data to work on our trimmed mean, and the annual revisions had small effects on the trimmed mean, raising inflation rates a bit in 2011. But basically since around mid-2011, the trimmed mean has been remarkably steady in the neighborhood just shy of 2 percent. We've had month-to-month wiggles, as we did this most recent reporting period, but no indication of significant drift either upward or downward. The six-month trimmed mean has been either 1.7 or 1.8 or 1.9 or 2 percent. And the 12-month rate has flattened out somewhat toward the end of 2011, but it's currently running at 1.9 percent. From Governor Duke, I learned a new phrase, which will become immortal in economic parlance: "The economy is cruddy." I agree with that, particularly the short-term outlook for job creation. And from Governor Raskin, I was reminded of the stress that is placed on state and local governments, particularly with regard to their pension funds. Governor Stein, I thought, gave a very helpful intervention with regard to the salutary effects that have occurred with respect to corporate balance sheets. There has been refinancing of existing debt; the present value of future cost flows has turned higher as rates have come down. One infers—and I asked a question of Simon on this, and we'll explore this further—that our policy has obviously lifted stock prices, at least for the 50 percent of households that do own stocks or mutual funds. I believe that 50 percent do not. This fed into Vice Chairman Dudley's point—which I thought was very helpful as a reminder—that from a financial standpoint, in terms of our banks and our corporations, we are perhaps in better shape than we might think we are. I also learned, of course, that we're contemplating alternative A. I thought Governor Yellen basically summarized the case, which is what I believe we're deciding today: We'll go with B, and we'll have a very strong bias toward A at our next meeting. There's a presumption from the conversation we had with Simon yesterday and earlier this morning that

we will end up with a program that will have us holding roughly 40 percent of Treasuries with a maturity of greater than 10 years, the presumption being that we won't hinder the market functioning on the buy side. I should say that I'm very skeptical about that on the sell side, particularly if things appreciate, and I think we really need to consider what hindrance there might be to an exit policy if we are indeed successful in reviving the economy.

So that's what I heard yesterday. I want to underscore the fact that, despite my reputation, I am not worried about inflation in the short term. What I am worried about is the efficacy of job creation. I've summarized for myself the positives of what we've just come through and what we've done. Again, going back to Governor Stein's comments yesterday, we're financing existing debt—that's become very highly attractive for the private sector. And another benefit is the lifting of asset prices—again, if you happen to own them—which has been beneficial for the wealth function.

I'd like to talk for a minute about the negatives of our policy thus far. First, negative real interest rates are killing savers in order to bail out over-indebted borrowers. Second, as pointed out by Governor Raskin yesterday, pension funds are becoming more and more dangerously underfunded, particularly at the state and local level. That threatens the retirements of many individuals, the balance sheets of companies, and especially state and local governments and unions. Third, artificially set interest rates misallocate capital, result in mal-investment, and distort and manipulate markets. Fourth, the pricing mechanism or discovery mechanism is damaged if the cost of money is fake, which I believe it is. Fifth, massive monetary inflation is price inflation in a tinder box. As I said earlier, I don't think it's a short-term issue, but I'm very concerned about it over the long term. Sixth, the deeper we dig in, the harder it is going to be to climb out. As President Pianalto mentioned, there is a significant risk of capital losses. I know we’re indemnified by the Treasury, but I think that, if it were to occur it would create a political firestorm. Next, I would say that the wealth effect is fleeting and so is its economic effect. I have not been convinced otherwise. Another negative is that our engineering easy money creates an illusory feeling of an economic fix. And last, I believe that cheap money and LSAPs are merely leading to a postponement of having our federal government achieve fiscal sanity.

Now, I did leave out a positive, which is the working presumption, I believe, of the Committee and of monetary policy: By lowering the cost of capital, cheap money encourages businesses to lever up and invest the proceeds in job-creation, cap-ex, and other expansion, and consumers to borrow and spend to boost the economy. I’m not sure that’s what is taking place. And I’m going to give you a quote—again inspired by Governor Stein’s intervention yesterday. The cheapest corporate security ever issued in history was issued on Monday. It was issued by Texas Instruments—$1½ billion in a blend between three- and seven-year maturities, with the three-years going at 0.45 percent and the seven-years at 1.65 percent. Unilever did a similar issue yesterday for $3½ billion. I talked to the CFO of Texas Instruments last night, and he gave me permission to be quoted at this meeting. I asked him what he was going to do with the money and why he made the issue. They have a fairly pristine balance sheet, although it’s an A1/A+ credit. His after-tax costs, because of the deductibility of interest, are 0.83 percent of the blend between a three- and a seven-year. He’s paying 2½ percent in dividends. It’s simple math. You borrow and buy back your shares; it’s cheaper to borrow than to pay out your dividends. He said—and I have his permission to quote—“I’m not going to use it to create a single job.” And I think this is the issue. We work under the assumption that lowering the cost of capital and providing cheap money encourage businesses to lever up and to use that levering up to expand cap-ex and job creation, which is part of our mandate. I don't believe that's happening.

And here's what concerns me, Mr. Chairman. As Governor Raskin and others have pointed out, we know—by virtue of our looking at the fiscal cliff—that there is already a shrinking of the footprint of government spending. We know that government spending will not be expanding. We're turning to the private sector for job creation. We're not listening to the private sector. The private sector is telling us that they're hindered not because of monetary policy, but because they don't have the incentives to put the cheap and plentiful money we have provided to work. And I think—again, not having a vote in this discussion—that we need to seriously consider downside risks of the kind of proposition that's put forward in alternative A—whether it's really doing what we are charged with having to get done. I understand the economic theory, but in practice, are we indeed leading the private sector to further job creation? I would argue that we have improved their balance sheets. I would argue that, like our women gymnasts at the Olympics, they are as fit and ready to win as possible. But I would also argue that they need the proper incentives, which we cannot provide and which can only be provided by the fiscal authorities.

But I won't rely on my own arguments here. I want to sum up by quoting what I think is a very important report, the annual report issued by the BIS recently, and I'm going to quote from the final paragraphs of Chapter IV. "There is a growing risk of overburdening monetary policy. By itself, easy monetary policy cannot solve underlying solvency or deeper structural problems. It can buy time, but may actually make it easier to waste that time, thus possibly delaying the return to a self-sustaining recovery. Central banks need to recognize and communicate the limits of monetary policy, making clear that it cannot substitute for those policy measures that can address the root causes of financial fragility and economic weakness." "Finally," it says, "central banks need to beware of longer-term risks to their credibility and operational independence." I think a program such as that articulated by alternative A—which, as I understand, would lead us to have over 40 percent of the outstanding Treasuries with a maturity of 10 years or greater, and a significant portion of the MBS issuance—would place our independence at risk. And I can imagine, as two of my previous interlocutors have mentioned, that it would create a significant political backlash, and I think we need to consider the risks that it poses to us.

With regard to alternative B—which, it's pretty clear to me, will be accepted by this Committee, even though we've had strong voices and thoughtful voices articulate the case for alternative A—I would make a suggestion, Mr. Chairman, with respect to the second paragraph. "Strains in . . . financial markets . . . and issues relating to U.S. fiscal policy"—which I would include; we've all talked about that, the fiscal cliff—"pose significant downside risks to the economic outlook." That's the sentence I'm looking at. I made the point yesterday, which I think is very important for us to understand and to communicate, that it's not the fiscal policy or the fiscal cliff itself, but the uncertainty that it creates in terms of budgeting and planning, job expansion, and cap-ex. I would like to amend that sentence, if you're open and amenable to amendment, to say, "Furthermore," and I would insert "uncertainty related to strains in global financial markets and issues relating to U.S. fiscal policy pose significant downside risks to the economic outlook." It's important that we communicate to the private sector that we understand that it's uncertainty that is the issue. As one CEO said to me, "Raise my taxes, but let me know what they are. Give me some clarity. Give me some certainty." So I would suggest that, after "Furthermore," we insert "uncertainty related to," strike the words "continue to," and leave the sentence as it is. And finally, I would argue that President Plosser, who used the term "dangerous to pre-commit," understated the issue. I would be against the language that has been suggested as a change in paragraph 4, and I would keep the language as it was.

Lastly, let me say that I fully agree with President Evans. We bear an awesome responsibility, but we also bear a responsibility to keep what we are able to do in mind and not extend an assumption that we can solve problems that we are unable to solve. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Fisher, I know we put a lot of value on anecdotal reports around this table, and often to great credit. But I do want to urge you not to overweight the macroeconomic opinions of private-sector people who are not trained in economics. In particular, in the case you gave, the company may not be impressed by lower interest rates to invest more, but it pays dividends. Dividends are personal income; that could lead to more spending. A lower dollar could lead to more export orders. More spending by consumers because of higher stock prices could lead to more orders. I think all of these firms have shown a willingness to respond to higher demand. So I just ask you to please keep in mind that they may not understand all of the channels through which monetary policy works.

MR. FISHER. I think that is certainly good, clear, and understandable logic for those who have access to stocks and mutual funds, which is about 50 percent of the households. These people are much more sophisticated than we give them credit for, Mr. Chairman, but you and other Governors have reminded me on various occasions that we can't place too much stock in anecdotal evidence. Having said that, I've always referred to these as pixels that are part of a broader picture, and I offer them only because I think they're important to take into consideration. Second, I think we have to be very careful. Whether they're little or large, whether they're public or private, these are the people who are on the battlefield creating jobs. What I am asking them is what their plans are in terms of budgeting, and I am relaying it to the Committee. Obviously, this is anecdotal, and I always preface my comments by saying, "For what it's worth." So let me conclude my comments by saying that for what it's worth, that's my opinion. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Their plans are quite interesting. It's just the analytical part that I'm questioning. Vice Chairman.

VICE CHAIRMAN DUDLEY. I'd just reinforce the point that I think the channel of the cost of capital affecting business fixed investment is actually probably one of the weaker channels, as opposed to one of the more powerful channels.

MR. FISHER. So what are we doing, Bill? We're lowering the cost of capital, correct? We're providing plentiful capital.

VICE CHAIRMAN DUDLEY. That works through many different channels.

CHAIRMAN BERNANKE. Many, many different channels.

VICE CHAIRMAN DUDLEY. And the cost-of-capital channel is probably one of the weaker ones. That's all I'd say.

MR. FISHER. Well, again, I take very seriously our charge in terms of the dual mandate. With regard to job creation, I'm talking to the job creators. And I'm not seeing the response that I was hoping to see because of other blockages, and that has to do with the incentive to put to work the funding and the cheap capital we're making available.

CHAIRMAN BERNANKE. Thank you. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I support alternative B. I anticipate moderate economic growth over coming quarters and no meaningful improvement in the labor market.

Moreover, I see very substantial downside risks to this outlook from European developments and the impending fiscal cliff. Looking ahead to the September meeting, I fervently hope to see economic conditions improve. I'll be particularly looking for a markedly more positive tone in the two employment reports we'll receive during the next six weeks. But barring such improvements, I think we should definitely take action along the lines of alternative A. The consensus forecast document, as I mentioned in my economic remarks yesterday, provides a compelling case for these actions, and I fully agree with the way in which Presidents Evans and Kocherlakota and others have elaborated that reasoning. A forecast that envisions almost no meaningful progress in lowering unemployment over the next few years, while inflation consistently runs below our objective, is not balanced and just cannot be a satisfactory outcome.

I think the new language in paragraph 4 of alternative B is sufficiently forward leaning to indicate our intention to act unless we do see significant improvement, without locking action in. Alternative B offers an option to extend our forward guidance to at least mid-2015 today, but I would much prefer, when we extend that guidance, to adopt the more positive language from paragraph A(4), and that militates in favor of waiting until September. Governor Raskin and President Kocherlakota have both articulated a strong case for a change along the lines of A(4). And I agree with the detailed explanation of that reasoning that President Kocherlakota just offered. Importantly, our forward guidance acts as a tool for providing additional accommodation only insofar as it signals a commitment on our part to hold the funds rate at exceptionally low levels for a longer period than we would if policy were not constrained by the zero lower bound. In other words, extending our forward guidance provides additional support to the recovery most effectively when it is not interpreted as merely reflecting a deterioration in the Committee's economic projections. Extending our forward guidance in September could have a more powerful market effect if the Committee is able to clarify its role as a policy tool, and indeed, this is something I would urge the Chairman to consider articulating at Jackson Hole.

Short of a very substantial improvement in the economic outlook, I would also strongly endorse the launching of an open-ended LSAP program at the September meeting along the lines described in paragraph A(3). An open-ended approach would clearly convey that we are determined to see conditions in the labor market improve, and that we will do what it takes. Moreover, the proviso at the end of paragraph A(3) would allow us to ramp up the pace of purchases in response to a deterioration in the economic outlook or a widening of risk spreads. Conversely, we would also have the flexibility to scale back or even halt the program if it became apparent that the purchases were proving ineffective or having substantial adverse effects on financial market functioning or financial stability. But “we will do what it takes” is a powerful message, and I believe that such a program would provide meaningful support to the recovery. I think an important design element of the proposed LSAP program is that it would restart our purchases of agency MBS. Doing so should provide additional support to the housing sector, even though those effects may be attenuated given the impediments in the mortgage market.

I recognize, and agree with President Fisher, that lower borrowing costs may have only a minimal effect on investment spending, precisely for the reasons that you’ve given—that businesses at this point are preoccupied with uncertainty, weak demand, and excess capacity and don’t see their inability to borrow on reasonable terms as an impediment to hiring or spending. But I also want to emphasize my agreement with the point that the Chairman and Vice Chairman Dudley just made. The implication is not that this program would not have a meaningful effect on the economy. The staff estimates that around two-thirds of the impetus to spending from

LSAPs results from wealth effects on consumer spending due to higher equity prices and the favorable influence of a weaker dollar on net exports. Those two channels of the monetary transmission mechanism remain alive and well, and I absolutely think that businesses will respond by hiring more and investing more when they see a significant and meaningful increase in their sales that they can feel confident about. Moreover, while the confidence-building effects of an open-ended program are difficult to capture in a conventional macro model, I believe that those benefits of an open-ended program could be very substantial. Although I can see a strong case for initiating such a program at this meeting, I think that here, too, we can enhance the effectiveness of our action in September through our communications during the intermeeting period. We could, in particular, explain that an open-ended program affords us greater flexibility to respond to the evolution of the macro outlook as well as to changing assessments of the costs and efficacy of the program.

I agree with President Williams that it would be a mistake for us to delay the initiation of a new LSAP program beyond September in an effort to keep our powder dry. Should a severe adverse scenario materialize, such as an escalation of the European debt crisis, then safe-haven flows into Treasuries would likely push yields down a lot, even without any policy action on our part. At the same time, overall financial conditions would be markedly tighter due to the widening of risk spreads. In such a situation, further LSAPs might have little or no effect, whereas right now I believe they can provide significant further stimulus through lower longer-term interest rates. There is no point in saving our ammunition if, in the end, the ammunition would lose its potency. Another reason I think we need to use our ammunition soon is precisely because we have so little left beyond that. Fostering a stronger recovery by providing additional stimulus now would not only promote more-rapid improvement in the labor market, but would also improve the resilience of the economy should it be buffeted by some large adverse shock.

The two staff memos pertaining to LSAPs highlight that our capacity to conduct asset purchases is not unlimited, and there may also be limitations on just how far we can credibly extend forward guidance. In view of the substantial downside risk to the outlook, it's therefore important for us to study what additional options we might have if more stimulus turns out to be needed. I see considerable value in studying whether it might be possible to develop discount window programs to stimulate lending in the spirit of the Bank of England's Funding for Lending Scheme. I found the box in the Tealbook describing that approach very helpful, and I'm glad that Governor Raskin is leading the efforts here at the Federal Reserve Board to think about how to design a program that might work in our own institutional environment.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I'm in favor of alternative B, but I'd like to discuss the policy actions proposed in alternative A. I do believe that the economy needs more accommodation, and I think we need to wring every ounce of accommodation we can get out of every dollar of unconventional action. I supported the continuation of the MEP at the last meeting because I thought accommodation was called for and it made sense to finish up the use of that tool. It feels awkward to me now, one meeting later, to discard that tool in favor of a new QE program without much explanation. It just feels like a repudiation of both the earlier decision and the earlier assertion that the MEP was a significant step. While it may very well be the thing to do, I believe that we could execute a smoother transition if there's a little more set-up and there's a chance to discuss the action in a press conference, both of which could be accomplished in the September meeting. Further, having the MEP in place means that waiting until September to switch to more QE doesn't mean that we have no additional accommodation in the interim.

I very much appreciated the notes provided for this meeting that address the volume of securities that could be purchased without disturbing market functioning, the estimates of costs and benefits of such a program, and the information about the capacity of the banking system to absorb further reserves. Taken together, they helped alleviate my fears about the limits and the costs of this tool. Any reluctance on my part to support asset purchases has come from concerns about the effectiveness, costs, and risks, not from concerns about inflation risk or any belief that the economy was doing just fine and didn't need further accommodation. As President Fisher points out, I term it as "cruddy." I think the economic forecast calls for us to act if we can, and I wish we had something that was more comfortable to do, but we don't. So in light of these memos, I'm in full support of asset purchases as our best option. Having expressed a preference for more QE, I like the design of A(3) better than A(3′). As I'll discuss in a moment, I don't view discount window lending or lowering the IOER rate as very promising alternatives, so I view this as our best remaining tool.

By expressing the new purchase program as an open-ended program, I think we leave ourselves the flexibility to adjust the pace of purchases, the length of time that purchases continue, and the mix of securities purchased. This flexibility could be needed if the economic outlook, market functioning, the effects of additional reserves on the banking system, or something else unfolds differently than we currently expect. Still, I kept reading paragraph A(3) over and over and trying to decide whether or not I would know that we intended to purchase $1 trillion of assets if I hadn't read anything else. That is, if I was outside this room with only the statement to go by, I'm not sure I would. First of all, there won't be an SEP from this meeting to use as a guide. But if there was, looking at the consensus forecast, would a reduction in unemployment from 8.2 to 7.9 percent by the end of 2013—or, looking at the Tealbook baseline, from 8.3 to 8.1 percent in 2013—constitute sustained improvement in labor markets? Or would the language about sustained improvement in labor markets indicate purchases through the end of 2014, a purchase of $2 trillion or more, to someone looking at the SEP? Furthermore, I'm disturbed that there seems to be no real connection between the time frame for purchase and the date of first liftoff. I think that part of the problem stems from having one expressed as conditions and the other as a date. We've talked a lot at this meeting about rules for the fed funds rate, but not much about the interaction of liftoff, exit, and the end of purchases. If conditions deteriorate and we want to do more, how will that "more" be communicated? We have room to increase the pace, but how would we communicate an extension of the end date or an increase in the total purchases expected? Should a pushout of the fed funds liftoff be interpreted as an extension of the purchases? That is, should we lash the two together using the exit strategy? I'm happy to vote for more purchases, but I'd like to understand how we plan to use this last good tool to best effect. I'd like to discuss how we would use the flexibility that this statement gives us and communicate that use so that the public can form better expectations about purchases in the face of improving or deteriorating conditions, just as they do now with the fed funds rate. If we can't articulate how we would use this flexibility to gain advantages over a formulation such as 3′, then we probably should go back to 3′, which at least has the advantage of familiarity.

I'll turn next to the extension of the forward guidance to mid-2015. I don't necessarily have a problem with extending it, but I'm afraid that without any explanation, it could appear somewhat random. Looking at the Tealbook baseline and the consensus forecast, I didn't see much change in the fed funds projection. If the dot pattern in the September SEP looks pretty much as it did in June, then moving out the date changes the message about our policy in relation to the projections. Once again, I found the staff memos to be especially helpful in thinking about this. The suggestion that simple rules could be modified at the zero lower bound to delay liftoff in order to avoid a return to the zero lower bound seems both sensible and explainable to me. Simple rules have the advantage of simplicity, so surely, if we could improve their effectiveness at the zero lower bound with a relatively simple adjustment, it seems as though that would be good, too. Maybe we could agree to make such a modification to our individual favorite rules and apply them to our individual forecasts to come up with fed funds projections. Or we might agree that everyone would use their favorite rules in their projections, but that as a Committee we'd make a decision to delay expected liftoff beyond what would normally be called for. Either way, communication of that change would be an important step to explain why the date was moving. Having everybody approach projections in a different way seems, to me, guaranteed to confuse.

The third action contemplated in alternative A is a reduction in the IOER rate. This is an action that I cannot support. My primary concern is that some rates, including deposit rates, would go negative, and that we are not prepared for those negative rates or for large dollars stampeding from one instrument to another. I understand that economists see little difference between low rates and negative rates, but ordinary consumers, businesspeople, and investors see a very emotional difference between earning a low return and losing money. Banks have already run down wholesale funding and reduced deposit rates. Some are already charging business accounts to offset FDIC charges, and in fact, they're even in a squabble with the FDIC for labeling the charge as FDIC insurance. Our Truth in Savings regulations don't even have a provision for negative rates on consumer accounts, so any similar charge on consumer accounts is unlikely to be transparent to consumers. And you only have to look at the rage over ATM fees or debit card fees to get an idea about how consumers feel about being charged for accessing their own money, let alone leaving it on deposit. Computer systems are not universally designed to handle negative rates. We saw last year that banks were willing to charge to hold deposits in order to discourage them, if it seemed likely that large volumes of volatile money would flow into deposit accounts. We saw the BIS do the exact same thing in response to the ECB action, and it had the desired effect in that we, indeed, moved SOMA funds somewhere else. More important, we have no tools—nothing, nada, zilch—in place to deal with a run on money market funds. In the face of all of the potential volatility we can see from Europe or another congressional standoff, why we would take any risk at all of a money market fund dislocation for what looks like very little gain is just beyond me. I did think about whether a 10 basis point reduction in the IOER rate would pose less risk than taking the rate all the way to zero, but came to the conclusion that it would have even less benefit than a larger move and, through signaling, could have all of the risk. I do think that increasing the amount of reserves is going to have an impact on short-term rates, and that we should consider funding purchases with something other than reserves—maybe deposits or reverse repo tools that we developed in our exit strategy.

Although discount window lending is not included in alternative A, it's been discussed quite a bit in the intermeeting period. I'm trying to keep an open mind, but I just don't think it's going to work. U.S. banks are facing very weak demand from customers with the credit risk they're willing to take, and they're only slowly expanding the credit risk that they're willing to assume. Their cost of funds is already quite low, and they're still stinging from the backlash they felt for accepting government support during the crisis. We might be able to design a program that some banks will use to make some loans, but that's not the same thing as increasing aggregate lending—not if our loans are loans that someone else was already making, or the loans that the banks make are simply taking those loans from someone who would have made them without our assistance, or the loans themselves are just refinances rather than new borrowing. Before launching such a program, I'd want to understand why we think that our program will be more effective than the current strong profit pressures that are driving banks to compete aggressively for available loan demand.

Finally, Mr. Chairman, I think we're having the wrong conversation with the public. I don't think the question is whether the current state of the economy justifies additional accommodation. If we had a 4 percent fed funds rate and we were discussing a cut, this would be a very short meeting. I think the issue is the zero lower bound. At the zero lower bound, our strategy is harder to formulate, calibrate, and communicate. But we keep talking about how we would act if we weren't at the zero lower bound or how we might act if we ever get back to normal. I think we need to communicate internally and externally about how we plan to operate differently at the zero lower bound, not how long we might be here. We should talk about being in uncharted waters and the need to constantly reassess the efficacies and the costs and risks of our remaining tools. I think this would be much more comfortable and more transparent than talking about monitoring incoming information and providing additional accommodation as needed, as if we have this magic wand in our pocket but just aren't sure that it's needed yet. There's enough uncertainty in the world today without adding uncertainty about what the Fed is going to do and when.

So, Mr. Chairman, I hope that you have in your pocket a particularly clear and illuminating speech for Jackson Hole, and that, combined with the minutes of this meeting and a brilliantly written statement for the September meeting, we can launch our best and last QE to maximum advantage. In the meantime, I'll settle for alternative B.

CHAIRMAN BERNANKE. I have every confidence the staff will deliver—[laughter]—that speech. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I would favor the policy action contemplated in alternative A, although at present, neither of the formulations quite captures the way I would go about doing it. In explaining my position, I want to try to emulate Narayana and Betsy in being fair minded about the arguments on both sides. Sometimes we slip into more of a litigious than analytic mode where we trivialize the arguments on the other side and get a bit conclusory about the arguments on our side. And I think a number of you did this today, but I thought Narayana and Betsy, in particular, were trying to be evenhanded even though they have conclusions in the end.

Let me use the template that I think most of you have used implicitly, which is need, benefits, and costs for additional accommodation. With respect to need, I guess my view must be pretty apparent, based on my little exercise with the five propositions yesterday. I would just add that, to me, it is not a matter of some incremental data. It's much more a matter of the "stuckness" or the bogged-down quality of the economy, as I put it yesterday. That's why I said that I'm not going to have a different view in September based on a few good pieces of data or a few above-expectations pieces of data. It would take something really dramatic, which I don't think anybody around this table contemplates, to change my view that the economy is stuck. And as the Chairman noted, with the revisions in GDP over the last couple of years, we're seeing that stuck quality in even more quantitatively graphic form, which is, we're at just about the same level of GDP growth. If one thought that there's structural harm to the economy of the magnitude that we couldn't even recover any of the lost output from the last few years, much less grow at above a 2 percent rate on a trend basis, then one might be against it, but that's decidedly not my view, for many of the reasons that the Chairman mentioned in his introductory remarks this morning. It is, however, a reason why I had one of the questions yesterday, because there's going to come a moment at which we're going to have to make some judgment as to whether there is some structural harm against which we begin to bump up, and that would be a time to change our accommodation policies.

Let me move on to benefits. I think the benefits question is really an efficacy question. As Betsy said a minute ago, if the federal funds rate were 4 percent, we'd have a fairly straightforward discussion. It's the fact of LSAPs or other unconventional means that make the benefits part of the discussion more difficult. So I'll say a few things. One, I think with respect to the effect of the LSAP purchases that we've done in the past, the substantial weight of work by people without an obvious institutional or political reason to go one way or another suggests that there really has been an effect through different channels, and some of the papers emphasize some channels more than others. For me at least, while the empirical studies cannot obviously be dispositive—we haven't had that much experience; there's still some disagreement—it does seem at least as clear as I think we could expect at this point. That doesn't mean that the benefits are going to be the same going forward, and I think we just need to be straightforward in saying that. There may well be declining marginal utility with an additional dollar of LSAP purchases as interest rate spreads are more and more compressed. That doesn't mean, though, that some of the channels that have been operative are going to become inoperative. I think there's some substantial reason to believe that they still will be operative. It's just a question of how much we may expect. For some of those very reasons, it seems to me that we ought to—and again, this is echoing Betsy—try to maximize the effect of what we've got remaining. And that, to me, argues for doing the most that we can reasonably do, on the one hand, and bundling various policy measures together, on the other.

Some of you may recall that a year and a half or two years ago, I said I thought we were slipping into the practice of needing to "throw a maiden over the cliff to the dragon" at every meeting, and I didn't think that was a particularly useful way to go forward and communicate. Changing the date in the guidance today would be slipping back into that pattern, so I'd be opposed to it. I do think, though, that pulling as much together as we can reasonably and responsibly would be a way to maximize the effects both on actual market functioning and on confidence and the psychology of markets and consumers regarding our actions. With respect to that, I think that the psychology is probably one of the arguments for holding fire, and I've asked myself the question "Should the normal monetary policy axiom that you fire if you've got ammunition be different at all because we're using LSAPs?" And there might be an argument for that proposition, particularly with Europe looming in the background. But as Janet pointed out, the utility of the LSAP might actually be diminished further in a context in which there was substantial flight to quality, and so we'd want to try to maximize the insulating effect by using that tool right now. Moreover, if the concern is whether we then look as though we're impotent because a crisis hits and we're sitting there saying, "Well, we've run out of at least substantial ammunition?" I don't think that's actually too serious a concern, because if there were real effects on financial market functioning in the United States, then presumably we would deploy emergency liquidity facilities. If there were not those effects, then we might congratulate ourselves a bit and say that we had provided substantial enough insulation and not feel the need to take dramatic new action.

Finally, costs. As I've listened, not just today but over the course of the last couple of years, I think I hear three kinds of costs that people are concerned, rightly, about: inflation, market functioning, and credibility of us as a central bank. On inflation, with all due respect to those who have made the argument, I must say that I do find the arguments a little conclusory. That is, the specter of runaway inflation sometime out in the indefinite future, as I've heard it, doesn't seem to me backed by an enormous amount of linear analysis that gets us from here to there and where are the real problems. And I have to say, I've tested this proposition on a fairly wide variety of non-Fed—mostly, but not exclusively, academic—economists, and even those who are on the hawkish side tend to be not too concerned about that particular prospect. They are more concerned about the other two things. The market functioning issue, I think, is a real one—again, for reasons that Betsy alluded to. I wasn't completely set at ease by the staff memo, and so I'm glad that Bill and Eric and others have suggested that we need some more staff work on that between now and the September meeting. I think this is a case in which it's useful to hear the dissonant voice even if ultimately you say, "Well, it wasn't the right voice," because it is a new kind of issue, and we really should have the benefit of all the argumentation. And lastly, on credibility, where I depart, I think, a little bit from what some of those who are inclined in my policy direction have said. I don't think I would want us to be saying that we will "do what it takes," because it isn't clear to me ultimately that we can do what it takes to solve the rather substantial economic problems that we face right now. My suggestion would be that we communicate an intention to "do what we can," and that we will continue to do what we can, with the appropriate set of costs and benefits being taken into account at each step of the way.

Mr. Chairman, am I missing any wording issues that we're supposed to address here?

CHAIRMAN BERNANKE. That's up to you.

MR. TARULLO. Okay. If it's up to me, then I'm done.

CHAIRMAN BERNANKE. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. As the economic data have, for the most part, continuously weakened over the course of the year, we publicly have sent the signal that we're waiting for some clarity about whether there really is slowing under way. Now that we have revised Q1 GDP data and a look at Q2, as well as six months of employment data, it seems clear that the economy has indeed slowed appreciably since the second half of 2011. With that additional clarity, it seems to me that it isn't the data that is the rationale for not doing more to ensure that we're making progress toward achieving either leg of our dual mandate. The data are probably as clear as they will ever be. What is unclear to the public is the efficacy and calibration of our tools and how we intend to use them. And so I think the public might benefit from a shift in the conversation.

Indeed, the economy might benefit from a shift in the conversation away from the prospects of poor prognosis and toward an explanation of what particular actions are intended to do. This is no small task. Obviously, central banks react to economic conditions. They have extraordinary capacity to do this in an apolitical way if they're structured with both independence and accountability. But in the realm of the unconventional, the zero lower bound, and constrained policymaking, the effectiveness of our actions also depends on fuller explanations of our tools. Without such full explanations, the public and markets are confused and act in ways that counter the rationale for the policy tools. This may not be a weakness in the tools, but a weakness in our communication to the public of what these policy tools are intended to do. To me, the case for forceful and effective action is clear, but the necessary discussion is how to maximize the power of our communications before taking new action. There may not be much to be gained from waiting, in terms of improving our insights into how the economy is evolving. We're always uncertain about the state of the economy, and I think it's as clear as it can ever really be that the labor market isn't improving on its own anytime soon. I also don't see January 2013 as some magical island from where the view is better and uncertainty has dissipated. Moreover, I'm convinced by the work of the staff in their memos that we have plenty of capacity in the markets to take more action without impairing market functioning. I don't think that market functioning is a reason to hesitate, but of course, I look forward to further work in this area. On the contrary, I think communication of these findings could set the stage for more forceful and effective action.

I think the case for waiting can be made if it can improve our communications about new policy actions to economic participants. In other words, can we make good use of the intermeeting period to introduce new or newly packaged monetary policy tools? Here, I'm reminded of my previous attempts at rolling out new dinner items to the family. I can throw together what is in the back of the refrigerator—the leftover chicken, salad, and potatoes—or I can attempt the never-before-tried seafood bouillabaisse à la Provençal. But whichever route I go, let there be no doubt that an a priori explanation will be demanded. Similarly, there's a risk that announcing a new, bold policy tool or a package of less aggressive policy options without describing the thinking behind them may be interpreted by markets as a sign that we think the likelihood of an even worse economic outcome has significantly increased. And without speeches from the Chairman and others to explain how such a new tool or package of old tools would be effective, we could confuse the public and get less of a positive effect than we otherwise could.

In my view, an important part of the communication should be to make it clear that we're not taking this bold move because we think that the economy has significantly weakened. On the contrary, we should indicate that this is the right policy to take because we are doing what it takes to get where we want to be and to get there sooner than we would otherwise. This would be a different content to communication than what has been usual here, and for me, if done correctly, justifies the lag in acting more quickly and decisively. Therefore, if it's the decision of the members of this Committee that we should go with alternative B at this time, that's a decision I can support. My support wouldn't be without reservations, because I think the signal that we may be sending to the public now will be that we're not concerned about meeting our mandate or that we think we don't have the ability to do so. Neither of those are messages that I want to send. If we go with alternative B, I hope that members of this Committee will begin to clearly talk publicly about the possibility of and rationale for the type of action in alternative A so that we have laid the groundwork for enacting that policy the next time we meet. More important, I hope the policy action is characterized to the public as one that will be forceful and effective. Thank you.

CHAIRMAN BERNANKE. Thank you. Governor Stein.

MR. STEIN. Thank you, Mr. Chairman. I support alternative B, but I'll focus my comments on alternative A because that's obviously what we need to think about. To be clear on my priors, I'm inclined to have reservations about the prospect of another round of LSAPs, not because my outlook is brighter than the consensus—it is not—or because I'm concerned about imminent inflation risks—I'm definitely not, and I'm very firmly in the camp that believes we have an aggregate demand rather than aggregate supply problem. As a couple of others have noted, if we were in the situation where the funds rate was at 4 percent, it would be a very easy decision to ease. My reservations are based, first, on my sense of the limited efficacy of further asset purchases. And notwithstanding some of the econometric models, for a variety of reasons, I'm inclined to suspect—with a fair amount of uncertainty, of course—that there's less bang for the buck to be had at the present time. Second, on the cost side, buying $1 trillion of long-term bonds at a time when term premiums are at historically negative levels represents a significant expected cost to taxpayers. It also removes what are apparently, according to the market, highly valued safe assets from the system at a time when other providers of these safe assets are falling by the wayside. And finally, it leaves the U.S. government on a consolidated basis with a very short debt maturity structure and, as a result, quite vulnerable to future interest rate increases. Now, having said all that, Mr. Chairman, I take very seriously your admonition to be a good Bayesian and to weigh the probabilities and to recognize that errors of omission are as serious as errors of commission. So with that in mind, I recognize that at some point—and we may be getting quite close to that point—a reasonable analysis will point toward acting even if there's only a modest probability of realizing the benefits that the models tell us there are and there's a significant probability of having almost no benefit whatsoever.

With that in mind, let me turn to the design principles for an LSAP under alternative A. Consider first the flow version, which is described in paragraph 3, and let me start from the—I hope—uncontroversial premise that if you do a flow program, a principle should be that you want to keep the tap on as long as the marginal benefits exceed the marginal costs. A second premise, which I think is fair, given the discussion here, is that there's fairly widespread disagreement about the magnitude of those benefits. And a third is that there's some disagreement about the marginal costs, and I think everybody would concede that the marginal costs are increasing the more that we do. It seems to me that if you put those three together, it suggests that a policy that keeps the tap flowing until we hit a particular labor market milestone is just not the right way to go. To be concrete, suppose a year goes by and we're exactly where we are now—no improvement in labor markets; no overt signs of market dysfunction, either—it's just nothing. I think at that point, we'd have to say we've learned something. As a Bayesian, we've learned something: It's less effective than we had thought. The costs are rising simply because the amount we have on our balance sheet has gone up. So we should stop. Now of course, conversely, if we had the sense that we had seen real improvement in the first six or nine months so that there was an upside surprise on efficacy, I would think you would continue to go on further relative to whatever labor market milestone you had in mind, assuming the costs were in check. Concretely, in terms of the proposed language in paragraph 3 of alternative A, I'm uncomfortable with the sentence that reads, "The Committee anticipates continuing to add to its holdings at least until it observes sustained improvement in labor market conditions," and so on. By contrast, I'm comfortable with and prefer the piece that comes later in that same paragraph, which says that "the Committee will regularly review the pace and composition. . . in light of the economic outlook and its ongoing assessments of the efficacy and costs." Now, one approach would be to basically move up the latter thing and get rid of the former or soften the former. I very well understand that that amounts to trading away a measure of the pre-commitment and of the market impact in favor of flexibility, and of course, if you dilute the market impact, you run the risk of compromising the whole program. At the same time, it seems to me that we want to have some benefit of flexibility. I'm just struggling over this and wondering if there are better ways to strike a balance. To be clear, at the extreme, while you might say you want flexibility, it doesn't make sense to say we're going to revisit this every FOMC meeting. Because whatever learning you think you're going to do, you're not going to do a whole lot in six weeks, and then you're going to lose all market impact. So I'm wondering if there's some hybrid of 3 and 3′ that works better in terms of striking a balance. For example, just as a kind of stalking horse, you could imagine a firm commitment to doing it for six or nine months and, at the same time, have language as in paragraph 3 that suggests that if at the end of that term there's still a gap to be closed, there's some presumption that you'll keep going pending an updated assessment of efficacy and costs. I don't mean to suggest a specific solution—I don't really have one—only that I'm struggling over the right way to balance an obvious need for market effects with some ability to be flexible.

Finally, a word on managing our capacity—this is a very interesting question. I actually had some prepared remarks, and listening to yours, Governor Yellen, made me feel a little less clear in my own mind. My instinct was that, with all due respect for the Reifschneider–Williams "dry powder" arguments, whatever route we go in terms of communicating the duration of the program—this is assuming we do a program, assuming we fix the duration—I was thinking about the flow rate here and wondering if we wanted to hold back some capacity to open the tap a little wider to amp up the flow. And much as you all were, I was trying to imagine a scenario where things get worse in Europe and there are recession or deflation fears here. My instinct was—and I'm open minded on this—that, at that point, it would not be all that reassuring to say to markets, "Well, we've got this program, and we can continue it for longer." At that point, it would be helpful from a confidence perspective to be able to open the tap somewhat more. It may be that under the kind of capacity analysis that the staff has done, we would be there already under the current proposal, and I would just like to get comfortable that there's some further headroom there. That's pretty much it. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Powell.

MR. POWELL. Thank you, Mr. Chairman. Like some others and unlike some others, I hope that the next intermeeting period will be helpful in clarifying the direction of the economy and the potential need for further action by this Committee. We announced the extension of the MEP six weeks ago. Developments in the economy in the meantime have been modestly worse than anticipated, and I don't see that there's been a material departure from the facts on June 20 that would call for a new trillion-dollar LSAP now. So I have been an advocate for letting time pass. I therefore support alternative B, although the lean language, if you will, is a little stronger than where my thinking is. And I would propose, at the right time—maybe that's now—substituting the word "if" for the word "as" so that it would read, "The Committee will . . . monitor"—et cetera, et cetera—"and will provide additional accommodation if needed," as opposed to "as needed."

To get a little into the thinking, I see us as mandate consistent on inflation, as I mentioned yesterday. I identified significantly with the Chairman's analysis at the beginning of this morning, which is to say that I find aggregate supply explanations unpersuasive, and it is my view that there's a material output gap. I don't know whether it's 4 percent or 2 percent, but it seems highly likely to me that it is material and that we're not making progress toward closing it. That means that we are missing on the employment side of the mandate to a high likelihood. If this were a matter of cutting the funds rate, I, too, would see it as an easy call. That's not where we are, so it does come down to the cost-and-benefit analysis that so many others have talked about. And for me, I think that the bar for another large LSAP is high and not yet met. As far as the benefits are concerned, I would say that I suspect that our ability to increase employment by lowering rates is very limited at present; I've got real doubts about efficacy. I don't question the efficacy of earlier rounds—which, as Governor Tarullo pointed out, most academic observers have found to be meaningful—but I suspect that the channels that we're using now, which principally are asset prices, may not be working at all as well as our models say. And I use the word "suspect" advisedly because I hold that view with substantial uncertainty.

On the list of potential costs, I would include inflation, the difficulty of exit, the risk of creating expectations we can't meet, the prospect of capital losses, market function, and the grab bag of stability issues. The point was well made, I thought, by a couple around the table that a number of these risks are not going to manifest themselves now, but over a long period of time. So that's worth considering. While I take all of these risks seriously—and it would take a long conversation to do any single one of them justice—I am coming around to the view that they are manageable. I also take great comfort from the new language in alternative A that says that "the Committee will regularly review the pace and composition of its securities purchases in light of the economic outlook and its ongoing assessments" of their efficacy and costs, which I think helps quite a lot. One issue I want to focus on today is that I am very wary of taking steps that will significantly increase the probability that a few years down the road, the Federal Reserve System might undergo an extended period of negative net worth on a mark-to-market basis. It is pointed out to me when I say this that we don't mark to market, and my personal sample suggests that in excess of 95 percent of economists agree that the metric is irrelevant, and I've no doubt that it is. But we're a government agency—I get that. I still believe that it could matter a great deal for this institution if it comes to pass. I don't think it's a dispositive argument, but I look forward to seeing the analysis that we work up on the effect of a large LSAP in the intermeeting period. Net-net, my modal outlook for a large LSAP would be modest to little benefit, accompanied by risks that will bear close watching but that are probably manageable, and I would see the distribution of outcomes around that to be fairly evenly balanced.

Regarding the options for further action that are on the table, A(3) and A(3)′, I admit to being a long way from having my mind made up on this. I would say that as far as the open-ended LSAP is concerned, I think we will immediately need to clarify what we mean by "sustained improvement in labor market conditions" and to put some kind of a price tag on it. I do understand the desire to put something out there that's more aggressive, and I think this accomplishes that, but I don't think we'll get very far from this meeting without having to say—or the media will say it for us—how big this thing is. Is it $1 trillion? Is it $2 trillion? What are the assumptions, and what do we mean by "sustained improvement in labor market conditions?" I suppose I do—without really understanding the answers to those questions yet—favor a smaller version of 3′. But I also understand that tradeoff between pre-commitment and flexibility that Governor Stein was talking about, and I remain very open minded about this during the intermeeting period. In terms of other ideas that are on the table—IOER—I think we should wait and see what happens further in Europe. I'm not persuaded at this point that the very modest benefits clearly outweigh the risks. In particular, we're not at the point now where we're getting two-by-fours mailed to us the way we were 30 years ago, as many will recall, but if we pick a fight with every small saver in the country, it's a big step in that direction, and that's what you're doing when you're going to negative deposit rates. In terms of 2014 versus 2015, I'm okay either way. I think I'm persuaded that it's better to wait for the SEP. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. I support alternative B at this meeting. I think the case for additional monetary policy stimulus is strong. We are missing badly on only one side of our dual mandate. But I am prepared to wait until the September meeting as long as the statement is sufficiently forward leaning in terms of what it promises.

There are several reasons for that. First, as long as we're sufficiently forward leaning, the expected action in September will be nearly as effective as the actual action at this meeting. We've seen that in the past—as the expectation of our past LSAPs has crept into the market, most of the effect has actually happened before we've made our announcement. Second, as other people have noted, September has the advantages in terms of communication that the Chairman can explain at the press conference. Third, I think by being slightly more patient, we can wait to see additional data, including two employment reports, that may reduce the uncertainty about the outlook a little bit. But more important, that might reduce the amount of disagreement among the Committee, and I think a greater consensus among the Committee could actually make the policy more effective in action. So my default would be to move in September along the lines of alternative A unless we see some meaningful improvement in the economic outlook. And I want to emphasize "outlook" as opposed to "incoming economic data." If you got stronger data and it didn't change your outlook, you'd still want to move in September.

In terms of whether the forward guidance should be changed now or later, I favor waiting until September. To my mind, extension of the guidance is more powerful when it's combined with other action. In that case, the extension of the guidance is viewed as proactive rather than passive. In other words, the guidance is essentially reinforcing the commitment on the policy front and the policy actions. I think an LSAP with extended guidance is more powerful, because it implies that the balance sheet will stay larger for longer. In contrast, when the guidance is extended without policy action, it can be interpreted as, "Well, we're just more pessimistic about the forecast," and I think that's actually a weak way of extending the guidance. In terms of ending the MEP and beginning another large-scale asset purchase program, as I said before, I think we need to see a little bit more analysis about costs and benefits of agency MBS versus Treasuries and how the mix might change over time. I certainly am not locked into the $75 billion per month or the $45 billion/$30 billion split.

In terms of the interest on excess reserves rate reduction, my thinking about that has actually changed over time. Before, I was really against it, and now I guess I'm marginally for it. Three things come to mind. One, because short-term rates are a little bit higher now than they were before, there's probably a little bit more benefit to gain from reducing the IOER rate. Two, I think the disruption of market function would probably be somewhat less now than it was earlier. For example, I understand that the Treasury will soon be able to actually do negative Treasury bill auctions, and they weren't really able to do that before. I think that's a significant change that alters that cost–benefit tradeoff somewhat. And, three, we have to view this as one-time cost of disruption versus benefits that will last for a considerable period of time. If I thought that reducing the IOER rate was only going to be in place for six months and then we were going to normalize monetary policy, then I'd say it wouldn't be worth the trouble in terms of the disruption to the money market. But if you think the policy is going to be in place for several years, which is what we're saying, then you have to look at the one-time cost versus benefits that are going to be realized over a much longer period of time.

In terms of alternative A, right now I'm leaning toward 3 over 3′ because I think a more open-ended intervention would be more powerful in influencing expectations, and it would signal our resolve. However, we do have to be careful—and this goes to points made by Governor Stein—that we don't communicate paragraph 3 in a way that people view it as weaker, likely to be less, than what we're promising in 3′. And so I think we need to play around with the language there a little bit. One thing you could do is to make it clear that you expect to add to the holdings for at least some time period in paragraph 3. That would make it so it would be greater than or equal to, rather than symmetric, as it is now. I think you want to set up 3 so it's more powerful than 3′. If we end up with a formulation on 3 that's weaker than 3′, then I'm going to flip over to favoring 3′. So I think we need to work with that language going forward.

In terms of the alternative B language, this has really not been brought up, which is surprising given it is bracketed. The brackets are around "and issues relating to U.S. fiscal policy." I would prefer that coming out of the statement. I don't really see what including it in the statement accomplishes. Why are we putting in the issue of fiscal policy at this meeting? The second issue I have with that is now that we put it in, what would we have to see to take it out? In other words, what actions would cause us to no longer be concerned about the issues of fiscal policy? I'm not sure we want to be adjudicating what the Congress and the Administration either do or don't do over the next 6 to 12 months. Third, it could be misconstrued as us raising the issue of fiscal sustainability; people could think we're now worried about the debt burden and the deficit, not uncertainties about how the fiscal cliff is going to be resolved. And, fourth, I think it could potentially politicize the policy process. I'm sure someone would spin it as us taking a shot at the Congress and the Administration—in other words, "the economy would be fine, except that you guys are really screwing up fiscal policy." I don't really think we want to inject ourselves into the middle of that, and so I would prefer to take that out. Thank you.

CHAIRMAN BERNANKE. I read this morning that a gaffe is when a policymaker actually speaks the truth in public, unfortunately. Okay. Thank you, all, and thank you for your patience. It's a long session, I know.

Everything has been said. I think there's a good case for accommodation for reasons I described. And I think there's some risk to not doing accommodation now; namely, much of it will be in the form of criticism of the Fed for not fulfilling its mandate. I also think that there are some good reasons for waiting, and they've been mentioned. We just took action with the MEP, and it will still be in place. A number of our colleagues expressed a desire to see more data, and it is true that we will have two labor market reports and other data between now and mid-September. I would say that there was obviously a good bit of lack of clarity in terms of exactly which program we would use—the details, how would we communicate it, and what would be the effects on market functioning? I think all of those things need to be laid out very carefully and discussed carefully. These are, obviously, very important details, and I don't think we quite have gotten through them yet. And as Governor Raskin and other people pointed out, there is also a communications effort that needs to be developed as we consider how we're going to go forward if we do decide, in fact, to go forward. So I do, with some mixed feelings, recommend waiting until September, and I recommend alternative B.

In terms of language, et cetera, there was a pretty clear preference for leaving the "late 2014" forward guidance as it is and not making that change. So you should strike the "mid-2015" option. By the way, I'm not quite sure when the SEP adds 2015, but I think that it would be important for the SEP to add 2015 in September, just so we will get information on this issue. In terms of other language, Vice Chairman Dudley was the only person to talk about the fiscal policy point. Again, the idea here was to mimic the treatment in my Humphrey–Hawkins testimony. I think the time to take it out would be when the fiscal cliff is resolved, whenever that might be. But are there strong views on either side?

MR. TARULLO. I hadn't thought about it, Mr. Chairman, but I found Bill's arguments persuasive.

MR. BULLARD. I agree with Vice Chairman Dudley and Governor Tarullo on this question.

CHAIRMAN BERNANKE. Okay. President Fisher.

MR. FISHER. Obviously, I disagree. We all talk about the fiscal cliff and the uncertainties that derive from it. It's a reality, and you made the message yourself, Mr. Chairman, as you said. I would include it.

CHAIRMAN BERNANKE. Any others?

MR. FISHER. By the way, it may be in there for the next 20 years.

CHAIRMAN BERNANKE. All right. Well, I think a number of voters here expressed concerns, and so I think we'll take that out and keep the language there—"Furthermore, strains in global financial markets continue to pose significant downside risks"— exactly identical to last time. Then there were two comments about the "closely monitor" sentence. President Kocherlakota suggested removing the words "and financial." I think what we had in mind there was European developments, et cetera. Are there others who have views on that?

VICE CHAIRMAN DUDLEY. I think it should stay in just for that reason. I think people will construe that as a European reference.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Are they not economic developments?

CHAIRMAN BERNANKE. Well, yes—personally, I don't feel super strongly about this.

MR. LACKER. I agree with President Kocherlakota. I'd take it out.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. I favor keeping the “financial developments.” I think they’re very material at this time. Financial disruptions of any kind are things we should be worried about and we’ll monitor.

CHAIRMAN BERNANKE. Okay. This was exactly the same language we used a couple of years ago when we had a similar type of description. Is that okay? Would you like to take a straw vote?

MR. KOCHERLAKOTA. It’s certainly up to the voters to decide on this.

CHAIRMAN BERNANKE. Okay. I’ll ask participants. How many would like to keep the “financial” language? One, two, three, four, five, six, seven, eight. Okay. We have a majority of participants, and we’ll keep the language as it is. The other suggestion was to change “as” to “if.” I’m a little concerned about dialing back. I think there were enough people around the table who were forward leaning and thought, in fact, that we should even consider moving today that I’d like to keep the forward-leaning aspect, if that’s okay. All right; I think that covers everything. The changes we’ve made are, first, to get rid of the red “issues relating to U.S. fiscal policy,” and, second, to get rid of “mid-2015”; otherwise, alternative B would be as written.

MS. DANKER. Okay. This vote is on alternative B as the Chairman described and on the associated directive.

Chairman Bernanke	Yes
Vice Chairman Dudley	Yes
Governor Duke	Yes
President Lacker	No
President Lockhart	Yes
President Pianalto	Yes
Governor Powell	Yes
Governor Raskin	Yes
Governor Stein	Yes
Governor Tarullo	Yes

President Williams	Yes
Governor Yellen	Yes

CHAIRMAN BERNANKE. Thank you very much. We went entirely through the coffee break. Let me propose the following. Why don't we take a half-hour break? During that time, there's coffee; lunch is also available. So please gather some lunch, and at 12:45 we will recommence. You can even have your lunch then, and then we'll do the last item, which is about the consensus forecast. Okay? 12:45. Thank you.

[Lunch break]

CHAIRMAN BERNANKE.[7] Okay. Why don't we recommence. We have one last item on the agenda, item 5, which is a discussion of the experimental consensus forecast. What we'd like to do is have two go-rounds. The first one, which I hope will be very quick, is the following. If this were live and I had a press conference in half an hour, I would be showing the baseline consensus forecast, the one that has no policy change, and saying that this forecast is the basis of the policy decision we made today. Then I would say that a majority of the Committee supports this forecast—or says that their own views can be described in this forecast—and that several people disagreed with the forecast on the following grounds. Or a similar type of statement might be in the minutes. So what we'd like to do in the first go-round—again, I think it should be very quick—is just ask people, "If this were a live exercise, would you accept the proposition that your views can be, broadly speaking, described by the consensus forecast? If not, please say a few words about why not." In the second go-round, which is more substantive, I'll let Governor Yellen, who's the head of the communications subcommittee, start it off, and then we'd like to get your views and your input on this whole process—if you'd like to continue this experiment, what changes you would like to make, et cetera. Let me begin with the first go-

[7] See note 4.

round. I think I'll just go around the table, if that's okay, and ask people their views. First go-round: Would your views be describable by the baseline consensus forecast? President Lacker.

MR. LACKER. The answer is, pretty much. My forecast, as I said yesterday, for inflation is closer to 2 percent, and for liftoff I'd write down something more like end of 2013 or maybe early 2014. Now, you're asking about the forecast qua numbers, as opposed to a write-up or any descriptive prose in the forecast?

CHAIRMAN BERNANKE. I'm talking about the numbers in table 1 that I'd be showing—excluding the Tealbook, obviously.

MR. LACKER. So we're not talking about the broader context—what we're thinking about a monetary policy report or language about why things happen.

CHAIRMAN BERNANKE. Yes. We haven't gotten to that.

MR. LACKER. Okay. All right. Then I'll save my comments about prose for later.

CHAIRMAN BERNANKE. Right now, we're just talking about the numbers in table 1—excluding the Tealbook numbers, of course. And we also have exhibit 1, which shows the fan charts.

MR. LACKER. Okay. That's my answer. I'm sticking to it.

CHAIRMAN BERNANKE. Okay. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I don't know if I'll be able to obey your admonition to be brief.

CHAIRMAN BERNANKE. Well, okay.

MR. KOCHERLAKOTA. Actually, I have three differences with the forecast, but they're qualitatively quite different in importance. The first two differences are due to a different assessment of the current state of the economy. I think there's less slack than most of you do, and that leads me to favor less accommodation.

MR. LACKER. Is slack on the table here?

MR. EVANS. It wasn't in the table.

MR. LACKER. I thought we were talking about table 1.

MR. KOCHERLAKOTA. President Lacker, I believe the table has in it a forecast for the federal funds rate. I'm trying to explain why my forecast of the federal funds rate would differ from that in this table.

MR. LACKER. Oh, okay. All right.

MR. KOCHERLAKOTA. I don't view these differences in terms of policy as being that critical. At any given point in time, we're going to have heterogeneous views of the size of the gap. The point of a consensus forecast is to aggregate as best as possible our heterogeneous views. And I think the current consensus forecast does that in a fair and reasonable way. But my last concern of the three is that the consensus forecast appears to imply that the Committee's objective function over inflation and unemployment is inconsistent with the Committee's January statement of principles, and this is a much more significant issue for me. Basically, my point is that the consensus forecast is much more important than what the Committee thinks is going to happen; it's a way for communicating what the Committee is trying to make happen. And I think this forecast, as written, is not consistent with our longer-term strategies.

In terms of my own forecast, as I've said before, I think the output gap is less negative than is implied by this. Essentially, I look at measures of utilization—at capacity utilization, average weekly hours, the box on labor shortages on pages 10 to 11 of the Tealbook A—and I would say everything, though, indicates that slack is roughly equivalent to early 2004. Here, I guess I disagree slightly with Governor Powell that it matters whether the output gap is minus 4 percent or minus 2 percent. And if you go back to late 2004, the FOMC estimated the output gap to be minus 1.4 percent, inflation was actually running lower than it is right now, and the FOMC was raising rates. And they certainly had less accommodation in place. So my view is that I expect inflation to be rising more rapidly than is in this consensus forecast. I think it'll be rising to over 2½ percent by mid-decade, and I favor less accommodative policy than is described in table 1 as a result. But the name of this forecast is "consensus," not "unanimous." If these were the only differences, I would be comfortable with table 1 being used as a description of the consensus forecast of the Committee in a press conference, Mr. Chairman.

However, I see my final difference as being considerably more material. I think that most of us would agree that by changing the proposed path of monetary policy, we can affect the inflation rate and unemployment rate in 2014. So the forecasts for 2014 inflation and 2014 unemployment are actually saying something about what we're trying to achieve for those variables in 2014. And by doing that, it's signaling how we're applying policy to trade off unemployment versus inflation in response to future shocks. The Committee voted in January to follow a balanced approach to the dual mandate. The consensus forecast in table 1 seems inconsistent with a balanced approach. As I highlighted earlier, the consensus forecast says that inflation will be 1.8 percent in 2014 and unemployment will be 7.6 percent. A balanced approach would indicate, I believe, that the Committee should be providing more accommodation in order to generate inflation above 2 percent. And this matters because, Mr. Chairman, as I said, I think the benefit of a consensus forecast is that it tells people what we're trying to achieve, and that, I think, feeds into Governor Raskin's perspective that it's important for people to know what we're trying to achieve with our policy in order for the policy to have as much effectiveness as possible. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a question. Are we supposed to write down what we think is the consensus forecast or what we want to happen? This is the consensus forecast of what we think is going to happen, not what we want to happen. And you can't pull your punches and write down a different forecast that you don't think is going to happen.

MR. KOCHERLAKOTA. Vice Chairman, I was under the impression that this is conditional on appropriate monetary policy.

VICE CHAIRMAN DUDLEY. Yes, it is.

CHAIRMAN BERNANKE. President Kocherlakota is saying that he disagrees with the forecast on the grounds that the monetary policy underlying it is not one he agrees with it.

VICE CHAIRMAN DUDLEY. So you want a more stimulative monetary policy to generate a higher inflation outcome.

MR. KOCHERLAKOTA. The consensus forecast should be consistent with the longer-term strategy principles laid out in January.

VICE CHAIRMAN DUDLEY. I'm okay with that. I just thought you were saying that we write down what we wanted to achieve, as opposed to what we thought we might achieve. There may be times when there's a conflict between what we want to achieve and what we think we can achieve. This might be one of those times because the efficacy of some of the tools isn't as great as we would like them to be. I guess I have a question on this consensus forecast. Could people accept this forecast as representing the consensus, even if they didn't agree with it?

My answer to that would be yes. In other words, you could disagree with the forecast yourself, but you could agree that this represents the consensus.

MR. LOCKHART. That's not the question being asked.

CHAIRMAN BERNANKE. The question being asked is, does it represent your view?

VICE CHAIRMAN DUDLEY. Okay. Fair enough.

CHAIRMAN BERNANKE. And that's the way we're going to figure out if it's a consensus.

VICE CHAIRMAN DUDLEY. I agree with this. This is close enough for government work.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. Yes. This forecast lines up very closely with the forecast I had coming into the meeting, and so if it were a real situation, I would endorse it.

CHAIRMAN BERNANKE. Okay. Thank you. President Evans.

MR. EVANS. Thank you. I think my answer is yes, but let me be careful. The iterative process was, submit a forecast, and I'm on my own, so I put in appropriate monetary policy. I also took the cues that President Kocherlakota mentioned last time, and I put in quite a lot of accommodation. So I got a forecast. Then the first iteration came back, and it's got a funds rate path that has less accommodation. If that's fixed, if my forecast is conditional on that, I'm in the consensus and I am fine with that. But if we start opening it up to everybody's appropriate policies—

CHAIRMAN BERNANKE. Well, I think you could dissent on the action, for example, because you thought that this wasn't accommodative enough, and then you could say, "Well, conditional on what the Committee has decided to do, I think this is an appropriate forecast." Does that sound right?

VICE CHAIRMAN DUDLEY. This is the outcome you'll get if the Committee does what the Committee planned to do.

CHAIRMAN BERNANKE. Right. This is what will happen if the Committee does—

MR. EVANS. I'm sorry. Could you just go through that one more time? I'm a little slow on that.

CHAIRMAN BERNANKE. Hypothetically, let's assume that you're very unhappy with the policy path that is in this baseline forecast.

MR. EVANS. Right.

CHAIRMAN BERNANKE. And so you could imagine, let's say, that you dissented in the meeting on the policy action.

MR. EVANS. Yes.

CHAIRMAN BERNANKE. You still might say, "Well, I don't care for this policy path. But given this policy path, I'm okay with this forecast."

MR. EVANS. Yes. I agree completely with that characterization.

CHAIRMAN BERNANKE. Do you agree with that, Governor Yellen?

MS. YELLEN. I agree with that, except you have people who have actually voted in favor of no action today who are very strongly inclined toward action in the very near future, like me. I'm looking at this forecast, I'm with President Evans. As far as the economics go, I'm fine with it, but it really calls into question the appropriateness of the policy. And so I guess I'll say—sorry, I guess I'm taking my turn—that I have significant reservations. I would think you would want to be able to walk into a press conference and be able to say—when you discuss this forecast, of course—something along the lines of: "Many participants, including those who voted for it, are concerned about the contours of it and understand that it points toward additional action under some conditions," or something like that.

CHAIRMAN BERNANKE. Yes, that comes back to President Kocherlakota's point. You could think, conditional on the policy, that this is a reasonable forecast. But it looks unsatisfactory from some perspectives, and that might be a case for additional action subsequently.

MR. EVANS. I thought it was very informative for exactly those reasons.

CHAIRMAN BERNANKE. Yes, that's the idea. President Rosengren.

MR. ROSENGREN. I would prefer the Tealbook, but it's close enough to the consensus that I would be in the consensus.

CHAIRMAN BERNANKE. President Williams.

MR. WILLIAMS. My forecast with the same policy assumptions would be somewhat weaker. What I'm struggling with is jumping to the conclusion that, yes, the difference in my forecast from the consensus is statistically not important; on a statistical basis, the consensus forecast isn't that far away. But from a policy point of view, it's actually hugely important because my view is that we're not making any progress on our goals without additional stimulus. The only way I can get to the consensus forecast is with considerable additional accommodation both in terms of the path of the funds rate and for asset purchases.

CHAIRMAN BERNANKE. We can accept that answer. We'll think through how we would advise you.

MR. WILLIAMS. Okay. I'm just trying to highlight that when people say it's good enough for government work, that may be true in a statistical sense, but it may send a misleading signal. For example, from my perspective, I think this would send to me a misleading signal about how strong the economy will be, assuming we never take additional actions, and it sends a signal that we're not doing more asset purchases and we're going to raise rates in late 2014.

CHAIRMAN BERNANKE. Well, the subcommittee should discuss it, but I guess if you disagree to the extent that you think it seriously misrepresents what your policy inclinations are, that might be a basis for not agreeing with it.

MR. LACKER. Mr. Chairman, I'm not sure I heard President Williams. Did you say that your forecast for the economy doesn't differ statistically, but the difference is important for your policy?

MR. WILLIAMS. Yes.

CHAIRMAN BERNANKE. President Pianalto.

MS. PIANALTO. The forecast broadly matches up to my views, and so I can endorse it.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Like President Kocherlakota, my view is that while the top-line numbers are not that much different from what I would predict, my policy path would be different, and in fact under this policy path, I would have a different forecast. On those grounds, what matters a lot for this is how one interprets both the shocks hitting the economy and what their effects are going to be, and that calls into question, as in President Williams's case, much different policy forecasts. But I'd likely be on the other side; adopting the policy in the consensus, my forecast would be quite different. So I'm not quite sure whether we're reaching a consensus or whether that's agreeing with the consensus.

CHAIRMAN BERNANKE. I think that means you'd be outside the consensus because you think that this policy will not deliver those numbers.

MR. PLOSSER. Right.

CHAIRMAN BERNANKE. President George.

MS. GEORGE. I found myself agreeing with the economic variables, but I might choose a different policy path—different enough that I might raise a question.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. I think these confidence bands are great, and when I see PCE prices within a couple of tenths of 2 percent and these kinds of confidence bands, I just can't see that as being very different from hitting the target. So this is generally very good. I do think the unemployment rate seems to run high compared with the central tendency. That's really the key difference between the Committee and what the private sector seems to say: The Committee is more pessimistic about unemployment rate adjustment quite a ways out, out until the end of 2014, as compared with the private sector, which is just assuming ½ percent a year or something like that, and so they've got it down at a lower level. And of course, that pessimism is informing a lot of judgments here about what the policy should be. The only other thing I'd say is that if you look at these charts, maybe this would be a good time to take out core PCE prices. You've got headline here, and, of course, we're looking over the medium term, which this chart already does. Maybe it's a good time to put the fed funds chart here instead and have PCE prices and the fed funds rate.

CHAIRMAN BERNANKE. Useful, interesting suggestion. President Fisher.

MR. FISHER. I don't have a problem with the economic variables, and I think the fan charts are fine. I do have questions about the policy path, and much like President George, I would have some reservations on that front. And the reason I looked at my colleague was that I was going to suggest the same thing about core PCE—not to replace it with a funds rate path, but

I would suggest removing it because I thought we were going to get away from core PCE and focus on PCE overall. That would be the only difference, depending on how the group feels.

CHAIRMAN BERNANKE. Okay. Thank you. Governor Yellen, you've taken your turn. Governor Duke.

MS. DUKE. I think yes. I feel like an Excel spreadsheet caught in a circular reference. [Laughter] But yes.

CHAIRMAN BERNANKE. Governor Tarullo.

MR. TARULLO. I have essentially the same reaction as John.

CHAIRMAN BERNANKE. Okay. Governor Raskin.

MS. RASKIN. I prefer the Tealbook forecast, but I can support the consensus.

CHAIRMAN BERNANKE. Governor Stein.

MR. STEIN. I'm very close to the consensus.

CHAIRMAN BERNANKE. Governor Powell.

MR. POWELL. I'm okay with the policy path, okay with the forecast.

CHAIRMAN BERNANKE. Okay. Obviously, I think, it qualifies as a consensus in that most people could accept it, and we had people on both sides. So that was useful. Thank you. I'll turn this over now to Governor Yellen to talk a bit about how we might want to go forward with this.

MS. YELLEN.[8] Thank you very much, Mr. Chairman. We circulated for your use three questions that our subcommittee would welcome any feedback on in this discussion. I'll just kick things off with a few comments. As we discussed in June, a consensus forecast has the potential to significantly enhance the Committee's communications by clarifying the rationale for our policy decisions. We agreed to explore this initiative in a systematic and deliberate

[8] The materials used by Ms. Yellen are appended to this transcript (appendix 7).

manner, and I think the experiment we've just conducted has served as a very useful first step. I believe it would be beneficial to proceed with another experiment at the September meeting following a roughly similar time line.

One important question is the extent to which participants should be expected to provide input to the Chairman in advance of his initial formulation of the consensus forecast. In the current experiment, that input was purely optional. However, such input may be important for the Chairman to gauge the appropriate representation of different views of the participants in his initial formulation. So I would suggest that starting with the September experiment, we establish an expectation that all participants should provide some form of input to the Chairman in advance of his initial formulation of the consensus forecast. But an important question is whether or not everyone should be expected to provide quantitative projections in this initial input. In the current experiment, 11 participants provided quantitative projections, and 3 others provided qualitative information. In my view, qualitative information can be quite informative about a participant's current view, and the initial inputs should not be expected to take the form of a quantitative forecast. For example, some participants may wish to indicate in qualitative terms how their views have developed, possibly referring to either the previous consensus forecast or the preliminary staff projections circulated in advance of the Chairman's initial formulation.

A related issue is whether or not participants' initial input should be compiled and circulated to all participants. In my view, circulating these inputs would be beneficial. It would help promote openness and transparency. In addition, circulation of these inputs in advance of the meeting may enhance our deliberations in September. However, on the question of whether or not the input should be circulated with attribution, I have no strong views. Of course, if the

Committee decides to proceed with the second experiment in September, the subcommittee on communications would be happy to work with the Chairman and the staff in setting on the key logistical arrangements for that experiment.

Looking ahead yet further, I think that the October meeting would offer good opportunity for the Committee as a whole to thoroughly evaluate the experiences gathered up to that point and to decide whether they're sufficiently encouraging that the Committee wants to continue with further proofs of concept and trial runs. If at that meeting the Committee still considers the initiative to be sufficiently promising, it may want to consider a tentative time line for adopting a consensus forecast as a tool for communication, while leaving open the question of whether this initiative will still ultimately be launched. It may also want to discuss a number of important questions that would need to be addressed before publishing a consensus forecast, such as the appropriate specification and role of a reference policy rule that I mentioned yesterday, the specification of policy variants to consider, as well as questions related to the presentation of the consensus forecast and the diversity of views in a quarterly monetary policy report.

Let me conclude by saying that my subcommittee would be happy to work with the Chairman to develop a specific set of questions, and we welcome your reactions to these questions in this first trial run.

CHAIRMAN BERNANKE. Okay. Let's get some comments and reactions. We'll start with President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman and the staff, for all of the hard work they put into producing the consensus forecast. I think it's been a very interesting exercise. I particularly found the two tables in the material distributed to be very useful and informative, but as I noted in our June meeting, I remain very concerned about imposing a sizable additional burden on the staff unless the benefit is equally sizable. And as we all know, the Board staff already has a very full plate and preparing a mini-forecast between meetings, if that was necessary for this, adds to that load. The Chairman said at our last meeting that it was important not to place a net additional burden on the staff, and I wholeheartedly agree. As our discussions over the last two days show, we still face enormous economic challenges and heightened uncertainty about future events both here and abroad, and the staff should be focused on those issues as well as contingency planning for the possibility of further negative shocks to the economy. I think—and I'm not sure if this is the way you're thinking about it—that there may be a simpler way of putting together a coherent consensus forecast with relatively little cost. For example, table 1 in the consensus forecast could be produced by starting with the median SEP projection from the Committee members, which I think is how you started with this one. And then, Mr. Chairman, you can just adjust the median projection, tweak that as needed to make sure it represents a coherent consensus forecast consistent with the Committee's policy direction. Draft consensus table 1 could be circulated on Friday or Monday before the FOMC meeting, and I think that would not have a large cost on the staff. Of course, the consensus forecast would be updated at the FOMC meeting based on the policy decision and discussions there. So my recommendation for the next meeting is, as I described, to try to refine the existing SEP process, which we'll be doing, rather than trying to proceed with a second consensus forecast exercise like the first.

As a final note, I very much like table 2 that showed how the forecast would change under alternative monetary policy assumptions. This is one of the most useful things I've gotten in terms of thinking about the policies in alternatives A, B, and C. I think that such a table should be regularly included in the Tealbook B—so much for my not throwing additional work at the staff. I recognize it is a challenge, having worked in this area myself, to produce alternative staff forecasts that exactly match the statement alternatives A, B, and C, but even preliminary readings on this are exceptionally useful. It lets us all think about what are really the choices that we're confronting, given the staff forecast, in thinking about policy liftoff dates or the need for different asset purchases. Also, we saw that little picture earlier showing different alternative forecasts for different alternative policies. I think that's a great innovation and would like to see that become a regular part of the Tealbook B.

A related thing I'd like to mention—and Governor Yellen mentioned this, too—is that we do need to think a little bit more about this policy rule that's behind the scenes not only in the Tealbook—which I and, I'm sure, many people use as a basis of a lot of our thinking about the economic outlook—but also in terms of preparing these consensus forecasts. And as Governor Yellen mentioned before, the outcome-based rule may not be the best choice for that, and I think definitely we may want to think about giving the staff direction concerning a preferred policy rule. It's important to have a policy rule in these simulations in the Tealbook; that's just an essential part of thinking about policy. But right now, I think that's been a default setting that perhaps isn't the best for what we're doing. Thanks.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. Let me first take this opportunity to apologize for interrupting President Kocherlakota. That was unwise of me.

MR. KOCHERLAKOTA. Accepted.

MR. LACKER. I'll now go on to deliver a lengthy statement. I'm assuming that—but this is a little murky for me—the intention is that this would supplant the SEP mechanism. Is that correct?

CHAIRMAN BERNANKE. That's a Committee decision, but it's a possibility if we went to a quarterly monetary policy report.

MR. LACKER. Right. I'm just asking what the communications subcommittee has envisioned proposing. I'm assuming this wouldn't be layered on in addition.

CHAIRMAN BERNANKE. I guess that would be my preference, but it's not pre-programmed. The Committee will decide that.

MR. LACKER. Okay. The following remarks are predicated on that. I think that the SEP is a much more detailed request for forecast information from each participant. I would be afraid that we would lose something in Committee deliberations in terms of quality if we were to back away from asking for the range of information we get in the SEP. I think that under our current procedures, a good deal of effort goes into participants' SEP submissions. What I have in mind here is avoiding the dangers of herd behavior or free riding on the forecast. I think that bringing independent views to bear before you get the Tealbook, before you've seen everything, is valuable. The literature on the wisdom of crowds suggests that group opinion mechanisms are more valuable if you're listening to independent views. So I'd suggest that we could build this around just an adaptation of the SEP—have that level of submission occur and then work from that material to develop a consensus forecast.

Related to this, I think it would be useful and consistent with our traditional philosophy of transparency to find a way to retain the presentation of something like the range and central tendency of participants' views. We have these prototype fan charts, and there are these two blue dots for the last meeting's range. It would be pretty straightforward to add something to represent the current cycle's central tendency or range. I understand the value of forming a consensus forecast, but we're throwing away information. I think we would also invite the cynical interpretation that we're moving to a consensus forecast as a way to suppress the apparent discrepancy between the dot picture in the SEP and the forward guidance in the statement.

I applaud the use of confidence bands. My staff says you call them fan charts only if they're multicolored; we had this discussion yesterday. But I'm indifferent as to whether we call them fan charts or not—that's okay with me. But as I understand it, the fan charts as calculated don't capture model uncertainty or uncertainty about our policy reaction function, and I think to be faithful at conveying uncertainty, we ought to strive to be as comprehensive as possible in gathering and portraying the uncertainty we have over the forecast. In addition, I strongly believe we should treat the forecast of our policy instrument in a way that's as parallel as possible to our presentation of things like the GDP and inflation forecasts. I think President Bullard's suggestion of putting the fed funds rate in place of the core inflation rate on that first page, if we're going to do four charts, or even making room for it, if we want to retain core, would be a good idea—and to show it with fan charts, to show uncertainty, because it's spurious precision to act as though it's a single path and yet there are error bands around everything else we do. And I believe this is not that difficult; the staff does it, for example, in the Tealbook all the time.

More broadly, I think we need to design this process in a way that handles our policy views in a coherent, clear manner. We had a little bit of a tangle at the beginning of the last go-round about, well, conditioned on this policy and conditioned on that. If you take the word "policy" out and substitute one variable for another—like, conditioned on GDP, my forecast for inflation would be different—you can see that it makes more sense to just think of them all as parallel. Further, we are forecasting both the economy and our policy-setting. Now, that allows for commitment. And it doesn't rule out commitment or some maneuvers to push down the yield curve as we've tried. I think I'll say this as well—if we present a policy forecast as part of our consensus, which I think we should, this would be an ideal vehicle for moving away from the calendar-based forward guidance in the statement. And I'll just remind you all that we discussed this in January when I first advocated this. In January, I proposed dropping the forward guidance in favor of the presentation that was in the SEP, and what I was told was that people objected because the statement language represents a Committee consensus. Well, now we're going to have a consensus. So I wouldn't see the rationale for retaining the forward guidance in the statement—although you could argue that it's just superfluous and it doesn't matter whether it's there or not. But it's proven problematic in some regards, so using this vehicle strikes me as an advantage. And let me endorse strongly President Williams's suggestion that we ask the staff for alternative forecasts under different monetary policy assumptions. I've commented on this before—that they do alternatives for all sorts of crazy real-world shocks, but they don't do alternatives for the stuff we're trying to decide on, and I think that's kind of a shame. I'd be happy if they cut down on crazy scenarios, too, so that we avoid overburdening the staff. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. I don't want to get off track, but on this issue of constructing the fan charts, you use historical forecast errors, right? Simulated forecast errors?

MR. REIFSCHNEIDER. Well, they're stochastic simulations. The way to think about it is, you have to choose a rule—that's critical. And then you're just having the funds rate respond, as the rule would dictate.

CHAIRMAN BERNANKE. No, I understand, but the stochastic simulation is drawing from a distribution of historical forecast errors or not?

MR. REIFSCHNEIDER. It's drawing from a distribution not of forecast errors but of historical shocks to the economy, and it's stochastic, so it's running through dynamic responses to the sorts of shocks we've seen historically. Under current circumstances, that gives you—because of zero bound, for example—a very skewed distribution.

CHAIRMAN BERNANKE. Okay. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. Thank you, President Lacker, for your apology. I'll be brief. As Presidents Williams and Lacker did, I found table 2 to be extremely useful, and it would be great to have future Tealbook Bs include some table like that where the various policies, I guess, are related to the alternatives A, B, and C that we're contemplating. I also like President Williams's idea of allowing the Chairman to create the first draft, at least, of the consensus forecast based on the SEP submissions, and then tweaking that. I thought that was a very good idea.

I think there's a timing issue we have to solve with the experiment. The consensus forecast is going to be prepared before the meeting. Then today, for example, alternative B allowed the Committee the opportunity to change the date in the statement to mid-2015. In principle, the Committee could have chosen to adopt alternative A, alternative C, or elements of all three alternatives, I guess. Once the Committee makes a decision, the forecast is going to have to be updated in some fashion. So this could create a little bit of a logistical problem, and here are the issues. I think the forecast should be based on the outcome of the vote in the meeting. Participants should have some opportunity to comment on the forecast before it's released to the public. The statement should be released shortly after the vote, and the press conference should take place relatively shortly after the release of the statement. The forecast should be made available to the public at the time of the press conference, and the press conference should take place at least 24 hours before the end of the blackout period. [Laughter] So these are the constraints. I think there's a timing box here. I think we have to build in some extra delay somewhere, but I'm not sure where. I would suggest delaying the press conference by 24 hours. Maybe that would be enough time to get everything done. I'm certainly not trying to take a stand on what the right answer is. The issue is that we're going to have a vote in the meeting—the policy decision is, obviously, not determined before we have the meeting—and then the forecast is going to have to be tweaked based on that. I think people are going to want to have a chance to comment on that as well, and then how we resolve the rest of that I'm not sure.

CHAIRMAN BERNANKE. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I don't have specific ideas as to how this should be resolved, but I do have a few higher-level observations. One, I do think the process needs to be somewhat iterative. And I was one of the scofflaws—apparently only two—who didn't inject themselves into this process this time so I endorse Janet's view that there should be something compulsory about participation beforehand. My second point is that this really does have to be a consensus in the sense of reflecting a collective judgment by the Committee or, perhaps more accurately, the Chairman helping to forge a collective judgment by the Committee. I'm more than a bit concerned that if we end up with both an SEP and the collective forecast, we're going to be sowing more confusion rather than less confusion. Then taking account of Jeff's desire to have some more transparency and make sure that the views of individuals are not completely lost here, I think that Narayana's timing issue comes back to the fore, because I think you're going to need a process, Janet, by which people get to express—initially at least—their own views. Maybe there's some transparency associated with those views, but the process then intervenes so that at the end, there's a collective judgment as developed and articulated by the Chairman both in quantitative terms and verbally at the press conference. And with that, at least, I think the world, at least the informed and thoughtful world, will be able to reconcile whatever these two different pieces of information are—whether it's, I hope not an SEP but an SEP-like polling function beforehand and the eventual outcome—because there will have been this lapse of time during which everybody understands that iteration will have taken place. Those are the only two things on which I feel strongly. Everything else I'm happy to defer to the judgment of you and your subcommittee.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Before I answer Janet's questions, I'd like to just go over a few points. Some of these are fairly basic, but they helped me at least clarify my thinking. First, I understand that the purpose is to elucidate the rationale for a decision that was just made by the Committee and would be explained, for example, in your press conference. And I agree that the consensus forecast idea conveys more information than the central tendencies in the SEPs that would be otherwise published about the same time. The short discussion yesterday clarified in my mind what you, as the Chairman, have in mind, and that is, you have an ex post consensus forecast on what the recent decision is expected to accomplish, as opposed to an ex ante outlook to which the policy decision reacted. And I had something in mind coming into yesterday's meeting that I think is simpler and easier. It's not perfect at all, but it does bring into greater relief what I think is an issue, and that is, what's the policy assumption on which we're all premising the exercise? So for the good of the order, let me just walk you through how I thought this was going to operate—that is, we might use the Tealbook for reference, and we would submit forecasts similar to an SEP, premised on the existing policy stance, the one that had been decided at the last meeting. The Chairman would then work with this input to craft a consensus proposal. Everyone would react to that and, conceivably at that stage or a later stage, either endorse it or not. The final consensus forecast would be completed, with exhibits and so forth. That would be a forecast that preceded the FOMC meeting and serves as a basis for understanding the decision that the Committee arrived at. And then, when you would explain it, you would have to emphasize—and this is not easy, because it could be very confusing to the public—that this is not a post-decision forecast. This is a decision on which people formed their policy recommendation at the meeting. I do think this question of the policy assumption is very important, and I think it was already reflected in the brief discussion we had earlier.

Now, to the questions. First, do I think the general approach used in the exercise would be helpful? Yes, if we don't get bogged down in this policy assumption complication. There are various policy assumptions at work, and therefore it's not apples to apples in terms of the input. What elements would I suggest be modified in future experiments? In my mind, if we could agree on the mechanics, we could go to a true trial run next time around, meaning that we would have some kind of explicit policy assumption on which we based our inputs; inputs would be mandatory. We would submit on exact dates, try to run through a pre-meeting endorsement or feedback on exact dates, and see if some of the mechanical questions that President Kocherlakota raised are actually going to work in real time. I do have a little bit of a problem with the confidence interval exhibits. I don't really find the confidence intervals from model-based simulations very informative. I'm not sure the public is going to find them very informative. As an alternative, I'd suggest we use subjective probabilities provided by each participant, something similar to the approach that's used in the Federal Reserve Bank of New York's survey of primary dealers and other surveys. And then from subjective probability distributions, one could derive the Committee’s sense of the risks for each economic variable. At 70 percent or 90 percent in some of the economic indicators, the spread in the confidence intervals would be viewed by the general public as so wide as to be inclusive of practically every outcome. So I’d like us to think about some other approach, if that’s possible.

I definitely support a second experiment. In response to the question “If the Committee proceeds with a second experiment, to what extent should participants . . . provide input to the Chairman in advance of his initial preparation of the consensus forecast?” I very much think that’s what we should do. If it’s based on something similar to the SEP submissions, that’s fine. And then I would certainly not object to having my input circulated or circulated with attribution—no objection there. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. I think central banks use both approaches, right?

MR. KAMIN. The Bank of England—

CHAIRMAN BERNANKE. —uses an ex ante type of approach—right?—because it uses the market path. Is that right?

MR. KAMIN. On the policy path, yes, the Bank of England uses both a flat path and something that comes out of markets.

CHAIRMAN BERNANKE. Okay. Vice Chairman.

VICE CHAIRMAN DUDLEY. I think this is a useful exercise, and so, in response to the questions, I think we should keep going. But I’m going to propose a second experiment that’s a little bit different than what we did as the first experiment. The experiment I’d like to run is a little bit more elaborate and somewhat more decentralized, and it would go like this. People would submit their forecasts, or they would default to some preliminary Tealbook forecast, made under three different monetary policy assumptions specified by the Chairman. You could think of that as alternative A, alternative B, and alternative C, and presumably those monetary policy assumptions would span the range of views of the Committee participants. The Chairman would then prepare a consensus forecast from all of those submissions for each of the three monetary policy paths. You'd actually get to see how the consensus forecast was sensitive to the monetary policy assumptions of the Committee. And then participants at the end would be quizzed about which of these things that they actually favored—which was the consensus of the consensus, so to speak. I think this approach would actually work better than what we have right now, because it would provide greater clarity about the source of agreement and disagreement within the Committee. Let me give you an example so I can explain what I mean by this. Let's imagine that we're in a circumstance today that one does not favor more policy accommodation. This could be the case for several distinct reasons. One might decide that greater stimulus was not warranted because one had a more optimistic growth forecast—that's a difference in forecast. Or one might decide that greater stimulus was not warranted because one thought that policy stimulus would generate only very small gains. You just thought that the cost–benefit calculation of additional stimulus was poor. For example, you might think that a large-scale asset purchase program wouldn't do very much. It wouldn't be that you disagreed about the forecast, but you disagreed that the policy tool would actually drive significant improvement. Or you might be in line with the consensus for the first two, but you might not prefer greater stimulus because you had a different reaction function and you weighted the inflation and the unemployment objectives differently. Right now, I think it's very difficult for us to tease those three things out. And if you started with three different monetary policy assumptions, got people to submit their forecasts relative to those monetary policy assumptions, and saw where people landed, you actually would be able to tease out a good deal of where people agree and disagree within the Committee. I think this would be a little bit more interactive and would allow us to really play on what's driving the differences—is it the policy assumptions, is it the forecasts, or is it the reaction function? And so I would propose this as a second type of experiment.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. Well, I thought this was a very useful exercise. The issues that Governor Yellen raised in terms of participants providing input and circulating inputs—those things would be very helpful and we should continue to make progress on them. I was listening to Dennis very carefully, and I thought I was in complete agreement with him right up until he got to that subjective probability stuff, and then I wasn't quite sure. But then again, I was with Vice Chairman Dudley, too, until he started with three different assumptions. I think those are all very interesting ideas, and if we have a lot of time to work through them, they'll be quite useful. [Laughter]

As I say, I like the initial exercise; as a communication device for the Committee, it was useful. It focused on our areas of agreement, which I thought was very useful. A lot of times, with the SEPs, for some reason our eyes are drawn to the outliers and the ranges. I thought that the common monetary policy assumption was really critical, because I might not agree with it, but at least, you tell me this is the assumption, and then I'll tell you what my inflation outlook is going to be. President Lacker will approach it the same way, right? And that'll provide a lot of the information that's relevant for this. Another alternative might be if you identify who the participant is and I have some idea of the kind of model of the economy that person is working their way through, there'll be more information, but probably not a tremendous amount. At any rate, it could be useful. Frankly, I think what's really important here is whatever helps you in your press conference discuss the outlook in a coherent fashion. You always do it coherently, but you're provided a collection of forecasts that don't speak well among themselves because we have different policy assumptions. I would think that something that you have looked at very carefully, and in some sense own, would help facilitate your discussions, and it would be useful if you provided some preferences on that. But I think that it will be useful to continue to make progress. Thank you.

MR. LACKER. Mr. Chairman?

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Yes. Could I just ask President Evans—when you said "conditioning on the forecast," what did you mean?

MR. EVANS. I'm sorry. I must have misspoken. Conditioning on whatever the common monetary policy assumption is that we're given.

MR. LACKER. What do you mean by that? Do you mean a single point path for the funds rate or a reaction function?

MR. EVANS. I'm sorry. I can't recall exactly where in my comments you're taking this from.

MR. LACKER. Because I don't think anywhere now we're asked to provide a forecast conditional on a path for policy.

MR. EVANS. No, we're not. We're asked to do appropriate monetary policy, right?

MR. LACKER. Right. Oh, okay.

MR. EVANS. No, that's our current assumption under SEPs, going all the way back to when Don Kohn's subcommittee came up with it.

MR. LACKER. So is that what you were referring to? Is that what you meant—"conditioning on appropriate policy"?

MR. EVANS. Well, no. I thought what was useful here was that—and this is my interpretation—if there's a policy path—a funds rate path—and if we all come up with our forecast based on that policy assumption, then I know how to interpret what those forecasts mean. So you might have a high inflation forecast; I might have a lower inflation forecast—something like that. But the policy path is common across that. I think that would be informative for the Chairman and whoever else is looking at this forecast.

MR. LACKER. But that's asking us to forecast what the economy would have to do to make us want to choose that funds rate path.

MR. EVANS. This is an assumption about an exogenous policy variable and how the forecast would respond.

MR. LACKER. Well, that's a different question.

MR. EVANS. Well, that's how I would interpret our instruction.

CHAIRMAN BERNANKE. That was what you were suggesting, Vice Chairman?

VICE CHAIRMAN DUDLEY. Well, the point is, in my version, you get three different monetary policy paths that span the Committee's preferences. And so you get forecasts that are somehow consistent across the possible outcomes.

CHAIRMAN BERNANKE. The problem is that it's not truly endogenous. What you really want, in principle, I assume, is some kind of reaction function that you'd stick into your model. And then you'd jointly generate the path of output and inflation.

VICE CHAIRMAN DUDLEY. In my rendition, you're going to figure out the reaction function by the choices people make at the end. They're going to be faced with a GDP/inflation or an unemployment/inflation forecast under three different paths for monetary policy. They're going to have three sets of these things, and then their reaction function is exhibited by what they select at the end.

CHAIRMAN BERNANKE. Okay. President Rosengren.

MR. ROSENGREN. Thank you. Like many, I was troubled by coming up with a consensus forecast where policy assumptions were widely divergent. We already have an opportunity to dissent on policy with the policy go-round. I don't think we want to get "dissent squared" on a difference of policy. I actually come a little to where Dennis was—that it would be more useful to start with a common policy assumption. I think it's quite reasonable to use whatever the path was in the previous Tealbook as a starting-off point for that common assumption, and then ask whether the economic outcomes are different. Given the fan charts—and President Lacker would like to widen the fan charts even more than they already are, adding some additional uncertainties—it actually is going to be fairly hard to dissent against the forecast that comes out if you want to use a two-standard-error definition. I think broadly, most people are going to be agreeing with that forecast based on that policy path. So I would be comfortable with roughly where Dennis was.

As we think about whether we should go forward with the consensus forecast, we should at least think about what the alternative is and what problem we're trying to solve. I agree with President Evans that part of the problem was that with the previous SEP we were focused on outliers rather than commonality, and that was particularly true because there wasn't a distinction between participants and voters. An alternative—or it seems like the most viable alternative—would be that the participants' forecasts for all of the variables are disclosed and identified. It has the attribute that it makes participants accountable for their forecasts, and presumably each forecast will be internally consistent. One of the problems with the process that we have now is that as we go from the initial round to the next round, we're changing variables that may or may not be consistent with any kind of model, and that inconsistency bothers me a little bit. We should ask ourselves, is it clear that the consensus forecast gets us to a much better place than a full-disclosure alternative, where all of the information would be available? It may be that we think it does get us to a better place, because it clearly focuses us on agreement rather than disagreements, and that's true for how people would report it. But we should at least think about what the viable alternative is that we're considering. I do think that if we proceed, all participants should provide input—so it should be mandatory—and that the compilation that the participants provide in the initial round should be circulated to everybody. My guess is that we could pretty much guess where people's views are, by and large; if I'm comfortable disclosing to the public, I should obviously be comfortable disclosing to my peers. I think that it's not a bad thing if we just shared all of our own input. Thank you.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. Overall, I think the general approach used in this initial exercise could form the basis for an approach that, with some enhancements and a lot of practice, could produce a consensus forecast that could improve our communications. But to increase the odds of success, I think that we will need to address a few questions about our ability to form a consensus forecast. These questions occurred to me as I reflected on this first experiment. These issues have already been raised by others, and I just may be using slightly different wording in order to address them. The first question is, can we achieve a consensus forecast that is coherent in its relationships among economic growth, inflation, and unemployment without employing a consistent model of the economy? President Rosengren was just commenting on that. If we rely mostly on judgment to form a consensus, do we risk producing a forecast that is sometimes inconsistent in its relationships among economic growth, inflation, and unemployment? I am inclined to think that we need some kind of consensus model to be able to have a consensus forecast so that we can tell a consistent story over time. Without a consistent story, the sequence of forecasts that we publish might harm our communications rather than help them. The second question is, what should the standard be for whether we think our individual forecasts are sufficiently different from the consensus to warrant dissenting? Should we consider a difference in forecast meaningful when it is large enough relative to the particular confidence interval? Under that approach, as others have pointed out, because the confidence intervals are so wide, meaningful differences would be very rare. For a consensus forecast to improve our communications, I think we do need to reach agreement on what would warrant a dissent from the consensus forecast. The third question to answer concerns the communication surrounding the consensus forecast: How should we treat the differences in our views of what is appropriate monetary policy? Several people indicated today that they agreed with the consensus forecast, but they didn't agree with the policy path. So should one dissent on the consensus forecast based on a disagreement on appropriate monetary policy?

In concluding, I do support going forward with the experiment, and I have some suggestions for our next experiment. For achieving a consensus forecast, I think it would be helpful to share more of the inputs among all of the participants during the drafting stage. Specifically, I propose that the Chairman circulate the preliminary Board staff forecast, that all of the FOMC participants then submit forecasts back to the Chairman, and that the Chairman then share those projections with the participants, along with the draft consensus. I am personally open to whether we provide the individual forecasts with attribution; I could go either way. I am happy to go ahead and include attribution, but I don't think that is necessary. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I have just a few comments. I'm a big supporter of this exercise, and I think this initial round has been carried out very well. So do I think we should do more? Yes, I do. We have to keep an eye on the final product, which would be a monetary policy report and the kinds of things that would go in there. I think there would be a lot more information, at least in my mind, that would flesh out, maybe, some of the issues that are being discussed here in the final product, the final monetary policy report.

A lot of people are talking about the policy assumption conundrum, and I have a suggestion for this. I think it would be much simpler and cut through a lot of confusion if we just based the forecast on the market assumption at the time the forecast is made. This is, as I understand it, what the Bank of England does. This would give the forecast more of a flavor of, "Given what the market thinks that we're going to do, here's what we think is going to happen." And you could even put a date on that and say that we took the market expectation as of such and such a date. Then you don't get into the position that you decided something different at the meeting, and now you've got to iterate around to get the right forecast. Now, this is a brilliant thing that the Bank of England did, because market expectations in most circumstances are not going to be too different from where the Committee expects to go, and if they are a lot different, we should be asking ourselves a lot of questions about why we have a 90-degree angle between our views and the market's views. Most of the time, that's going to work very well, and I would say if those expectations are a lot out of line, then it's up to the Chairman and other Committee members to try to nudge them back into line with what's likely to happen. The other thing that's brilliant about it is that it does put out a realistic forecast, but it allows the Committee to come back later and say, "Look, we changed our mind, and we're going to do X or we're going to do Y." I wouldn't expect that to happen a lot, but it does give the Committee that freedom to act. For example, you might think of an intermeeting action, which has sometimes occurred in the last five years; something comes up, and you really have to move in a different direction. The other thing about taking the market expectation of policy is that you can take all aspects of policy. It could be everything from reducing the IOER rate to the balance sheet to funds rate dates and all those things together.

My only other comment is on these confidence intervals. They are model based. I think they're fine, but as the Chairman was talking about, you could use historical forecast errors from the Greenbook and Tealbook, and maybe that would be a way to capture the full extent of the uncertainty that we've experienced since we've been keeping track of those errors; I'm not sure quite how long that has been, but it goes a ways back. In my mind, that is a more all-encompassing measure of uncertainty. I don't know if those bands are actually bigger or smaller, but those would be interesting. And that would be one way to keep it a little bit model free, because otherwise you're saying that everyone is committed to that model and everybody thinks that that model is a particularly good model. Thank you.

CHAIRMAN BERNANKE. One difference between the Bank of England and the Fed is that they at least nominally have a single target. So you can look at the forecast and see whether it hits the inflation target or not, and that's a way of signaling to the market whether they should be tightening or loosening their expectations. With two objectives, unless you give them the reaction function, it's a little more subtle.

MR. BULLARD. In my experience, the British approach to monetary policy isn't any different than the U.S. approach to monetary policy.

CHAIRMAN BERNANKE. There are a few people in the Congress you should talk to. President George.

MS. GEORGE. Thank you, Mr. Chairman. As I think I noted at the last meeting, given some of our well-tested communications, such as the minutes and the statement we use, I was more willing to push more on the SEP to see whether we could enhance it more and use its diversity of views. But I would be willing to look at that in terms of attribution, even highlighting who the Committee members, as a way to leverage that diversity of views. Having said that, I'm willing to go forward with other iterations of this experiment. I think it would be worthwhile to have some more reps to see how this plays out with respect to the input and how it gets to something, which Vice Chairman Dudley mentioned, that I would like to see—more focus on where we differ on policy paths and what the assumptions are.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. This has been a fascinating discussion, I have to confess, and I wanted to go near the end, in part because I wanted to hear what people were thinking. I've come away with probably more questions than answers, and I'm open to lots of different ideas. I'll just react to some things that people have said, all of which I think had merit to them. John Williams's suggestion about simplifying and using the SEP to leverage up has a lot of merit to it—to reduce costs. I am inclined to believe the SEP is still a powerful use of information and a communication device and a transparency device. I tend not to be in favor of replacing this, which leads me to the question of whether we envision doing this every meeting or only once a quarter. One question that crops up in this discussion—if we're really going to use it as a consensus forecast that justifies a particular meeting's decision, then you're almost forced into doing it on an every meeting basis. That may be more than we want to do. If you're not going to do that, then you need to think of other objectives you're trying to achieve through this thing, and I think there are a number of them. One of the questions that come to mind goes back to the governance issue: However we manage this process, we want to be careful that we not have a pre-meeting meeting and in some sense decide before we actually get to our meeting. That raises all sorts of iterative questions about how we converge on this. I think that's going to be a challenge.

In many ways, I'm very attracted to Vice Chairman Dudley's suggestion about doing some scenarios. I think there could be a lot of value to that. There is a subtle question about whether this is endogenous or exogenous and how we think about that. I'm not sure I've come down strongly either way, but I'm really attracted to allowing participants to generate their forecasts based on different assumptions about policy. That could be very revealing both internally and, perhaps, for other purposes as well. How we view this as going into a larger project, as Jim and I have been arguing for some time in terms of a monetary policy report—again, whether this is quarterly, every meeting, or what—and how all of these pieces fit together remain to be seen. One thing that was missing from this exercise that I think is going to be important going forward—one of the things that gives us value outside of whatever the consensus might be—is going to be the nature of the discussions about the varying views that goes with this. And at some point, we're going to have to figure out how to put that on paper, too, to make sure that we get the richness of what it is we're to achieve in this process.

I want to make one other point. This notion of standard errors—I believe standard errors are huge on our forecasts and everything else we do, but one of the things that we know from our policy rule experiments is that sometimes small differences in the variables in the reaction function can have very different policy implications. Just to say that we're all falling within the standard errors of these things is really not very helpful in that context. That doesn't mean the standard errors aren't large, but there are subtle differences about what the policy implications might be from smaller differences. There's uncertainty, and then there's that small difference that may lead some of us to have very different policy paths, because small differences can make a difference in that. I think that raises a whole host of questions in my mind about a number of things, but it does apply here, too.

A lot of this discussion suggests to me that we need to proceed with this because there's value to it, but I do believe that we're going to have to experiment some internally. And it may take us a while to figure out what it is we want to get out of this at the end of the day and what's the best way to do it effectively. I think we should proceed apace, run some experiments, be willing to try some different things and react to them. We're going to try some things and throw them out, perhaps, but I think in some of these cases, we're not going to be solving the problem in the abstract. We're going to have to see how it works. So I'm very encouraged. I also find it very interesting, and I think we should continue with the experiments.

I'd like to say one other thing. I want to echo what Presidents Kocherlakota and Williams suggested about table 2. It would be very nice to be able to see that, or something like that, on a fairly regular basis.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. My sense is that this exercise is really intended to help you clarify some of the confusion that came out of what I call spots and dots, which is the SEP exercise. Having been a full-throated advocate of your holding press conferences, it seemed to me that the way we did the SEP made things a little bit awkward. And in fact, I would like to have an exercise that would simplify or help you in this process. I've heard some very good ideas around the table. I thought President Williams's ideas were thoughtful in terms of how this thing evolves. I'd like to get to the point that Vice Chairman Dudley articulated. That would be the most useful, although it would take us time to get there, but that should be the ultimate goal of the exercise. I'm in favor of what makes your job easier in terms of not only explaining the cacophony at this table, but also pulling together the common threads. With regard to Janet's points—and I thank you, Governor, for pulling this exercise together—first, I appreciate your taking qualitative information as well as quantitative information. Having submitted qualitative information that was quite extensive, I think that's important. Going back, I guess, to making the Chairman's job easier, it could achieve that if indeed we can try to identify where the consensus is and what the common points are while also tolerating the fact that we do have ranges of views and we do have dissent that takes place at this table. On the issue of identification, remember that I'm very leak conscious; I served on two ships in the Navy, so accidental leaks always concern me. But I think if we're trying to get a consensus expressed by our leader, I worry about leakage in terms of one or two people who might get more attention and distract from the point that we have achieved a common decision and that decision is being articulated by you. We all know internally who we are and where we're arguing. I'm not sure it makes sense to, or whether it's necessary, or it even adds to the exercise, for us to have attribution, as I worry about accidental leaks because some get more attention than others at this table. And that may not help you in the job.

So that's my overall opinion, Mr. Chairman, of this exercise. I would be in favor of a second experiment. I think we should go through this in an iterative fashion. And again, I want to reiterate that I found Vice Chairman Dudley's comments particularly thoughtful; all of the comments were thoughtful. I'd like to get to that goal eventually where we could have a sense of how we might move along any one of the suggestions being put on the table. Final comment: We'd like to make your job easier, not more complex, and if this serves that purpose, then I'm in favor of it. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. I'm going to confess that I'm not finding this helpful at all. I find it hard to even follow all of the subtleties of everybody's expression of whether or not they agree with the consensus forecast. When I try to think of how you condense this into a simple message that you're going to communicate to the public, it's really hard for me to come down to that. I think it would be helpful if we started with something that we all thought in common, and then tried to see how far apart we were. In terms of the policy assumption, it seems to me that it's a good idea to start from a single policy assumption. If the single policy assumption is, "If we do nothing different than what we had said at the last meeting, what would you expect the forecast to be, based on incoming data?" that at least says, to me, that everybody is starting with the do-nothing scenario, and if we do nothing differently, this is how we think the economy is going to evolve. Then we use that baseline to decide what we think is the right policy.

Second piece, as far as the timing and the number of iterations, I certainly have no confidence in my own forecasting ability. I use the Tealbook, I use the information in it, and I use questions to the staff. And it's everything I can do to get my submissions in by five o'clock on Friday. If you want me to make submissions a week or two earlier than that, they're going to be pretty close to guesses—in fact, they are going to be guesses. So I have a little bit of a problem with that. I don't think it would be good to require me to guess just because we needed it at a certain time. And I would hate to move the thinking that goes into the Tealbook forecast back a couple of weeks, because then it's based on less-current information, and I think it's more important that we have current information to base our decisions on.

Finally, I think it would be helpful if we could agree on using a particular policy rule, at least for the Tealbook. You take a common assumption about what policy starts out at, you use that to forecast what you think the outcome would be, and then you use some kind of specific policy rule. It might not be your favorite, but, in my opinion, if we can all agree on one that we could use so that we're all talking about the same thing, it keeps us from having too many moving parts. I think we could also ask the staff, in the Tealbook, to follow that policy rule with all of the alternative simulations, and it might be one that, when you're at the zero lower bound, requires you make some adjustment, either you wait a longer time or you wait until it calls for 75 basis points on liftoff or you wait for some conditions to be met. But again, we specify what rule we want the staff to use in terms of how they show us the alternatives, and then I think it is helpful to look at the options—if you choose alternative A, you're choosing this path; if you choose alternative B, you're choosing this path; if you choose alternative C, you're choosing this path. If you disagree that this policy option would create this much difference in terms of the ultimate outcome on the economy, then we can talk about that. If you think that more LSAPs are not going to be that effective, and so you don't think that the actual outcome would be what it shows in there, then you can talk about that difference. But somehow it would be more helpful to me if we could start to narrow in on where the differences are and keep as many other pieces of it constant as we can. It's just hard for me to think in that many dimensions. That's the exercise I would like to see.

CHAIRMAN BERNANKE. Thank you. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. The purpose of this particular set of parameters that were put on this experiment was really to look at three questions. One was whether the Chairman can construct a forecast under the conditions we set forth; two, to evaluate how the input was provided to the Chairman; and then, three, to evaluate how the Committee considered the forecast. So, first of all, can the Chairman construct a forecast? I think under these conditions, we tried to do it in a very low-touch way. We wanted to make sure that this would not in some way overtake the other important work of the Committee. We really tried—and should continue to try when we design these experiments—to ensure that they not overtake the central work of what the Committee needs to be doing. And I think from that perspective, this set of parameters worked.

In terms of evaluating how the input is provided to the Chairman, again, it was very light touch. I, for example, wasn't sure, when I saw the initial forecast and then the consensus forecast, why it had changed. And when I saw that it had changed, I was curious as to why it had changed, but really had no sense as to what the reasons were, had no idea who had provided what kind of input. I found myself actually interested in knowing who had said what, not for any particular personal reasons, but I wanted to know, were they broad-based reasons? Are these regional differences? It was noteworthy, anyway, that there was no sense as to why the forecast had changed. And I don't think that's an undesirable feature. I think that that made me all the more curious coming into the meeting, listening to exactly what people were going to bring into the economic policy go-round. Also, I would note that in this experiment, we didn't have an SEP, and so without an SEP, there wasn't really that more formal mechanism that could be used to feed into the Chairman. But I could see, in another round, using the SEP as that vehicle and then leaving it to the Chairman and the staff to massage it, come up with something that looks like a forecast. And it would then be, again, a minimal heavy lift, I think, on members of the Committee.

On the third point, the question of evaluating how the Committee considers the forecast, that struck me as very choppy. I think that we did it. We didn't want that question asked in the middle of our meeting today, because essentially we had bigger questions to think about, and we thought that would be distracting. But ideally, that question of how the Committee wants to respond to the consensus forecast would be asked before the policy go-round. It would be asked after the economic go-round and before the policy go-round. I also think that in terms of how the Committee considers the forecast, some of Sandy's questions about what warrants dissent matter. "Dissent," by the way, is a strong word here because I don't think we've even decided that this would be a point of dissent; it might be a point of disagreement. But we haven't yet thought through whether this is something that becomes a "stake in the ground" that there will be registered dissents on, or disagreement and what would warrant disagreement. Having a single policy assumption—again, this was very fuzzy, and I think putting some more structure around that would probably be a next, second incremental step. I think that Bill Dudley's ideas of the "grand enchilada" of what we could do are all aspirational, but I would still advocate proceeding with a very incremental and low-touch kind of approach.

CHAIRMAN BERNANKE. Thank you. Governor Stein.

MR. STEIN. Thank you, Mr. Chairman. The only thought I had, and I guess I came to this independently, is exactly the same point that President Lockhart articulated and a number of others have since endorsed, which is, I think it would be a good idea to have the forecast be based on an exogenously anchored policy path—for example, exactly as in your example, President Lockhart: that which came out of the previous meeting, as opposed to some notion of an endogenously optimal path. Aside from simplifying things and just making our own task easier, if we're thinking of this primarily as a communications device and we're trying to tell the world the story of why we're choosing to make a particular policy action, I think it just makes the communication much clearer. And let me give an extreme, stylized example, which will exaggerate the point: Imagine that we had a single mandate and all we cared about was 2 percent inflation in the long run. And suppose we got it into our heads that we were worried about inflation expectations in 2015 picking up, so we needed to raise rates. You want to explain why you raised rates. Well, if you do the forecast based on your endogenously optimal path, all you'll see is that inflation will be 2 percent. You'll see the rates moving around, but you'll never be able to say, "Well, there's this counterfactual world where, if we hadn't taken action, something would have gone wrong." Whereas in a fixed path, you can say, "Well, if we had kept to our old policy, rates were going to go up," and then it'll make it natural. And of course, you could augment this by doing what Vice Chairman Dudley suggests, by having multiple paths. But I think the key in either thing is that you need an anchor. That's come out in the discussion, and I just wanted to endorse that as a concept.

CHAIRMAN BERNANKE. Thank you. Governor Powell.

MR. POWELL. Thank you, Mr. Chairman. Just a couple of things. First, I do think that a consensus forecast and QMPR constitute a better place to be. It's a better end state than what we have now, and I think we're making progress toward it. I'll admit that it is orders of magnitude more complicated and difficult than I had any thought that it might be. I like a lot of ideas around the table. I like the idea that it's mandatory, but as Governor Duke pointed out, for Governors—for me, anyway—the Tealbook is hugely important in developing my—so far, one—SEP. And to try to do it two weeks before the Tealbook, we'd be calling on the same staff two weeks before putting the SEP together. So I don't know what the answer is with that, but it's a difference, I think, from the presidents. I also like some of Bill's ideas. Bottom line: I think it's definitely a great idea to go ahead. Without a lot more meetings like this or a lot of time spent with Governor Yellen and Governor Raskin and the subcommittee and others, I'm not sure where I'd come out on these things. I will agree, though, that having an exogenous policy path is, to quote President Bullard, a brilliant idea. So I like that, and I'll just leave it at that. Thanks.

CHAIRMAN BERNANKE. Okay. Thank you very much. This has been very helpful. I've heard a lot of support for the concept in general. A couple of ideas that were raised were the questions of whether the forecast should be, in some sense, ex ante or ex post and how we should specify policy paths. Governor Yellen, did you have anything else?

MS. YELLEN. No.

CHAIRMAN BERNANKE. Any final comments?

MR. DUDLEY. And table 2.

CHAIRMAN BERNANKE. And table 2 was very popular. Good. Unless there are other comments, we'll adjourn the meeting. The next meeting will be on Wednesday and Thursday, September 12 and 13 of this year. Thank you very much.

END OF MEETING