

**Meeting of the Federal Open Market Committee on
June 21–22, 2011**

A joint meeting of the Federal Open Market Committee and the Board of Governors of the Federal Reserve System was held in the offices of the Board of Governors in Washington, D.C., on Tuesday, June 21, 2011, at 10:30 a.m. and continued on Wednesday, June 22, 2011, at 9:00 a.m. Those present were the following:

Ben Bernanke, Chairman
William C. Dudley, Vice Chairman
Elizabeth Duke
Charles L. Evans
Richard W. Fisher
Narayana Kocherlakota
Charles I. Plosser
Sarah Bloom Raskin
Daniel K. Tarullo
Janet L. Yellen

Jeffrey M. Lacker, Dennis P. Lockhart, Sandra Pianalto, and John C. Williams, Alternate Members of the Federal Open Market Committee

James Bullard, Thomas M. Hoenig, and Eric Rosengren, Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, 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
David J. Stockton, Economist

James A. Clouse, Thomas A. Connors, Steven B. Kamin, Loretta J. Mester, David Reifschneider, Harvey Rosenblum, Daniel G. Sullivan, David W. Wilcox, and Kei-Mu Yi, Associate Economists

Brian Sack, Manager, System Open Market Account

Jennifer J. Johnson, Secretary of the Board, Office of the Secretary, Board of Governors

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

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

William Nelson, Deputy Director, Division of Monetary Affairs, Board of Governors

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

Charles S. Struckmeyer, Deputy Staff Director, Office of the Staff Director, Board of Governors

Seth B. Carpenter, Senior Associate Director, Division of Monetary Affairs, Board of Governors; Michael Foley, Senior Associate Director, Division of Banking Supervision and Regulation, Board of Governors; Lawrence Slifman and William Wascher, Senior Associate Directors, Division of Research and Statistics, Board of Governors

Andrew T. Levin, Senior Adviser, Office of Board Members, Board of Governors

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

Daniel M. Covitz and Eric M. Engen, Associate Directors, Division of Research and Statistics, Board of Governors; Trevor A. Reeve, Associate Director, Division of International Finance, Board of Governors

Egon Zakrajšek, Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Beth Anne Wilson, Assistant Director, Division of International Finance, Board of Governors

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

Brahima Coulibaly, Senior Economist, Division of International Finance, Board of Governors; Louise Sheiner, Senior Economist, Division of Research and Statistics, Board of Governors

Jean-Philippe Laforte,¹ Economist, Division of Research and Statistics, Board of Governors

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

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

Jeff Fuhrer, Executive Vice President, Federal Reserve Bank of Boston

David Altig, Glenn D. Rudebusch, and Mark E. Schweitzer, Senior Vice Presidents, Federal Reserve Banks of Atlanta, San Francisco, and Cleveland, respectively

Michael Dotsey,¹ William Gavin, Andreas L. Hornstein, and Edward S. Knotek II, Vice Presidents, Federal Reserve Banks of Philadelphia, St. Louis, Richmond, and Kansas City, respectively

Marco Del Negro,¹ Joshua L. Frost, Deborah L. Leonard, and Jonathan P. McCarthy, Assistant Vice Presidents, Federal Reserve Bank of New York

Jeff Campbell,¹ Senior Economist, Federal Reserve Bank of Chicago

¹ Attended the portion of the meeting relating to dynamic stochastic general equilibrium models.

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June 21 Session

CHAIRMAN BERNANKE. Good morning, everybody. Because this is a joint FOMC–Board meeting, I need a motion to close the meeting.

MS. YELLEN. So moved.

CHAIRMAN BERNANKE. Thank you. We are starting very early, and I thank you for arranging your schedules that way. We have an awful lot to accomplish today, and I would certainly like to get to the end of the economic go-round. So let me just ask everyone, where possible, to be succinct and to be aware of the time.

That being said, I would first like to take a minute to note that, with high probability, this will be the last meeting for Dave Stockton before he ambles off into the sunset. [Laughter] Dave joined the Federal Reserve in 1981 as the inflation specialist in the section that was known as Wages, Prices, and Productivity. That year, the CPI clocked in at about 10 percent. [Laughter] However, after '81, of course, it began to come down very steadily. After successfully bringing inflation under control, Dave rose rapidly through the ranks and was appointed division director in 2000. In all, he has attended 170 FOMC meetings, including 84 as division director and FOMC economist. At his first meeting back in November '85, he delivered a lengthy presentation to Chairman Volcker and the rest of the Committee on the effect of dollar depreciation on the U.S. economy. They must have liked it, because they invited him back almost immediately. As far as the macroeconomics is concerned, perhaps it will suffice for today simply to note that Dave's time as director included both the last years of the Great Moderation and the period that I am confident will become known as the Great Immoderation. [Laughter] Economic historians will puzzle for years over Dave's role in all of that. [Laughter]

Dave has given us the benefit of his keen insight as a macroeconomist, his unparalleled grasp of the inflation mechanism in the United States, and the hallmark of his time here, the wit and humility in which he has wrapped it all. Never before has the owner of the staff forecast compared its shelf life unfavorably to that of a jar of mayonnaise in the Mojave Desert.

[Laughter] So, Dave, on behalf of the Board and the Committee, we want to thank you for a job exceedingly well done. Thank you. [Applause]

Our first item today is our special topic on DSGE models, and I will call in just a moment on Michael Dotsey from the Philadelphia Federal Reserve Bank. He will be supported by Marco Del Negro from New York, Jeff Campbell from Chicago, and J. P. Laforde from the Board. I really appreciated the summary memo and the background papers that we got; a lot of care went into trying to make this intelligible and understandable to everybody. And it was a great example of the collaborative effort between Board researchers and Reserve Bank researchers. So let me turn to Michael.

MR. DOTSEY.¹ Mr. Chairman and FOMC participants, good morning, and thank you for giving me the opportunity to introduce the System's DSGE project to you. First, I would like to give you a brief overview of dynamic stochastic general equilibrium, or DSGE, models and indicate how they can provide useful input into the policy process. Then I will illustrate two uses of the models: their ability to identify economic disturbances that are responsible for a given event—in our case, the Great Recession—and their use as a forecasting tool. In my discussion, I will concentrate on the relative strengths of the methodology, but I will also make you aware of the pitfalls. I will conclude by describing other uses of the models that the FOMC might be interested in.

Let me begin by reviewing the methodology employed in DSGE models. Specifically, what are DSGE models, what makes them special, what are their strengths and weaknesses, and how should they be used in conjunction with the other tools available to policymakers?

As summarized in exhibit 1, DSGE models are small to medium-sized economic models. Thus, they are much smaller than FRB/US but generally larger than simple time-series models such as vector autoregressions. Notably, DSGE models are also

¹ The materials used by Mr. Dotsey are appended to this transcript (appendix 1).

structural in nature, meaning that they specify the objectives and constraints of each decisionmaker in the model. This feature implies that the shocks in the models can be given an economic interpretation, and that the models can be used to analyze policy changes. The decisionmakers in the models include a private sector composed of households and firms, as well as a public sector made up of a fiscal authority and a central bank. The private agents in the model solve explicit optimization problems, and expectations of future economic conditions are central determinants of their behavior. A distinguishing feature of the DSGE methodology is that these expectations of future economic conditions are endogenous. This means that households and firms incorporate expectations of future policy into their current decisions. This is an especially important feature when examining the effects of alternative policies or discussing the effects of anticipated policy changes.

As their name implies, DSGE models are general-equilibrium models, implying that prices, interest rates, and wages adjust so that supply equals demand in all markets at any given point in time. In addition, the models are stochastic, and economic fluctuations are generated by shocks. For example, changes in productivity, unanticipated changes in monetary policy, and changes in the efficiency of financial intermediation are factors that influence the behavior of the model economies. The shocks capture the inherent unpredictability of macroeconomic data.

The parameters of the model are usually estimated using Bayesian statistical techniques. The statistical methodology allows the user to characterize the uncertainty surrounding the parameter estimates and the economic forecasts that are produced by the model, as well as the uncertainty surrounding the results of alternative policy experiments.

DSGE models have become an extensive research topic at many central banks because the use of an explicit optimizing model makes the output of DSGE models—whether that output is an economic forecast, the results of a policy experiment, or the analysis of the sources of economic fluctuations—readily interpretable in terms of economic theory. Thus, DSGE models can address a host of issues that are relevant to policymakers.

Let me now go into a bit more depth concerning the basic building blocks of the models, which are summarized in exhibit 2 in the handout. First, the models have a production side. Firms employ workers and rent capital in order to produce goods, and production is subject to productivity shocks. Firms also have pricing power, and prices adjust slowly. These price rigidities are an important feature of the models and an important element in aligning the models with the data. The pricing mechanism generates a Phillips curve that relates inflation to a measure of economic activity. Along with productivity shocks, firms' decisions are directly influenced by shocks to the markup of price over marginal cost.

The second major participants in the model are households. They own the firms and the capital stock either directly or indirectly through their ownership of financial intermediaries. They choose how much to consume and save as well as how much

labor to supply. As with prices, wages are not fully flexible. They adjust slowly in response to economic disturbances.

A third component of some but not all of our models is a financial intermediation sector. For those that don't, one may interpret the investment process as involving some form of indirect financial intermediation that transforms savings into additional capital, and this transformation is costly. These costs affect the productivity of investment. As shown in a 2011 paper by Justiniano, Primiceri, and Tambalotti, changes in the efficiency of investment may be given a financial interpretation. Other disturbances that influence households' decisions are shocks to the rate of time discount (how impatient the household is) and shocks to labor supply. Shocks to the rate of time discount influence how a household allocates resources between consumption and saving and so are important in generating differential growth patterns in consumption and investment. Shocks to labor supply are intended to capture labor market frictions beyond those involving wage rigidity.

Most of the models also involve nonproductive consumption by the government, but that is generally the extent to which fiscal policy is incorporated into the model. Shocks to government spending are basically shocks to the economy's overall resource constraint and can, therefore, also be interpreted as shocks to net exports.

Monetary policy is captured by a generalized Taylor rule, with interest rates responding to inflation relative to target and some measure of economic activity. Interest rates adjust gradually, and monetary policy shocks capture deviations of the interest rate from this rule. The parameters of the rule are estimated and, therefore, based on the past behavior of policy.

Model development is ongoing, and although the models employed by the various Reserve Banks and the Board share most of the above features, they do differ along a number of dimensions. The Philadelphia Fed is closest to the basic structure just outlined. The New York model incorporates a specific financial sector along the lines of Bernanke, Gertler, and Gilchrist (1999), and the Board EDO model has multiple sectors and incorporates risk premiums into the pricing of bonds. The Chicago model includes technical progress driven by improvements in the productivity of capital and uses an interest rate spread to identify changes in the efficiency of investment. It also incorporates multiple measures of inflation to estimate its common persistent component. Consequently, the project includes a rich set of DSGE models that unsurprisingly sometimes present different interpretations of economic events.

We view this diversity as a strength of our project. Using a number of different DSGE models allows us to ascertain, to some degree, the extent of model uncertainty along with the uncertainty that characterizes each particular model. Examining model uncertainty is an important part of analyzing the output of DSGE exercises, because economists are in general more uncertain about their models than they are regarding the parameter values of any particular model. As well, quantifying the degree of uncertainty surrounding any particular exercise is informative for policymakers, as it

establishes the degree of confidence that can be associated with the predictions of the models and how various model specifications influence those predictions.

Having described the general structure of the DSGE models used in our project, I will now turn to some of their uses. These are summarized in exhibit 3. First, the models can be used to forecast the variables included in the models but may also be used to forecast nonmodel variables as well. That exercise has been performed with the Philadelphia model. The forecasts are generally of a quality similar to reduced-form forecasts and forecasts that are more judgmental in nature. The models are also amenable to “nowcasting” exercises, which incorporate more timely current-quarter information. The forecasts I will present in this briefing are nowcasts.

Second, DSGE models allow us to identify the disturbances that are driving economic fluctuations and the forecast, as well as understand how these disturbances affect economic activity. This strength of the DSGE framework is what is shown in the analysis of the Great Recession that I will present in a moment. As a preview, we find that the models in our project identify those shocks that are most closely linked with financial intermediation as responsible for the recent recession.

Third, DSGE models can be used to explore the effects of alternative policies. The estimation focuses on parameters that are assumed to be invariant to policy changes. Consequently, we can analyze the effects of policy changes using the estimated parameters of the model.

My overview would be incomplete if I did not point out some of the inherent limitations of the DSGE approach. It is important to note that many of these weaknesses are generic and not particular to DSGE models. One weakness is that the models are not large in scale, which may result in some economic variables that are of interest being overlooked. Further, as is true of all economic models, DSGE models represent approximations and are, therefore, subject to model misspecification. Also, all of the models I discuss ignore open economy aspects, firms’ and households’ heterogeneity, and several other features that are potentially important for the transmission mechanism of various shocks. However, the importance of the misspecification can be tested by comparing the fit of the DSGE model with that of more heavily parameterized reduced-form models.

Another consideration is that some of the behavioral relationships may not be invariant to policy interventions. The DSGE approach aims to minimize this problem, but it is not altogether immune from it. For example, the way firms set prices in the model is not fully based on optimizing behavior, and the estimated parameters that govern price setting are probably not invariant to alternative policies. Also, the labor supply decisions in the models may not correspond very well to actual labor market behavior. Incorporating more realistic models of the labor market is part of an ongoing research effort in the DSGE model-building community. Finally, the models often lack important sectors, such as a sophisticated financial sector, and the modeling of fiscal policy is quite simplistic.

That said, we believe that these weaknesses are more than offset by the strengths of the DSGE framework and these models should be an important element of a policymaker's toolkit. They can be used to interpret economic fluctuations and serve as a complement to other forecasting methodologies that policymakers currently rely on. Importantly, the models provide an internally consistent way of carrying out the analysis of alternative policies. As an example, they could be used to analyze the differences between unanticipated changes to policy as opposed to anticipated ones. DSGE models are increasingly being used by other central banks to inform monetary policy, and we believe they can be put to effective use by the FOMC.

Let me now focus on the first of our two exercises—namely, analyzing the causes of the Great Recession. This episode is particularly important both because of its severity and because it plays an important role in the current forecasts. Explaining the Great Recession is especially challenging for our project because only two of our models explicitly incorporate financial variables, and only the New York model does so endogenously. Nevertheless, the models reach some similar conclusions.

Exhibit 4 of your handout displays some of the key variables used in estimating the various models. Examining the broad contours of the data indicates that the recession was quite deep, especially regarding investment and hours worked. Real GDP in the second quarter of 2009 was more than 4 percent below its level of a year earlier, the sharpest four-quarter decline since the Great Depression. The decline in business fixed investment was even more severe, falling nearly 21 percent over the same period. Commensurately, hours worked in the nonfarm business sector fell 8 percent and payroll employment fell nearly 5 percent. Inflation fell during the recession, but the decline was not dramatic. Notably, the huge run-up in interest rate spreads provides evidence of severe financial distress.

My discussion of the Great Recession will tie together the common features characterizing the individual models' explanation of the recession. I will also point out a few differences among the models' identifications regarding the main factors that contributed to the crisis. More detailed descriptions of how each model interpreted the recession are contained in the briefing material that was circulated before the meeting. In explaining the shocks that drove the Great Recession, whether a model explicitly incorporates a financial sector and financial variables is of prime importance. Of the four models, the New York model and the Board's EDO model explicitly incorporate the effects of financial distress. In the New York model, financial frictions generate a wedge between the interest rate paid by investors and the interest rate on government securities, and in the EDO model, the financial distress is directly associated with shocks to various risk premiums. Thus, a key driver in the New York model's explanation of the recession is a widening of the spread due to an increase in the riskiness of borrowers. This shock is identified by the behavior of the Baa corporate bond rate over the rate on 10-year Treasuries. These financial shocks help the model capture a good deal of what actually occurred in the early part of the recession because they impair the allocation of funds to investment projects, reducing investment, output, and hours, and causing inflation to decline. The effect is also amplified by the stickiness of prices and wages in the

model. Similarly, EDO identified shocks to risk premiums as important drivers of the recession, and the identification of risk premiums shocks allowed the model to capture the collapse in investment-type expenditures.

Neither the Chicago nor the Philadelphia model explicitly includes a financial intermediation sector. Nevertheless, the shocks that contribute the most to their explanation of the recession are those closely tied to the transformation of savings into investment. In particular, negative shocks to the efficiency of investment contribute substantially to the fall in investment and output. A negative shock to the efficiency of investment literally implies that a unit of investment produces less capital than it normally would, making investing less desirable. More broadly, these reflect deterioration in the efficiency of financial intermediation. As financial markets recovered during the recession, this shock also played a key role in the New York model's explanation of the prolonged economic weakness. It is also the case that a decline in the value consumers attached to current consumption relative to future consumption—a shock to consumers' discount rate—reduced output and interest rates in both the Chicago and the Philadelphia models. Both shocks also imply a decline in inflation because they reduce aggregate demand.

Let me now turn to our final exercise, which involves a current forecast of the economy. The forecasts are summarized in exhibit 5. These are updated from the ones you initially received in the main document and were included in the subsequently circulated addendum. The new forecasts are conditioned on second-quarter economic data and are displayed in exhibits 6 through 8. Because the models differ along a number of dimensions, their forecasts provide different lenses for viewing the economy.

Regarding output growth, which is shown in exhibit 6, all four models depict an economy in recovery, with a median forecasted growth rate of 2.9 percent in 2011 and 3.5 percent in 2012. The four models differ markedly regarding the strength of the recovery, however. The Philadelphia and Chicago models anticipate robust recoveries; the Board's model predicts real economic growth roughly in line with trend (about 2.7 percent), while the New York model predicts growth slightly below trend. The main differences across the model forecasts can be traced to whether the shocks that generated the recession continue to hinder the return of output to potential, or whether they dissipate, allowing a rapid rebound in economic activity. The Philadelphia and Chicago models, and to a lesser extent the Board's EDO model, represent the latter case: As the economy returns to its potential after the strain from "financial" shocks, these models forecast relatively sustained growth. The New York model represents the other extreme: In that model, the headwinds from the financial crisis have an adverse effect on economic activity for a very prolonged period, and hence the recovery is subdued.

As shown in exhibit 7, the inflation forecasts display more agreement across models. For the most part, the models indicate downward pressure on core inflation in response to weak aggregate demand and a level of economic activity below potential through the end of the forecast horizon. The New York, EDO, and

Philadelphia models anticipate that inflation will be in the 1.3 percent to 1.5 percent range by the end of 2013, while the Chicago model expects a sharp decline in inflation. Taken together, the models do not anticipate significant inflationary pressures over the forecast horizon. For the most part, the recent surge in inflation is viewed as transitory and hence does not call for a large policy response in the forecasts.

Turning to exhibit 8, the interest rate forecasts of the models imply somewhat different paths for monetary policy. The paths differ because the models differ in their forecasts for output and inflation, and they specify different monetary policy rules. In the Philadelphia model and the Board's EDO model, monetary policy reacts to a longer-run measure of output, and it reacts to the four-quarter growth in output in the Chicago and New York models. The New York, Chicago, and Philadelphia models impose an "extended period" of zero interest rates until mid-2012. All project a modest tightening thereafter because they expect inflation to remain below target. This forecast is similar to the EDO model's forecast, which anticipates that tightening will begin in late 2011. By the end of 2012, the federal funds rate is expected to reach 0.9 percent in the New York model, 1.0 percent in the Chicago model, 0.6 percent in the Philadelphia model, and 1.6 percent in EDO. Thereafter, policy is expected to tighten at a modest-to-measured pace.

Having reviewed the basic methodology of DSGE models and presented two of their uses, I would like to conclude by summarizing their main strengths and by suggesting a few ways in which the FOMC may wish to use our DSGE model project. Two distinguishing features of the DSGE methodology are the endogenous nature of expectations and forward-looking optimizing behavior. Incorporating these two elements is crucial for analyzing the effects of alternative policies and for making the output of the models interpretable in terms of modern macroeconomic theory. Further, the diverse nature of the models in the project allows us to characterize the inherent uncertainty surrounding any of our exercises.

One goal of the DSGE project is to provide additional forecasting exercises that the Committee will see as useful complements to other forecasts already used by the Committee. In future work, we plan to investigate in more depth the properties of our forecasts and can potentially combine the information in the various forecasts to produce an improved single forecast. To that end, we can explore more formally the forecasting accuracy of the individual models as well as average forecasts of the models in our project, and compare our forecasts with those of other models and surveys. This would give the Committee another well-documented forecasting tool. Additionally, we believe that the models can help the Committee identify the types of disturbances that are most likely affecting the economy. This knowledge can aid policymakers' decisions, as the appropriate response to productivity-induced economic growth may be different from growth originating from demand disturbances. Importantly, the models can be used to ascertain the effects of alternative policies, whether they be slight departures from normal operating procedures or more significant changes in how monetary policy is carried out. We would be happy to answer any questions you have about this project.

CHAIRMAN BERNANKE. Thank you very much, again, for the collaborative work that you have done. I think it is very encouraging that staff is trying to introduce new research developments, at the same time maintaining an eclectic and broad-based approach to forecasting and analysis. A particular advantage of these models, as you point out, is that they give you an opportunity to create stories that are economically well-grounded. They also let you look at policy analysis in a way that will take into account the potential behavioral responses to changes in policy regimes. Those things are very useful, and I commend the staff for doing this work. I think it is an important part of our collective progress in analyzing the economy.

Let me kick off the Q&A round and ask whether the concept of a utilization rate ever appears in these models. For example, in housing, we would think that the notion of vacancies affects the marginal product of constructing a new house. In both capital and labor, you would think that utilization would be relevant. Because that requires departing from a truly neoclassical kind of production function and allowing for perhaps some fixed coefficients, it may not be feasible, but I am just curious if thought has been given to that.

MR. DOTSEY. I agree with you on these things. Right now, the models that we have mix extensive and intensive margins, and we really don't talk about things like unemployment. It is true that deviations of where the model is from a steady state are very important, and those are gap-like concepts, but not exactly what you may be asking about. A lot of those types of things, though, are on the DSGE framework. I think that many of the things you suggest are doable; they just haven't been done yet. They involve a lot of work, and researchers have to figure out which ones they want to attack and in what order. As I mentioned in my briefing, developing more realistic labor market sectors, where we can actually look at unemployment measures in more detail, are certainly front and center. None of our models incorporates that.

CHAIRMAN BERNANKE. Okay. Thank you. Any other questions? Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you. I have two sets of questions. One, how have the models done in terms of forecasting? You show the current forecast, but if you back things up six months or a year ago, or two years ago, how have they actually done? And when a model does poorly, how do you assess that? Is that because there were shocks or because the model was misspecified? How do you interpret what is a good model versus what is a bad model?

My second set of questions is going to maybe go in the same direction as the Chairman was going. How do you think about balance sheet constraints in the context of these models? For example, right now you have changes in credit standards and credit availability. Do the models just take those and translate them into a particular shock?

MR. DOTSEY. Okay. With regard to forecasting, there has been only a little bit of work done with these particular models formally testing how well they forecast. In particular, the EDO model has done some exercises, I believe, over the 1997 to 2004 period, and I think the answer is that it does about as well as FRB/US.

Some other work that I have read by somebody at the ECB has looked at three or four different DSGE models—the Smets-Wouters model, something very close to EDO—and has looked at model averaging. In those particular exercises, when you start looking three and four and five quarters out, the DSGE approach seems to outforecast what was in the Greenbook when it comes to output growth, does slightly less well on inflation, and actually, surprisingly, does a little bit better at predicting the Committee's own behavior three, four, and five quarters out. These are not our models, and certainly, if you were to use the forecasts from our models, I agree

that one of the things that we need to be able to bring to your attention is how well their forecasts have done over a period of time in comparison with others.

In terms of trying to think about misspecification—and I'm going to let some of my colleagues pipe in, if they want to, because they are the actual experts on model development. When you start seeing really, really huge shocks that have to drive everything and the shocks take on a very persistent type of character, then you can be somewhat skeptical of the model. That is a signal that something outside the model that is driving things. Then you may have to say, "Well, maybe in this particular case, because it is just large persistent shocks and is not something endogenous to the model, we are not looking at your DSGE model today."

In terms of credit standards, I believe in the New York model—I'm going to let Marco answer this in a minute—those types of things reflect, for example, how much net worth people have and how risky the borrowers are, and that will influence credit spreads endogenously. In the EDO model, the risk premium is, as you say, exogenous. But there are models on the shelf that do look at these net worth characteristics and how they do affect credit spreads, and I believe that those could be incorporated into the framework as we go forward. I would like to turn to Marco, who has done more work on this, if that's okay.

MR. DEL NEGRO. Let me address one thing about the misspecification. Of course, big forecast errors translate into shocks in this model. That has to be the case. However, because these models are estimated, the econometrician learns, and the model learns, from past mistakes. The model hates having big forecast errors. [Laughter] And, therefore, parameter estimates adjust. That happens, for instance, for the incorporation of financial frictions with data coming from the crisis.

Getting back to your question about the balance sheet, the New York model has, in a very coarse way, an idea of leverage. Leverage is fundamental to explain the financial frictions in the model. So, at a very high level, we can talk about leverage—of course, probably not to the very specific extent that you want us to talk about it, but there is model development in terms of having a finer banking system. We hope that in the future we will be better able to address your questions. The other models also address, to some extent, these other shocks, like marginal efficiency and investment shocks, that capture financial frictions. Thank you.

MR. REIFSCHNEIDER. Let me piggyback with a comment related to forecasting with EDO. As Mike said, the published paper on the forecasting ability of EDO only went through 2004. But, actually, J. P. Laforge, Rochelle Edge, and Mike Kiley looked at it through a more recent period in a sort of pseudo real-time forecasting exercise using the actual data published at the time. And we have also had the actual real-time forecasting experience of EDO. I think it really shows what Mike said, in the sense that EDO does about as well as a lot of techniques. As Mike Kiley would immediately say, “That’s not a fantastic standard to hold it to,” [laughter] but it does as well. So these models are useful for forecasting. In terms of what has been happening over the last year or so, I’d say the way EDO has been surprised is in many respects the same as the way FRB/US and the staff forecast in general have been surprised—that is, this recovery has turned out to be slower and more prolonged—and we’re having to reassess what is going on as the weakness persists. And that relates to the point Marco made: The model errors raise the question of what exactly is going on out here.

CHAIRMAN BERNANKE. President Williams.

MR. WILLIAMS. To start, I would like to thank Mike and all of the System staff who worked on this project, which has been going on for quite some time. I think this work illustrates

some of the valuable synergies between policy analysis and academic research. I especially applaud the approach of comparing and contrasting alternative models, which illustrates the tough modeling choices and tradeoffs that all researchers face when developing models for policy analysis, and I think, more importantly, provides different perspectives on the economy and policy.

I have two questions for Mike. First, what do you see to be the key advantages or insights of the DSGE models over, say, FRB/US in thinking about the current situation and the appropriate stance of policy today? And my closely-related second question is, what do these models tell us about the impact of the events of the past three years on potential output—or, in the parlance of DSGE models, the natural rate of output—and the output gap?

One purported advantage of DSGE models is they provide a theoretical basis for distinguishing between shocks to supply and demand. Indeed, in many DSGE models, supply shocks—that's shocks to preferences and technology—account for a significant share of economic fluctuations. This distinction between supply and demand shocks is a critical issue for monetary policy because policy should respond differently, depending on the nature of the shock. I am particularly curious about the New York Fed's model, which shows very persistent effects of the financial crisis on output. In the New York Fed model, does this primarily reflect a decline in potential output or a very persistent output gap?

MR. DOTSEY. I am not an expert on FRB/US, so I don't think I can really say exactly what the weaknesses are of FRB/US versus the DSGE framework. What I can say is what you alluded to—that the DSGE framework, because of its manageable size and the restrictions associated with forward-looking and optimizing behavior, allows us to, as you said, characterize the shocks. We can look at impulse-response functions that we know are related to a

fundamental type of shock, rather than something that may be just a reduced-form forecast error, and see how that plays through the economy, giving people an idea of how the model works.

In regard to gaps, there are numerous ways to construct gaps. The models themselves don't find most of those constructions as a first-order part of the model. So basically, the gaps that most of us can tell you about are where we are relative to the steady-state growth of the economy. And most of these models were a long way away, between 4 and 10 percent.

Regarding the New York Fed model, I'll let Marco field the question.

MR. DEL NEGRO. I want to clarify a little bit of what Mike said. Gaps, I think, are an important part of these models. In fact, getting back to your questions, the headwinds—a slower recovery from the financial crisis—is largely a gap story; it's not a trend in output now being lower. It's a gap caused by shocks that have a very prolonged effect on output, depress economic activity, and therefore keep inflation low. Now, maybe what Mike was referring to, and you as well, is that there are various ways of measuring gaps. One is related to the trend in output, and another is relative to a hypothetical universe without nominal rigidities. Well, the second way is actually very challenging, as shown in a recent paper by Justiniano, Primiceri, and Tambalotti, because it involves a number of conceptual and measurement issues. We don't yet have measures of this alternative gap, but it plays a role in the model, and we can certainly provide them to you in due time.

CHAIRMAN BERNANKE. Governor Yellen.

MS. YELLEN. I want to thank you very much for an excellent presentation, and to applaud the staff's work in the collaboration that you have going here on DSGE models. I think it's extremely valuable, and I agree with you that these models can play a very useful role in medium-term forecasts. I hope that the Committee will be able to routinely look at forecasts

generated by the suite of models you've described, along with FRB/US and SIGMA and other models that we have here at the Board.

I just want to make one suggestion about something that I would find useful. I've long been a fan of using simple rules as benchmarks for monetary policy. And I think macroeconomic models can play a key role in formulating and comparing these rules. President Williams has written important papers showing that, in gauging the performance of simple rules, it is important to use a range of alternative models to help identify rules that would be robust to uncertainty, particularly uncertainty about the structure of the economy, as well as shocks. So I want to suggest and encourage staff to potentially conduct an analysis of simple monetary policy rules using the DSGE models that you have presented to us today, and we could do the same thing using other models at the Board—FRB/US and SIGMA, which is an open economy DSGE model that's been developed here. I know we've talked about possibly having a future discussion of monetary policy rules, and I think this would be a potentially useful part of it.

MR. PLOSSER. Governor Yellen, we've talked a little bit about this, and Philadelphia made a suggestion a while ago to staff that one of our two-day meetings in the future might be about such robust policy rules and variations. Using these models as input into that exercise might be a way to push these things along together, so I would encourage that. That's a great idea.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I just had one quick question for Mike, which is, how do the models capture the large-scale asset purchases and their impact?

MR. DOTSEY. First, we don't have a rich term structure or any type of market segmentation in the asset market. So with regard to QE2, that's not going to be done directly.

But there are other studies that we can piggyback on that indicate how much so many hundred billions of dollars of assets move down the 10-year Treasury rate, or whatever maturity you are doing. And then there are other studies that translate that into a funds rate–type of decision. Putting it in terms of the funds rate, and perhaps relaxing the zero lower bound constraint would be a way that these models could, in an indirect way, handle that. QE1 seems different, and that is handled directly in the New York model because when QE1 came along, a lot of spreads went down quite rapidly. And those do directly affect what is going on in the New York and Chicago models. For Philadelphia, in the Prism model, it's going to affect what kind of marginal efficiency of investment shocks we are going to be seeing. But I regard QE1 and QE2 as two different policies that the models would incorporate in two different ways.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I want to commend the staff for excellent work here on the DSGE framework, and, of course, I'm a big champion of this kind of work. I think DSGE models are very useful for organizing our thinking on important aspects of macroeconomic behavior. The best and most valuable feature is that everything has to add up in the model: Equilibrium conditions and budget constraints are respected, expectations are treated consistently, and businesses and households are viewed as doing the best they can, given the environment and the prices that they face. In some sense, DSGE is the only game in town, so it's really just economic models.

The key use is to investigate pet theories. We policymakers often have a few fundamental driving factors in our minds when thinking about how to interpret macroeconomic events. One can build a DSGE model with those factors in play, and then see what the implications would be for key macroeconomic variables. That is very much what is going on

here in this set of papers. Often, perhaps very often, the proposed explanation for the event will not match some key facts. I do not regard that as a failure so much as a key piece of information. It is very informative because it suggests where the theory is right and where it needs improvement, and it helps modify our thinking relative to our priors that are embodied in our pet theories. So at its best, this process can be extremely valuable in making the types of judgments that have to be made around this table.

One remark that I do have, and I want to get your comment on, is that I do not think forecasting is necessarily a good metric for models like this. Macroeconomic systems have a certain amount of ambient noise in them. Because of this noise, there will always be clear limits to how well we can forecast. We do not really forecast the economy at all. We really track the economy in an engineering sense. And when we have to predict, we naturally predict that the variables that are away from their means will simply return to their means. So better forecasting may not be a reasonable expectation for this class of models, or really for any models, that we might write down. The goal, instead, is better policy. An alternative policy may deliver dramatically better outcomes for households, even though the forecastability of the economy has not improved at all. That is, under policy A, we would obtain one equilibrium outcome, and under policy B, a different equilibrium outcome, and one of these two possibilities may be strongly preferred to the other. But the forecastability is the same in both cases due to the ambient noise, and due to the fact that a good forecast will actually change behavior in the economy—we are talking about forward-looking businesses and households in the economy—and that will reduce forecastability. There are going to be limits to how well you are going to be able to forecast in a macroeconomic system. DSGE models, at their best, can be very useful in

identifying better policy interventions, even when there is no improvement in forecastability. I don't know what you think about that.

MR. DOTSEY. I agree with part of it, and I disagree with part of it. I agree with you that forecasting should not be the only emphasis on these models. These are small models that are tightly parameterized. I don't share Mike Kiley's view that the glass is half empty. I say, "The glass is half full," and that these models, as tightly parameterized as they are, and not taking account of all the additional degrees of freedom that the big models have, are doing about as well. However, if they were forecasting so abominably that we thought that they had no attachment with reality, then we might want to step back and ask, "Do we really want to use these models for any of the other things they are designed to do?" The fact that they are forecasting about as well as reduced form models, which is pretty good, suggests that they are in an area where they can do the types of experiments you want and be informative as well.

So I agree with the general thrust of what you are saying, but I think forecasting still is somewhat important. I think the Committee would not want to pay attention to models that couldn't forecast at all. For instance, if we did the Great Recession exercise, and we all found out that technology shocks were driving the entire Great Recession, you might ask, "Well, why would I want to look at these models for analyzing anything that looked like a banking crisis in any detail?" But we didn't find that, so that's reassuring.

CHAIRMAN BERNANKE. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I want to thank all of the staff that contributed to this project. I agree that it's a great example of collaboration. I've heard accounts of how things are going in Chicago, and I think that it's been very exciting that people have been working so well together.

I'm very sympathetic to the comments that President Bullard just made, and it makes me think about what the role of judgment is in so much of our analysis, and on the occasion of Dave Stockton's last meeting, I think it is right to think about how important judgment is. As I think about how the staff forecast is put together, there are a lot of different analyses that need to be taken into account in order to put together the type of forecast that's very difficult to get out of a model, even one as flexible as FRB/US or one like the DSGE models. But I think that the FRB/US model and the DSGE models can help inform how those analyses and forecasts evolve, if not quarter by quarter, then over time, and to get the story. What I like so much about the DSGE models, at least in terms of how we think about it in our Bank, is that they tell a story about how things are playing out in the economy. There's really a beginning and a middle and an end to this story. There's a beginning that starts off with the exogenous impulse, the shock, however you want to characterize it. There's a middle: There's the propagation that the model grinds out. And there's an end as the economy goes through the transition to the longer-term resting point. I think it's very valuable to understand some of the stories that these models can tell, and I agree with Jim that it may not generate the best forecast, but it helps us with better policy thinking.

Getting to my question, here's an example that I'm thinking we might struggle with over the coming meetings or longer. Coming through the expansion in the middle of the past decade, we saw strong growth, and we thought that that was associated with higher potential output, a higher level of output. Then we get to the Great Recession, and we have these shocks, financial in nature, and other factors, which led to a dramatic recession, and now the models are telling us there's a big gap. But I think we're going to be wondering, if we haven't already, what about the 1970s? What about policymaking during that time period, when policy was highly

accommodative for a long period of time? Was it to achieve something that ultimately wasn't achievable, a higher growth rate? Athanasios Orphanides and others have looked at that period and seen that potential output wasn't as high as we thought. I think these models can help inform how the current story may or may not play out. I understand that our measures of the output gap are highly uncertain, but for each of those uncertain estimates, the model will tell a different story as to what those shocks are that led to a lower level of potential output beginning in the middle of the past decade. I think that these kinds of analyses can help us with that. We'll probably have to continue to innovate on the models, but I wonder if you have a reaction to that.

MR. DOTSEY. I think that's very similar to what Governor Yellen alluded to in terms of robustness. Certainly, measurement error can be introduced into these models, and then robust rules in the style that John Williams's research has explored over a number of years can be undertaken, given the kinds of uncertainty we might have about measuring a gap or even what conceptually we think a gap is. I think these models can certainly deal with what kind of rules would be most beneficial under those types of uncertainty. A lot of John's work was in a linear rational expectations environment and some of it was in a learning environment, and both of those types of environments are amenable to the scale of models that we have on the table.

CHAIRMAN BERNANKE. Other questions? President Lacker.

MR. LACKER. Thank you. I, too, want to commend the staff. This is an excellent use of your time and energy, and I found it very useful. These might not be at the ideal state we'd want them to be at and are certainly not ready to fully supplant FRB/US in our arsenal, and I'm not sure we'd ever want to. But to me they look like they provide a really excellent complement to what we have, and I would encourage you to keep working at this and give us some practice with it.

I think you're right about the advantages of this. I agree with what President Bullard and President Evans said, that the coherence of these models offers a tremendous advantage. They're internally consistent. There's a clear narrative that emerges, and you can take the narrative to the real world, and you can say, "All right. Do I see this element of the narrative in the real world?" One way to think about these models is as an artificial world. It's like *Second Life* or these online universes, only you guys haven't done the graphics engines yet. [Laughter] The way to work with them is this interplay between looking at the model, seeing what it's telling you, looking at reality, going back and maybe changing the model or reinterpreting the model—and I think that practice with that is what's going to both improve the model and give us a better sense of how to use it.

In reading the memos, I found myself in unfamiliar terrain because we're used to talking about macroeconomic conditions and the macroeconomic outlook using a certain kind of language, but we're not used to saying "marginal efficiency of investment." I mean, you don't see Larry Meyer saying "marginal efficiency of investment" or "risk premium shocks" very often. So I think, while we know how useful these models are, it's going to take some practice in terms of thinking in the categories that the models lead you to think within.

I have a question, and this is more for Dave Reifschneider than you, but your reaction would be useful as well. It has to do with this limitation you cited, that they're not large scale yet, and it made me think back to an article Chris Sims wrote many years ago about the Board's forecasting procedure. He said that it's articulated at such a disaggregate level that you can compare model behavior in individual sectors with industry analysts, and you get this interplay between model and industry analysts. Now, you don't have the chemical industry per se or

anything at that level of detail, although in certain cases, like housing, you do have individual sectors. I was just wondering how much of a limitation you think that is.

That said, I commend you guys for doing this. I think it would be useful for us to see this on a regular basis, like two or four times a year, and to get this kind of a package. Maybe we wouldn't need to spend as much time on it because you've introduced us to the structure, but we could take a little time to work it into our practice. I think that would be really valuable. I'd just emphasize one thing, and this harkens back to discussions we had about two years ago. There really isn't an alternative to models. This goes with what President Bullard said. The advantage of these things is that you put the cards on the table. If you have a narrative, if you are telling a story, if you think you know or have a sense of what's likely to happen, you've got a model in your head. These at least have the benefit of putting everything about it on the table and checking that it's an internally consistent model. With that, I'd be interested in a response to the question about scale.

MR. REIFSCHEIDER. Scale is a difficult issue because the interests of the FOMC are very diverse, and one might think, "Oh, to handle all the sorts of questions that come up, we'd have to build this gigantic thing." And FRB/US is pretty big, but it does not have the scale that covers all the questions the Committee does. So we have to supplement FRB/US with a lot of other types of analyses. Some of that we can do in DSGE models. When we go with SIGMA, for example, we're doing a lot of international analysis, and we're using a different model for that because it's well designed for answering those sorts of questions. EDO also does a better job of handling certain things, such as how you're interpreting data in real time, or doing signal extraction about what's really going on in the supply side, or what might be going on with risk premiums or things like that. That's a statement that all sorts of different models bring different

things to the table. That's also why, in preparing the staff forecast, we use single equation models, we use reduced form models, we use special-purpose models—we do all sorts of thing. We've been maintaining a tradition of trying to not pile all our eggs in one basket, which some other central banks, particularly smaller central banks, have had to do because they have limited staff resources. We've had the luxury, between both the Board and the System as a whole, of being able to maintain a variety of models, pose a variety of questions, and get a variety of analyses, and I think that's a strength.

At some point you face the question, if you are dealing with a workhorse model, of what's the minimal set of things that has to be in it to be useful for the Committee. We faced that with FRB/US; we didn't put in everything, but we put in a great deal. I don't know that a workhorse model has to be as big as FRB/US; it doesn't have to have as many bells and whistles. It's possible—and I think this is what we have been doing in recent years—that we can do the job with multiple models as opposed to relying solely on one model. Along those lines, if you think about the forecasting process underlying the Tealbook analysis that we've been giving the Committee over the past couple of years or so, it is informed by FRB/US and EDO as well as a whole bunch of other things. FRB/US, EDO, and SIGMA also appear in the Alternative Scenarios, and EDO and FRB/US are used in Book B analyses et cetera. So we're using a range of models, and it's a question of what tool seems most useful for the particular question at hand.

MR. DOTSEY. I agree exactly with David. I won't reiterate. You eloquently, probably more than I, indicated what some of the strengths of these models are, but I think that they are still a bit too small. For example, fiscal policies are problematic; these models don't have distortionary taxation and details along those lines. We're also building better financial intermediation sectors, which are really important, and there may be a few other things. Do we

have to go to the level of a chemical industry? Probably not, and we would lose the transparency that these models can give that's so important. But like Dave just indicated, I think the group involved in the project views our work as complementary work for the Committee; these models have certain strengths, and we'd like to make them available to the Committee. And you have other models that have other strengths, and like you're saying, you should be looking at more than one thing because we don't have *the* model of the United States economy or the world economy.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Yes, thank you, Mr. Chairman. I'll, first of all, second what others have said, that this was a really excellent piece of staff work. I spent the week reading through it very carefully with the help of my research director, Kei-Mu Yi, and we learned a tremendous amount in part because people were really generous with their time in answering all of our questions. We really appreciate it. I wanted to follow up on something that Governor Yellen and President Lacker said about what would be interesting to see going forward. I think it would be great for the group of workers on this project, as well as the Committee, to see output from this project, I would say, on a quarterly basis—not as much as we saw here, but something more concise along the lines of, What's the forecast? What's the story behind the forecast? I could imagine a report of about a page and a half that would be pretty useful.

A couple of quick comments about why this would be useful, beyond the fact that I think that we don't have *the* model of the U.S. economy and seeing things from a wider range of models would be good along those lines: One is something that Governor Warsh mentioned last year, and I thought it was a great point. Governor Warsh was struggling with how to get Reserve Bank economists more integrated into the process of thinking about the FOMC; this project is

one way this can happen because we already have that kind of interaction taking place, and I think that would be fantastic. The other thing that I'll emphasize about these models—and Mike, quite rightly, I think, has pointed to some of their failings or deficiencies—is that I am really impressed with how fast people have been able to build on them in the past two or three years, especially in light of events. You don't want to think, in our constantly changing environment, about a model as being a static object; it's more of a dynamic process. We're always going to be building and adding onto it, and these models have proven very amenable to that process, in part, I think, because of their structure, but also in part because this is what the people in academics are really good at using. For instance, Mike was mentioning the fact that the models that were being used within the current DSGE group don't have unemployment. Well, there's a very nice paper that just came out, I guess, a couple of months ago by Galí, Smets, and Wouters that is a DSGE framework that builds in unemployment. I think that we're going to be able to build better models through our interactions with the academe by having this kind of model, or a suite of models, as Governor Yellen said, that we constantly use. I think the dialogue about what we want to see and what this group can provide would be better if we start to see something from them on an ongoing basis. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Most of what I wanted to say has already been said. I think most of you remember the conversation a year ago when we talked about inflation dynamics. A lot of the discussion was about different models that produce different types of inflation; that's where all of this got started a little over a year ago, and they've made a great effort to pull this together. I would like to reinforce what Narayana just said, about seeing a summary of these models on a fairly regular basis. It's a lot about model uncertainty. We need to understand that we don't

know the true models. The second thing I want to tie back into is that there are lots of potential directions this can lead us and having this work being done in the System allows us to do potentially a wide range of things, so I want to encourage the production of that information. If we're working with multiple models in the System, they will give us a platform as Janet Yellen said, for thinking about simple rules or robust rules. We'll learn over time what the Committee wants to hear and how we'll best communicate that, but I think this is very good work and will supplement things that go on in this Committee very well. I want to encourage that process.

CHAIRMAN BERNANKE. Any other questions? [No response] Let me again thank you for this effort. And just for the record, note—as President Kocherlakota did—that this presentation was just the tip of the iceberg. There's a lot of background material, and a number of members of this Committee were specially briefed, so it was a very substantive educational process. Thank you for that.

Item two on our agenda is called “Refining the Exit Strategy,” and let me explain what we have in mind here. In April we had a very good discussion of the substance of the issues surrounding our exit strategy. Let me just say as clearly as I can that we do not want to repeat that entire discussion today. We've already done that work, and time will simply not permit it.

What motivates this, from my perspective, is really two things. The first is that our discussion last time took the form of people saying what their first-best preference was on each dimension of the exit strategy. What we didn't get was the sense of whether or not there was a modal strategy that most people, in the interest of comity, communication, clarity, and so on, would be willing to accept even if it were not their first best. So I just wanted to probe a little bit to see if it's possible for us to come to something closer to a consensus. Perhaps it's not, but it would be worth knowing that. The second motivation is communication. I have, of course,

another press conference tomorrow and then the Monetary Policy testimony in a few weeks. Even if I don't take the opportunity to actually talk about the exit strategy, I'm almost certain to be asked about it. Because I'm going to have to say something, I'd be much more comfortable if what I was saying was consistent with as broad a group within the Committee as possible.

The staff, using the minutes and input from the Committee, created a set of general exit strategy principles—broad, high-level principles.² What I'd like principally to do today is to have a go-round and ask people: Are you broadly comfortable with this approach? Are there things that you're not completely comfortable with, but that you're willing, nevertheless, to accept for the purpose of trying to create a consensus? Or are there one or two items that you want to point to that make it really impossible for you to support some kind of consensus document? Based on what happens in our quick discussion, I think there are several possibilities. If a very strong majority of the participants—and I think participants should be the relevant voting group here, because this is a multiyear plan—say, 14 or 15 of the members and participants around the table, were willing to accept something like these principles, then we could note in the minutes that there's a significant degree of consensus. I would ask you at the end if you want to actually reproduce this document in the minutes or simply want to have a broader description of it. On the other end is the possibility—and probably a very likely possibility—that there is significant disagreement, in which case I would suggest that we just briefly say in the minutes that there was further discussion, and try to summarize what the points of agreement and disagreement are very briefly. We would want to be brief—because we want to be careful not to emphasize an exit discussion at this moment because, of course, we have not yet taken any decision to actually begin an exit. I hope we can respect the limit of an hour for

² The materials for the discussion of exit strategy principles are appended to this transcript (appendix 2).

this item, which means that when we ask you to speak in the go-round, I hope you'll try to keep your comments to about two minutes or less.

Now, before we have that go-round, there are a couple of items on the set of principles that we probably should resolve before we go around the table. If you look at your handout, you'll see three things highlighted in red. The middle one, which says, "During the normalization process," was a suggestion by President Plosser, which I think is not at all substantive but simply tries to make it a little bit more clear exactly what was intended. So if there are no objections, I would take that change as just given.

There are two more-substantive issues, though. The one I want to address first is in paragraph 6. We circulated a document indicating that the ultimate goal of the exit is to return to a system in which conventional open market operations are used to keep the federal funds rate near its target, which I think very strongly suggests a system similar to what we had before the advent of unusual measures. President Plosser, in a memo that was posted on SDS, suggested being more explicit about our preference for a corridor system at the end of this process. As a result, in paragraph 6, there are two alternatives: One is the original language "near its target," and the other is the federal funds rate "within a corridor," and so on. What I'm going to do is to ask President Plosser and the Vice Chairman, in either order, to take a couple of minutes to explain their preferences. Then what I'd like to do, if the Committee is agreeable, is to take a quick straw vote; whichever approach gathers a majority—and abstentions are fine—is the one we'll use as the basis for our statement. A second suggestion was made by President Kocherlakota and distributed to the Committee. He suggested language in paragraph 4 to make more explicit the length of time between the change in our extended period guidance and the likely first increase in the federal funds rate. He suggests that we use three to six months, or I

guess you could say two to four meetings, as the measure. After we look at the first issue, I'll ask President Kocherlakota to say a word about this, and we'll likewise see what the Committee's preference is. At that point, again, I hope very crisply, we'll go around the table to see to what extent people are comfortable with this broad approach, and if they are not comfortable, if they could give an indication of what elements are, for them, deal killers.

I hope we can make this work. I reserve the right at any time to call a coffee break and pretend it never happened. [Laughter] All right. The first issue is the question of whether or not we explicitly refer to a corridor. President Plosser, would you want to go first?

MR. PLOSSER. Thank you, Mr. Chairman, I appreciate that. As I said in my memo, I think we deserve to be as clear as we possibly can about where we are headed. Indeed, if you think about what "normalization of the balance sheet" means, then if we are on a floor system, or we don't specify a corridor system, there is no definition of what normalization means. There is no level of the balance sheet that is determined. So I think we need more clarity here.

I also would argue that in the April minutes we were fairly explicit about it. In the April minutes we said that monetary policy will "eventually operate through a corridor-type system in which the federal funds rate trades in the middle of a range, with the IOER rate as the floor and the discount rate as the ceiling of the range, as opposed to a floor-type system in which a relatively high level of reserve balances keeps the federal funds rate near the IOER rate." That was in the minutes of our last meeting, and by my count, 9 or 10 people spoke about their preferred system. Eight of them, I believe, preferred a corridor system, and two said we could wait to decide. I see no reason to keep the public in the dark about this, and I think there are disadvantages to the floor system, which I want to try to articulate.

Many of us have different reasons for favoring the corridor over the floor. To me, one of the primary reasons is political risks of operating monetary policy with a very large balance sheet of potentially unlimited size. Those political risks, I think, are very great. By decoupling the level of the federal funds rate and the size of the balance sheet, the floor system makes our balance sheet essentially a new discretionary free parameter, a new tool of policy. We have very little theory to guide us on how to use that new tool, except perhaps at the zero bound. I stopped to think about our experience over the past two years as we struggled to determine the appropriate way to use our balance sheet as a policy instrument, to determine the effectiveness of that policy, and to understand its transmission mechanism. Because we were at the lower bound and needed a policy tool, we forged ahead using our judgment, but we didn't have much experience to inform that judgment.

The floor system puts no constraint on the size of the balance sheet, but we don't have much experience to inform that judgment. And without some theory, it seems to me, on which to determine an optimal size of the balance sheet, and without some constraint imposed on the size of our balance sheet via an implementation framework, we might find it very difficult to fight against ideas proffered from others in government as to how we might use that balance sheet to one sector or another's advantage. We could be asked to engage in credit allocations rather than monetary policy. We could be asked to fund government debt to fund government spending. We would have few defenses, because, presumably, the balance sheet is uncorrelated and unrelated to the delivery of monetary policy. So it would be very difficult for us to say no. This Committee and Chairman, I think, most likely would surely resist such calls, but can we be as confident about future Committees? Given the political whims in the Congress, formalizing such

a discretionary framework might put our independence at risk. While today we may view such actions as a tail risk, it would have serious consequences were it to occur.

In terms of the efficiency of the floor system, it's true that under the floor system there is no opportunity cost of reserves, and banks wouldn't need to engage in inefficient activities to economize on reserve balances as they do in a corridor system. But given that we now have the ability to pay interest on reserves, which reduces the opportunity cost of holding reserves, and, therefore, reduces the associated inefficiencies, we have reduced the wedge in the inefficiencies greatly just by paying interest on reserves. As a staff memo from April indicated, there are ways within a corridor system to minimize these costs further, and to lower the administrative costs on the Federal Reserve associated with a closer management of the supply of reserves. To my mind, the risks to the floor system vastly outweigh any potential efficiency gains.

Others favor a return to the corridor system for other reasons. It's more familiar to us, and several central banks around the world use a corridor system. It also avoids some of the governance issues we would need to contend with under a floor system in which the IOER rate would effectively become the policy rate. Here again, the Chairman has pledged to continue engaging this Committee in setting the IOER rate. But is that enough to bind future chairmen? We are concerned about the institution here. Does having the decision rights for IOER resting solely with the Board contravene the Federal Reserve Act's requirement that the FOMC set monetary policy? This is a knotty governance question. Are the advantages of the floor system truly large enough to justify a review of such governance issues and potentially challenge the Federal Reserve Act?

For whatever reasons, many Committee members have already discussed their preference for a corridor system. So why should we want to pull back from our April minutes statement?

Why not just go ahead and announce that that is our goal? It tells the public that we will shrink our balance sheet, and we will shrink it enough to operate in a corridor-like system. What can we learn during the intervening period? We can learn something about a floor system because for some time we'll be operating on what looks like a floor system, as the balance sheet is very large. But I'm not sure we would learn anything more that would convince me that the costs are sufficiently small or the benefits sufficiently large to maintain a floor system. I think delaying serves no particular purpose. It muddles our intentions. It creates its own source of uncertainty. And so I would argue strongly that we go ahead and commit that a corridor system is going to be our operating environment going forward, and part of our job is to get us there in a way that is consistent with the dual mandate.

CHAIRMAN BERNANKE. Thank you, President Plosser. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. My preference, unconstrained, would be to omit the entire sentence that begins, "In particular, the size of the securities portfolio," because I think it unnecessarily commits us to the direction of a corridor system. But failing that, I am willing to live with the sentence as it stands without the bracketed language. Let me explain why that's my strong preference. My view is that there's no reason to commit to a corridor system now. In the next few years we will learn a lot about operating a floor system. It doesn't make sense to commit to a corridor when we don't have all the available information to make an informed choice about whether we prefer a corridor system or a floor system. And the costs of waiting to get this information are very low, because market participants are not at all focused or care about whether we make this choice today. So if we wait, nothing bad happens; there is really very little cost to waiting.

Now, I agree with President Plosser that, if there was no possible chance that a floor system could be superior to a corridor system, there would be no point in waiting to get new information. But I do think that there are a number of reasons to think that the floor system might potentially be superior. So I want to talk about some of the potential benefits of a floor system.

The first thing is that if we had a floor system, there would be more reserves in the banking system, and that might actually help the payment system operate more efficiently. With a corridor system, in contrast, you are going to have more intraday credit extension, and you are going to have more interbank transactions as people try to get to flat, vis-à-vis one another. As a result, there is going to be more interconnectedness through the banking system. With a floor system, we anticipate that some of the major payment systems like CHIPS and DTC would have fewer payment fails, because there would be more lubricant in the system. There would be earlier settlement times, and you would have fewer delays in terms of executing payments. And there would be less congestion in terms of settling the systems at the end of the day. A second potential benefit of a floor system is that excess reserves could help banks satisfy their liquidity requirements more easily because there would be more liquidity in the system as a starting point. Third, it's very possible that a floor system might be operationally more efficient. If you think about how the SOMA Manager would execute operations on a day-to-day basis in a corridor system, every day the Desk would have to do a careful calculation of money demand, money supply, and how much reserves need to be added or drained from the system. A lot of those fine-tuning operations would probably go away in a floor system because the little shocks to money demand and money supply would not have consequences for the actual level of short-term rates. As a result, the operations conducted by the SOMA Manager would be much simpler. And

fourth, a floor system might reduce the volatility in short-term interest rates that is caused by those shocks in money demand and money supply. In other words, the SOMA Manager makes a forecast of how many reserves the system needs to keep the funds rate at its target. But to the extent that the SOMA Manager makes a bad forecast and does not hit the desired demand for reserves in the system, then that introduces volatility into short-term rates.

Now, in all of this, I'm not saying I favor a floor system. I'm not arguing for a floor system over a corridor system. All I am arguing is that it is bad policy to rule out a floor system at the current time given the chance to learn a lot about how a floor system operates in practice. Now, Charlie said just now, and in his note, that in the April FOMC minutes, the Committee members generally favored a corridor system. I went back and looked at the minutes, and I don't read it quite the same way. Here is what the minutes said, at least the sentences I picked out of the minutes: "Some participants also noted their preferences about the longer-run framework for monetary policy implementation. Most of these participants"—those who had noted their preferences—"indicated that they preferred that monetary policy eventually operate through a corridor-type system." So that's most of some participants, and "most" of "some participants," as far as I can tell, doesn't necessarily mean a majority. I think the staff actually counted seven people who expressed a preference for a corridor system. Another important thing is that this was really not put on the table as something that we are actually considering, corridor versus floor. Do we want to rule out a floor system at the current time? This is not something that we really discussed or debated at the last meeting. So what I'm asking is to keep the current language in place, without the bracketed language. I think that is a reasonable compromise. Let's learn before we commit to either a corridor or a floor system.

Charlie raised the issue that a floor system would presumably allow a balance sheet of any particular size. I would offer President Plosser the notion that we could commit to keeping that off the table by language that might say something like, “the smallest balance sheet consistent with what is needed for the efficient execution of monetary policy.” So if you’re really worried that a floor system might lead to an unlimited balance sheet size, we could take that off the table by basically committing to the smallest balance sheet necessary for the efficient implementation of policy. I think that would address your concerns that the balance sheet would be this discretionary tool of policy.

CHAIRMAN BERNANKE. Okay. Thank you very much, both of you, for very cogent arguments. Also, I should say that the Vice Chairman and President Plosser have both said that they are prepared to live with, or are prepared to accept, whatever the Committee decides. Are there any pressing questions for either the Vice Chairman or President Plosser? [No response] All right. What I would like to do now is take a straw vote on this particular item, and abstentions are okay. This is for all participants. How many would like to keep the language where it is and say “the federal funds rate near its target” through open market operations, but exclude specific reference to a corridor system?

MR. PLOSSER. Mr. Chairman, can I just make one comment? One of the concerns about the floor system that I didn’t mention earlier is that under a floor system, we don’t know for sure what will happen to the fed funds market, whether or not it will survive, and therefore whether or not we can keep a rate depending on whether that says an active market when there are plenty of reserves. I don’t know the answer to that question.

VICE CHAIRMAN DUDLEY. I think we do know that, because we have a federal funds market even today, with a balance sheet that is much bigger than what we would operate under a floor system.

MR. PLOSSER. But the volumes are way down.

VICE CHAIRMAN DUDLEY. Right. But I think we have a balance sheet today that is far greater than what we would have under any reasonable floor system that we would think to operate. And we haven't flooded the market, so I don't think that's a fair comparison.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. I view the Vice Chairman's proposed language change about "the smallest balance sheet consistent with" as attractive because it is attempting to commit to avoiding the kind of credit allocation that would come from expanding our balance sheet at a given funds rate, which is one of the major concerns. In your straw poll, I was wondering if you could find a way to have that be an option.

CHAIRMAN BERNANKE. All right. Let's firm up the language. It was, "and the associated quantity of bank reserves are expected to be reduced to levels"—"the smallest levels consistent with the efficient implementation . . ."?"

VICE CHAIRMAN DUDLEY. That would be fine.

CHAIRMAN BERNANKE. All right. I'll come back to that in just a second. I'm aware of Arrow's voting paradoxes and all that. [Laughter] So what I would like to do is the following. I'm going to ask for a straw vote on the original two propositions, and then we'll take the winner and ask if we would like to compare it with this alternative language. President Bullard.

MR. BULLARD. Mr. Chairman, I think if we went to the minimum size of the balance sheet, then there would be no difference between the two systems. Is that right, or very little difference? There's a point of continuity there.

CHAIRMAN BERNANKE. I knew this was going to happen. [Laughter] The efficient implementation of monetary policy suggests that if there are substantial benefits from a floor system in payments and in reducing volatility and so on, then the smallest balance sheet would be consistent with a floor system.

All right. Debbie, will you help me count? Those in favor of the original language: "near its target," without referring to a corridor system? [Show of hands] Okay. So the majority are in favor of that.

Then, we want to compare that with the following language: "The associated quantity of bank reserves are expected to be reduced to the smallest levels that would be consistent with the efficient implementation of monetary policy."

MR. PLOSSER. Can I question the word "efficient" here? What do we mean by that? What are the criteria to decide what "efficient" is?

CHAIRMAN BERNANKE. It leaves the possibilities open. On the one hand it says that if we were to go to a floor system, we would have the smallest balance sheet that would allow that system to work properly. But "efficient implementation" means that we would have to judge that that smallest balance sheet version of the floor system is effective in maintaining the funds rate near the target, minimizing volatility, and achieving collateral benefits like improved payment systems and the like.

All right. Who favors the change that I just described: "reduced to the smallest levels that would be consistent with the efficient implementation of monetary policy"? Can I see

hands, please? [Show of hands] Okay. I guess that's going to be a compromise. President Fisher.

MR. FISHER. I would just ask for clarification whether this does not rule out our going to a corridor system.

CHAIRMAN BERNANKE. Absolutely not. In fact, my own personal view is that it's likely the preferred system.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. President Kocherlakota, a word on your amendments?

MR. KOCHERLAKOTA. Sure. Thank you, Mr. Chairman. My proposed change was grounded in my feeling that when we remove this phrase "extended period," it will be a very important step for the Committee in the process of exit. I was concerned about the fact that, at least in my own mind, I was not clear about what that step is supposed to be communicating. I felt it was important, as best we can, to have some kind of shared understanding of what that step would mean. I have offered, by way of change, my own interpretation of what that step would mean. It could be that, as we will find out shortly, there is sufficient lack of consensus on this point and that we don't want to finalize it at this time. But my main point is that I think we should have some clarity about what this step would mean as part of the exit process. In terms of my own thinking about it, what it would mean to me is that at that point, we would be anticipating that the first increase would be two to four meetings out.

CHAIRMAN BERNANKE. Okay. Is there anyone who, conditional on making this change, would prefer a different time than three to six months? Governor Yellen.

MS. YELLEN. I have a difficulty with President Kocherlakota's interpretation of "extended period," although I completely agree with him that it's appropriate for us to discuss

and clarify what we mean. I don't think that dropping "extended period" should imply that the Committee anticipates raising the target funds rate in three to six months. I would, instead, say that it means it will be at least three to six months. It could be a lot longer, because my interpretation is that when we include "extended period" language in the statement, we are saying the FOMC sees very low probability that it will need to tighten in three to six months, or two to four meetings. Once the probability has risen sufficiently that we think we might need to tighten—but we could be talking about a probability that is a lot lower than 50 percent—then it becomes appropriate to drop the language to give the Committee flexibility to move as needed. But when we drop it, we may not anticipate moving. The odds may be lower than 50 percent. And, in fact, the funds rate target could well—depending on how things materialize—stay exceptionally low for a very long time, even though we got rid of the language.

MR. KOCHERLAKOTA. Governor Yellen, are you proposing to add the words "at least" before the word "three"? Is that the substance of the proposal?

CHAIRMAN BERNANKE. Conditional on making the change.

MR. KOCHERLAKOTA. I am perfectly happy with that as an amendment, if that's the nature of the amendment. I don't have a problem with that.

CHAIRMAN BERNANKE. Pretty substantively different. Vice Chairman.

VICE CHAIRMAN DUDLEY. I agree with Governor Yellen's statement because, exactly as she says, saying that you are not going to keep the federal funds rate low for an extended period does not necessarily mean you are going to tighten three to six months later. It depends on the data.

CHAIRMAN BERNANKE. We don't need to have a complete debate about it.

[Laughter] Give us a chance to vote.

MR. PLOSSER. I'm a little bit concerned about symmetry here. The Chairman at one point last year talked about "extended period," and we gave the example where, in the Greenspan era, they dropped some language that they changed the very next meeting. Could we be in an environment where we didn't want to wait that long—that things would change, and we may have to move sooner than three months? I'm a little bit worried about the asymmetry that you are building into it that might put us at risk of not moving as fast as we might have to.

CHAIRMAN BERNANKE. It does say "anticipates." But that's fine. By the way, when asked about this, without a great deal of forethought, in my press conference in April, I said "a couple of meetings," which is about three months, but it could be more, obviously. Governor Raskin.

MS. RASKIN. Thank you. Mr. Chairman, I just want to remind the Committee that what we are discussing here are exit strategy principles and not concrete intentions. And whether or not there are any conceptual concerns with the addition of Narayana's sentence, I would say that it does somewhat stick out from a tonal perspective in the sense that it reflects a current anticipation and a precise number of months. If you look through the tone of the principles, there really is nowhere else where we indicate with precision what exactly the timing would be. One possible way of moving through this is to pick up the "probable" language that we use in paragraph 5, where we indicate "probably within a few months" and tack that onto the end of the first sentence in paragraph 4, where we could then indicate that it would probably be within a half-year, or whatever it is, after the modification of the forward guidance. I think that would be more consistent with the tone of the set of principles that we're talking about.

CHAIRMAN BERNANKE. I understand that point, but "probably within a few months" is likely shorter than most people would want to say.

MS. RASKIN. I would suggest, “probably within a half-year after the modification of the forward guidance.”

CHAIRMAN BERNANKE. Okay. President Fisher.

MR. FISHER. I have problems with the ritualistic sequencing of all this. We’ll talk about that later. But in this case, just to take your concern, Governor Yellen, and Mr. Plosser’s excellent point, I would just say, “When economic conditions warrant, the Committee will begin raising its target for the federal funds rate.” We don’t know if we’re going to do it within one month, three months, or six months. Why are we pinning ourselves down here? And then we create expectations. Even saying “a couple of meetings,” Mr. Chairman, again—with all due respect—we’ll do it when it’s appropriate. So why not simplify the language? I respect President Kocherlakota immensely, but I think we are making this much more complicated than we should. I would simply have it say, “When economic conditions warrant, the Committee will begin raising its target for the fed funds rate.”

CHAIRMAN BERNANKE. Well, that’s the status quo, basically. Let me take President Rosengren and President Bullard, if I could ask your indulgence, and then we could go to the vote. President Rosengren.

MR. ROSENGREN. My preference would be to have no timing in this set of principles. This is a sequence discussion, and I’m very comfortable with the sequence, but I’m less comfortable the more we tie it to timing. And the more we tie it to timing, the harder it’s going to be to get a consensus on when the timing should start. So I think we should think carefully about hardwiring the timing. The more language we put in here that gets into timing, the more likely it is that we are going to have a discontinuity. I really think this should be a sequencing, not a timing, discussion.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Okay. I'll also be brief. I'll agree with President Rosengren and President Fisher that it's not so clear why we want to tie this down. At the time that we make such a decision, we'll want to assess economic conditions and give an indication that the Committee currently anticipates a certain timing. That seems to me to be the way the Committee has operated in the past, and it would make a lot of sense in this circumstance.

CHAIRMAN BERNANKE. Okay. Let's go to a straw vote. How many would like to retain the existing language, which says, "When economic conditions warrant, the Committee's next step in the process of policy normalization will be to begin raising its target for the federal funds rate, and from that point on, changing the level," and it does not make reference to three to six months? How many prefer that approach? [Show of hands] Okay. So, I think, Narayana, you're outvoted. Your point about clarity is a good one, and these are actually very subtle points, because if you are, for example, interested in providing more accommodation, saying that it will be at least three months is one way. However, I think the Committee has spoken on that.

So we have a document. We have 20 minutes or so, and I am going to ask each participant to say, first, if you can broadly accept this. If you have a couple of objections to things that are not your first best but you're still willing to accept it, of course, you can say that. If you have some reason that you cannot accept it, then explain what that is. We'll keep track of that and try to put together an appropriate summary for the minutes, which of course will be subject to the Committee's vote and approval. Let me begin with President Kocherlakota.

MR. KOCHERLAKOTA. I am very happy with this document. I thank you, Mr. Chairman and the staff, for preparing it. I think it's a very valuable practice for us to continue to do this, to summarize consensus as we develop it, at least for internal purposes. I realize this will

not be released publicly, but we can even think about going to the next step, of releasing such consensus publicly. But at least for our internal purposes, I think it's great to do these summaries, and I'm very happy with the document as is.

CHAIRMAN BERNANKE. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I'm not sure if Richard and Eric would extend their observations to the other time parameters that are in here: "At same time or relatively soon thereafter." I'm slightly uncomfortable with those, but if there's a consensus around the language that's in here, I'm happy to go with it.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. I agree with Governor Tarullo. The goal is to communicate sequence but maintain the flexibility to react to changes in economic conditions. I'm very comfortable with the sequence that's laid out in this memo, but I prefer basically no time subscripts in the document. So let me just give one example. My own personal preference would be to shrink the balance sheet first and allow time to pass so that the ability to affect interest rates is enhanced. If instead we decide to tie the end of reinvesting to the ending of forward guidance, I would then want to end the reinvesting at a later time than I would if they were not tied. So my personal preference would be, for example, in paragraph 3, to change the phrase "At the same time or relatively soon thereafter," and make that the word "next," so it would read, "Next, the Committee will modify its forward guidance." And then in paragraph 5, in the second line, I'd like to take out "probably within a few months" and just leave the actual timing to be figured out, depending on economic conditions.

CHAIRMAN BERNANKE. Are you amenable to the whole document collectively?

MR. ROSENGREN. I'm comfortable with the document. I could go with it as it is, but my preference would be to take out the time dimension.

CHAIRMAN BERNANKE. All right. A couple of participants have raised the time dimension issue, and President Rosengren pointed out two places. If there are others who have similar concerns, I think they should probably say so. President Fisher.

MR. FISHER. Mr. Chairman, I'm in favor, as is President Rosengren and I sense Governor Tarullo, of taking all time references out; I think it unnecessarily binds us. So I wouldn't include "probably within a few months" in the fifth paragraph and "over a period of four to five years" in the sixth paragraph. Any reference to time, I think, puts us in a straitjacket, and conditions may well change. I know no one at this table who five years ago expected us to be where we are today. So it just doesn't make sense to me to have a specific time reference, and that would be my first point. I'm a little uncomfortable, possibly out of ignorance, as to whether it makes sense to declare that we would raise rates first and then sell. It might incur losses. It might move the yield curve. I would like to say, in paragraph 5, "Sales of agency securities from the SOMA will likely commence sometime after the first increase in the target for the federal funds rate," but then go on to say, "though the timing of sales," and then use the very last part of that sentence, "could be adjusted in response to material changes in the economic outlook or financial conditions." To me that's operationally a commonsense way to phrase it, rather than saying "probably within a few months."

In summary, I would like all time references to be taken out. I think that's a sensible thing to do. I would also suggest an editorial change in the fifth paragraph in that it allows us at least the opportunity to adjust the timing. In the language in paragraph 5, I would say, "Sales of agency securities from the SOMA will likely commence sometime after the first increase in the

target for the federal funds rate, though the timing of the sales could be adjusted in response to material changes in the economic outlook or financial conditions.” I think we need to be as opportunistic going out as we were going in. I understand the need for us to have a sense of what our priorities are, but I don’t want to be locked in, in case economic or financial opportunities present themselves. And to me, that would be a sensible way to write that sentence or that paragraph.

CHAIRMAN BERNANKE. Okay. If others share this view, I think we should just downplay the timing issues in our discussion in the minutes. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I’m not very comfortable with this timing sequence. As you know, I prefer a more explicit LIFO or last in–first out exit strategy than the one outlined in this “Exit Strategy Principles” document. The principles do call for a balance sheet–first strategy in that the first step is to cease or reduce reinvestment. I would follow that step with asset sales and manage the balance sheet down in a state-contingent manner.

My judgment is that the recent asset purchases and the associated buildup of the size of the balance sheet had a fairly clear effect on expected inflation in the United States. This policy helped us avoid the mildly deflationary outcome that Japan has experienced over the past decade or more. Inflation has moved higher and more quickly than would have been predicted without the asset purchases. I do not think that these purchases were neutral, and I do not expect asset sales to be neutral. I think it would be a bit more prudent to sell assets first and in relatively small amounts and then gauge the effects in a state-contingent manner. This would be a balance sheet tightening as opposed to what we’ve got in the exit principles. We could then change language and raise rates somewhat later in the process if we did it this way. I think this would keep expectations in check while rates continue to remain at zero. It would also dovetail with the

reserve reduction in the System that will help us on the day when we want to actually raise rates. The outlined strategy puts sales essentially on an autopilot basis. As I see it, there's not very much that's optimal about that.

CHAIRMAN BERNANKE. I'm going to take that as a no. [Laughter]

MR. BULLARD. That's a no.

CHAIRMAN BERNANKE. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. I'm comfortable with this approach. I actually think it does represent what I heard to be the consensus at the April meeting. I am sympathetic to the point that Presidents Rosengren and Fisher brought up about being somewhat uncomfortable with the very specific timing, and I think it's probably better to stick with the general principles of the sequencing, and I would agree with removing "probably within a few months" and the other case where we're being very specific on timing. I agree with the general idea of how the sequencing should go, but I will mention just one comment. I think you and we all will be asked for the rationale behind this particular sequencing of steps. So here we are agreeing on what the sequence is, but I know that we all will be asked by reporters why we chose one instead of another, and I think we should have some more discussion, perhaps, about that. I'll give you one example. This may seem to be a no-brainer to some—maybe I'm just overthinking this or just not thinking hard enough about this, but I'm still not 100 percent clear on why reinvestments is the obvious first action out of the blocks. Maybe if we have time at some point, we could have a discussion about not only what the right sequence is, but also what the talking points are regarding why this makes the most sense.

CHAIRMAN BERNANKE. I have a couple of reactions to that. One is that stopping reinvestment is a relatively passive thing. It doesn't involve us actually going out and making

sales. We don't take capital losses. It doesn't address nearly so directly the concerns about the MBS market being relatively oversupplied during this period. So it seems like a more passive way to go, and, therefore, something that's worth doing. It also has the benefit, over a period of time, of bringing the balance sheet down. I think one obvious argument—and I understand President Bullard's point—for raising rates first is that if you rely on balance sheet contraction as your primary tightening tool, given market-based limits and so forth on how fast you can do that, then you push the first increase in the funds rate off quite a while potentially, and there are people, including President Hoenig and others, who think that the very low rate has damaging effects on financial stability. That's a tradeoff that I think some participants at least would not like.

President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I am very comfortable with this broad set of exit strategy principles. I agree with the sequencing of steps in the normalization of policy, but I also favor, as others have already mentioned, removing the time references to give us more flexibility. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. I prefer last in, first out, and never using reserve draining tools. Otherwise, I can support this [laughter], and I'm not troubled by the timing references. I think we're trying to say what we agree on, and I think the timing references that are in there are things you can agree on. The ones we couldn't vote to put in were ones we didn't agree on. So I can support the adoption of these principles even though I'd prefer something much different.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. I, too, support the principles here. I just finding myself feeling that—and I hope this isn't too cavalier, but—this is close enough for government work at this time. I think we have so much to learn in this process. There are so many unknowns that, at this juncture, I would posit some principles that we agree on without pinning ourselves down to, particularly, timing. The sequencing here is logical, although I think it may be highly compressed when the first steps are made because the market will react and tightening will have begun in the longer rates. I also would hope—my own personal view—that by getting this out through the press conference or however, we will reduce the chatter about exit among ourselves and in the market because I think it's not an appropriate time for continuing chatter. I have sympathy with the arguments regarding the corridor outcome largely because it's the most familiar, but again, I agreed with the earlier decision. And finally, we haven't talked about this much, but I think President Plosser suggested three to five years if we're going to have an explicit time frame in the document for asset sales purposes. I thought that also made sense simply by buying more time because we don't know exactly how long it's going to take. So overall, I am supportive of these. I think this will do the job for the time being.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. Mr. Chairman, I like this, thank you. I don't think it will end the discussion, but I think it will clarify things for people and will be very helpful, and I hope it is public as quickly as you can feel comfortable doing it. Thank you.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I support these principles in general. I do agree with President Rosengren's suggestions about taking out the timing. On item 3, I caved on that one. I didn't like it, but I couldn't find better words than that. I suppose “next” is pretty

good on that link. I think in general the sequencing here is quite good. I didn't like any tight links between certain actions. They were stronger than I'd liked, and the conditionality is very appropriate here. I can fully support this.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. I'm generally supportive. I think this is a big step forward in informing the public about how we're thinking about this, and putting this out as a public document in some form will be very helpful. Obviously, I still prefer a corridor system. I wish we could make that more explicit. I have one other suggestion in terms of the timing issues. I'm comfortable with taking them out, but if we take them out, as President Fisher said, we should also take out the "four to five years" as well as the "few months" or the "relatively soon thereafter." Those should come out as well because we may be faster than that or longer than that. It would be fine with me if all those would come out. I would like to make one other suggestion, and this is basically for clarity. In paragraph 5 where it says in the last sentence, "but it could be adjusted in response to material changes," I would like to see that "be adjusted up or down," to be explicit that the Committee could choose to speed up sales or slow them down—just add "up or down" after "adjusted" to be clear that they understand they could go both ways.

CHAIRMAN BERNANKE. That seems like a friendly amendment. Okay.

MR. FISHER. Mr. Chairman. Could I just make it clear that I support taking out all the time references in every paragraph? "Five years" and the "three years."

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. I'm comfortable with the memo as amended. I agree with taking out the time references. I think the only time reference that one might want to

continue to include is the “over a period of four to five years,” but I think that’s too narrow, four to five years, because as this plays out, if you ended reinvestment and the agencies are writing off for several years, you might want to have a broader range. So I’m completely happy with how the Committee decides. I don’t feel strongly about it, but I think that one is a little different than the other time references.

CHAIRMAN BERNANKE. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I support the proposed exit strategy principles. My preference is to remove the time references in line with President Rosengren’s suggestion, but I saw including the more specific time frames as an attempt to compromise. I do think it is very valuable to reach consensus here. I think, if we can endorse a consensus view, it will simplify our communications, reassure markets, and enhance the predictability of market responses to our actions. I think this is very worthwhile. I’d prefer no timing references but could live with it as is.

CHAIRMAN BERNANKE. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I support the sequencing with the elimination of all the time references. My only concern with the document was that, as written, taking step 2 engages the gears for step 3, and taking step 4 engages the gears for steps 5 and 6—it seems like that would make it difficult to calibrate and maybe even to begin the exit strategy. So without those, I’m fully in support of it.

CHAIRMAN BERNANKE. Thank you. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. I am broadly comfortable with the approach set forth.

CHAIRMAN BERNANKE. Thank you all very much. This turned out to be very helpful. [Laughter] I appreciate the comments. When asked, in fact, I think I will say a little bit about this in the press conference, with a strong caveat that this does not imply immediate implementation of this exit. I have heard very clearly, I think, from a majority that we should take out timing references, and so I will do that in my public communication. I suggest as a next step that the staff might try to rewrite this a little bit and see if it can gain the same level of support or even more support than it had today. If it does, we could consider making it an addendum to the minutes. If not, or if there are enough serious concerns, then the alternative is to describe the basic points with the appropriate “most” or “all” or whatever, as it applies. Vice Chairman.

VICE CHAIRMAN DUDLEY. Yes, I heard that there might be support for actually making it an addendum to the minutes—something pretty close to what we actually talked about.

CHAIRMAN BERNANKE. Yes, I’m much more optimistic about that than I was an hour ago.

VICE CHAIRMAN DUDLEY. Is your proposal to circulate something tomorrow?

CHAIRMAN BERNANKE. I certainly don’t want to get involved in an editing session here, given the time constraints and so on. Why don’t we simply send out something soon, get feedback, make a judgment about whether or not we’ve made a Pareto improvement on this existing document, and then, based on that overall assessment, we can decide how to proceed.

MR. FISHER. Just a thought—in terms of what you say tomorrow, which I think is very, very important, I would say as little as possible about this subject unless you’re pressed, and the reason for that is, first, we made substantial progress, but we still have more to go in terms of complete consensus, and second, we can get into this later when we get briefed on financial

markets, but I think we're in a very sensitive time. My recommendation would be to go very easy on this, and after all, what you say is what people are going to hear, and that's what they're going to interpret is our policy.

CHAIRMAN BERNANKE. Part of my reason for this was that I anticipate getting asked the question, in which case I would have to respond. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I just wanted to follow up on President Rosengren's suggestion about replacing "at the same time or relatively soon thereafter" with the word "next." I'm sympathetic to the idea that we don't want to have references to exact times, so I'm happy with that. But on the other hand, the word "next" does remove the possibility of doing something "at the same time." So I would prefer to see something like "at the same time or thereafter."

CHAIRMAN BERNANKE. Okay. Thank you. President Hoenig.

MR. HOENIG. I don't mean to be throwing this out loosely, but I know I heard a lot of desires to see all timing taken out. However, if you want to create chatter, let everyone start guessing as to whether it's three or four or two years. This gives them rough guidelines that I think can be helpful. As you work on the amendments, keep that in mind as well.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. For what it's worth, without the timing references, specifically "four to five years" regarding normalization of our balance sheet, I find myself in President Bullard's camp of being unable to really support this. We've talked for a while about wanting to normalize our balance sheet, and we've talked for a long time about wanting to do that relatively expeditiously, and to me, if all that's left is the sequence, and I don't support the sequence, I couldn't support this.

CHAIRMAN BERNANKE. Did I understand you correctly to say that your key issue was the “four to five years”?

MR. LACKER. Yes. It’s a key element.

CHAIRMAN BERNANKE. But with that number you’d support it?

MR. LACKER. Yes, some definite number.

CHAIRMAN BERNANKE. Again, we’ll try to get a document that people can support. If not, we’ll simply report the preponderance of opinion on the issues.

Okay. Thank you very much. I understand lunch is ready. Let’s take about half an hour to get lunch and sit down, and then we’ll go into Mr. Sack’s presentation.

[Lunch recess]

CHAIRMAN BERNANKE. Okay. Why don’t we reconvene? We’re at item 3 on the agenda, “Financial Developments and Open Market Operations,” and let me turn it over to Brian Sack.

MR. SACK.³ Thank you, Mr. Chairman. Financial markets reacted sharply over the intermeeting period to intensifying concerns about the outlook for economic growth and to ongoing developments in European debt markets.

As shown in the upper-left panel of your first exhibit, the expected path of the federal funds rate shifted down significantly over the intermeeting period. Market participants are now pricing in the first rate hike in the second half of 2012 and see a shallower path for subsequent rate increases than envisioned at the time of the last FOMC meeting. This timing is roughly consistent with the primary dealer survey conducted by the Desk, shown to the right. Respondents reduced the probability of the first rate hike occurring by the first quarter of next year, and they see considerable chances that it will not take place until the second half of 2012 or 2013.

The primary driver of the revision to policy expectations was the weaker-than-expected data on economic activity. As summarized by the economic news index of one major dealer, shown in the middle-left panel, incoming data generally came in well below the expectations of investors. Although market participants saw some of the weakness in the data as transitory, they also appear to have marked down their

³ The materials used by Mr. Sack are appended to this transcript (appendix 3).

GDP forecasts to some degree and now perceive the risks to those forecast as decidedly skewed to the downside.

The revision to the expected path of short-term interest rates pulled down Treasury yields sharply, with the 2- and 10-year yields declining 23 basis points and 37 basis points, respectively, as shown in the middle-right panel. The current level of the two-year yield, at less than 40 basis points, is not far from the lows reached last year, when the economy appeared weak and expectations of the asset purchase program were building.

The weaker growth outlook reduced some of the inflation pressures that investors had focused on earlier this year. Indeed, most commodity prices have fallen in recent months from their peaks. Moreover, even though realized inflation came in a bit firmer than investors had expected, breakeven inflation rates declined notably, as shown in the bottom-left panel. The five-year, five-year forward breakeven inflation rate is now comfortably inside its historical range, and the five-year spot measure has returned to around 2 percent.

Even though it has come off its peak, the five-year breakeven inflation rate remains well above the levels observed last summer, suggesting that inflation expectations are higher now than they were at that time. Moreover, as shown in the bottom-right panel, investors now appear to place much lower odds on a sustained deflation than they did last summer, judging from the pricing of TIPS.

The concerns about economic growth prospects also weighed on the prices of riskier assets. Indeed, financial markets clearly switched to a “risk off” environment over the intermeeting period. As shown in the upper-left panel of the second exhibit, equity prices declined significantly, with the S&P 500 index shedding about 6 percent since the last FOMC meeting, and high-yield corporate bond spreads widened notably.

Sizable asset price declines were also observed in private-label residential mortgage-backed securities (RMBS), shown to the right. This development led to a number of stories in the financial press about the negative market effects of the Federal Reserve’s sales of assets from the Maiden Lane II facility. While those sales put some pressure on the market, much of the change in RMBS prices is likely attributable to the fundamentals. Indeed, investors’ concerns about housing prospects continued to increase over the intermeeting period, and market participants moved away from risk across a wide range of asset classes.

Another area that faced considerable pressure over the intermeeting period was the financial sector. As shown in the middle-left panel, stock prices of financial institutions fell sharply in response to the weaker economic outlook, ongoing concerns about the source of future revenue growth, and heightened concerns about the expected capital surcharge for systemically important financial institutions. In addition, Moody’s announced that it was placing the ratings of Bank of America, Citigroup, and Wells Fargo on review for possible downgrade based on its view that

the degree of government support has been reduced by the new regulatory framework.

Despite the weakening in the U.S. growth outlook, the dollar strengthened, shown to the right, as investors also became more concerned about growth prospects outside the United States. In addition, developments in European debt markets weighed on the euro relative to the dollar.

The situation in European debt markets remains very strained. Investors have faced uncertainty about whether Greece will receive additional funding from the IMF and the EU and the type of private-sector participation that will be required for such support. The baseline assumption among market participants is that Greece most likely will receive funds to meet its financing needs for now, but that it will eventually have to restructure its debt. Against that backdrop, the spread on two-year Greek debt over German debt surpassed 25 percentage points, as shown in the bottom-left panel. An important consideration is the degree to which these pressures are spilling over to Spanish debt markets. Spreads on Spanish government bonds did increase some, but their levels remained below those reached late last year. Beth Anne Wilson will cover these developments in more detail in her briefing.

Dollar funding markets for European institutions have also shown a few signs of increased pressure. Although the LIBOR spread to the OIS rate has held steady, forward measures of this spread moved up late last week, as shown in the bottom-right panel, and the dollar swap basis also rose. The emerging concerns in funding markets partly stemmed from the announcement by Moody's that it was placing three French banks on review for potential downgrade based on their exposures to Greece. Overall, the funding pressures seen in the market are still fairly modest, but we are conscious that conditions can change quickly.

Before leaving this exhibit, let me discuss the proposal on the liquidity swap lines that Steve Kamin and I described in a memo that was circulated to the Committee ahead of the meeting. The liquidity swap lines that are currently in place with the European Central Bank, the Bank of Japan, the Bank of England, the Swiss National Bank, and the Bank of Canada are scheduled to expire on August 1. In light of the ongoing pressures on global financial markets and notable uncertainties about funding needs in Japan and the euro area, our swap counterparties believe that an extension of the swap lines is warranted.

The staff's view is that the swap lines continue to provide an important backstop that has helped to maintain stability and confidence in dollar funding markets. Allowing the swap lines to expire in current circumstances would seem to create unnecessary risks. Accordingly, the staff recommends that the Committee approve an extension of the swap lines for a period of one year, through August 1, 2012. All aspects of the swap arrangements other than the expiration date would remain unchanged, including the expected pricing of any dollar funding operations at 100 basis points above the OIS rate. This pricing should ensure that funding from the lines is attractive to financial institutions only during times of severe market stress.

We will be asking for a vote to approve the resolution provided at the end of the memo. If the Committee were to vote affirmatively, we would expect the five foreign central banks to take corresponding actions as soon as possible. However, given the schedule of its policy meetings, the Bank of Japan would not be able to take such an action until July 12. Thus, our current intention is to announce the extension of the swap lines on that day, if the extensions are approved by all central banks.

Your next exhibit turns to the issue of the debt limit and the potential implications for financial markets. As you know, the statutory limit on federal debt was reached on May 16, and the Treasury has been using extraordinary accounting measures to maintain its issuance of marketable debt since then. As can be seen in the upper-left panel, these measures have kept the total debt subject to the limit unchanged since May 16, whereas the debt would be about \$85 billion above the limit in the absence of such measures. The Treasury continues to project that, even with the use of these measures, it will exhaust its authority to borrow on August 2, as can be seen by the fact that our debt projection moves above the limit after that date.

Without the ability to raise new funds through debt issuance, the Treasury would have to either delay principal and interest payments coming due on its securities or take other extraordinary steps to free up funds for servicing its debt. The scheduled debt payments after August 2, shown in the upper-right panel, include weekly maturities of Treasury bills beginning on August 4 as well as principal and interest payments on coupon securities on August 15 and August 31.

Market participants generally believe that missing a payment on Treasury securities would have very detrimental consequences on financial markets. However, current market prices do not appear to reflect much anxiety about the looming debt ceiling deadline. For example, the Treasury bill curve, shown in the middle-left panel, does not have an obvious discontinuity in early August. Moreover, the anticipated volatility of longer-term yields over the next several months, shown to the right, has not moved up meaningfully. Market participants appear to be assuming that the Congress will reach a resolution for the debt ceiling before it becomes disruptive.

If the debt ceiling constraint is not resolved and the threat of a default on Treasury securities intensifies, there could be a number of consequences for financial markets. It may be useful to think about those consequences along two broad dimensions. The first dimension is the extent to which markets would reprice the amount of credit risk in U.S. Treasury securities. Treasuries have historically been viewed as having no credit risk, and it is difficult to judge just how much that perception would change in response to a default event. Any such change would presumably depend on the length of the default, the manner in which it was resolved, and the evolution of the longer-term fiscal outlook. It would also be shaped by the response of the rating agencies and the behavior of key investor classes. Any increase in the risk premium embedded in Treasury yields would have negative implications for the budget outlook, given the elevated debt levels that have been reached. Moreover, such

circumstances could create a loss of confidence and an increase in risk premiums that would weigh heavily on a broad set of asset prices and the dollar.

The second dimension to consider is the possibility that market functioning could deteriorate, particularly in the cash and repo markets in Treasury securities. Indeed, a situation involving defaulted securities could induce operational problems for financial firms or behavioral shifts in their willingness to participate in the Treasury market. There would presumably be considerable uncertainty about the ability to transact, about the trading and settlement conventions that would be in place, and about the actions that other market participants would take. The result could be a meaningful loss of liquidity in these markets and volatile price movements. Such a disruption could be quite consequential to a broad range of financial markets and activities.

These circumstances would also raise important complications for Desk operations. As highlighted in the bottom-left panel, there are a number of areas in which our operations could be affected, including outright purchases of Treasury securities, securities lending activity, and our ability to conduct repurchase agreements against Treasury collateral. The Desk has begun a process of contingency planning to ensure that those operations can continue in the event of a delayed payment on Treasury debt.

The Desk will also have to monitor conditions in short-term funding markets, as they could be affected in ways that would warrant the use of open market operations. There is no clear course of action that we anticipate today. However, we should recognize that this intermeeting period is highly unusual, and that conditions could unfold in a variety of ways.

To highlight the degree of uncertainty about funding markets, let me describe two possibilities that have been raised in our discussions with market participants. Some market observers are concerned that the looming debt ceiling is going to impose a substantial squeeze in the supply of Treasury bills, as the Treasury attempts to maintain its coupon issuance while its ability to borrow is limited. They believe that Treasury bill yields and GC repo rates could be driven negative in response, potentially inducing a number of unusual market issues. As shown in the bottom-right panel, these rates are already quite low, making the market vulnerable to this outcome. Other observers are instead focused on the possibility that activity in the repo market could dry up, leaving dealers and others in a scramble for liquidity to fund their holdings of Treasuries. This outcome would put unusual upward pressure on repo rates and other short-term interest rates. It is difficult to assess the likelihood of these or other scenarios, and hence we will be watching the evolution of money market conditions carefully.

Your last exhibit focuses on recent developments affecting the SOMA portfolio. As of next Thursday, the Desk will have completed the \$600 billion of purchases of longer-term Treasury securities that the FOMC announced in November, shown by the dark blue bars in the upper-left panel. Of course, those purchases came on top of

the reinvestment of principal payments on our holdings of agency debt and agency MBS (the light blue bars). In total, since the inception of the program, we have conducted 133 outright operations, with an average size of about \$5½ billion. In effect, we have been in the market on every day possible since the start of the program.

Activity on the Desk will calm down a bit after next Thursday. At that time, absent a change in the directive from the FOMC, the Desk will continue only with the reinvestments of principal payments, bringing purchases down to an expected pace of about \$20 billion per month.

As shown to the right, the Desk proposes keeping nearly the same maturity distribution of purchases for the reinvestments as that used during the recent round of asset purchases. The only difference in the proposed distribution is that the Desk would combine the two maturity buckets beyond 10 years into a single group, because otherwise the operations in that sector would be very small. Under this distribution, the average duration of our purchases would remain between five and six years. The Desk's schedule of operations would also be modified to reflect the slower pace of purchases. In particular, we would intend to conduct only one operation per maturity bucket, or seven total operations, per month.

The Desk would like to release a statement describing these operational details, just as it did following the FOMC's announcements of the reinvestment program last August and the purchase program last November. We do not expect the Desk statement to attract much attention. The proposed plan is to release the Desk statement about 30 minutes after the FOMC statement, which would still be well before the beginning of the Chairman's press conference.

By reinvesting principal payments from the SOMA, the FOMC would be deciding to keep the total face value of domestic assets held in the SOMA steady at \$2.654 trillion. As shown in the middle-left panel, our holdings represent about 17 percent of the outstanding stock of Treasury debt. That percentage is not materially different from its level before the financial crisis, but our holdings of Treasury securities are now skewed more heavily toward coupon securities relative to bills. Overall, our purchases do not appear to have caused any material deterioration in the liquidity and functioning of the Treasury market, as indicated by the bid-ask spread reported to the right.

Market participants generally expect the level of our asset holdings to remain unchanged over the near term and then to begin declining at some point over the next two years. As shown in the bottom-left panel, respondents to our dealer survey place relatively low odds on additional asset purchases over a two-year horizon, but they see considerable odds that the FOMC will begin to sell assets. You can see that from the dark blue tick marks, which represent the median response to the survey. One notable change since the March survey, which is shown by the orange dots, is that the probability of MBS sales has risen considerably, presumably reflecting the FOMC's communications about its exit strategy.

The survey also indicated that the sequence of policy steps expected during the removal of policy accommodation was largely unchanged from the previous survey and in line with the strategy described in the April FOMC minutes. As shown to the right, this sequence is expected to put the overall size of the portfolio on a downward trajectory that is very similar to the path assumed in the Tealbook. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you very much. The Vice Chairman wanted to say a couple of words on the Maiden Lane II sale.

VICE CHAIRMAN DUDLEY. Yes, thank you, Mr. Chairman. There has obviously been a lot of press about Maiden Lane II sales, and Maiden Lane II sales have been cited as a factor—in fact, some people would even claim primary factor—for the weakness in the nonprime RMBS market, but also more broadly than that, CMBS and a whole variety of different asset classes. As Brian said, we feel very strongly that this is not really the main factor. The deterioration in housing and the decline in risk appetite seem to be much more important. It's hard to believe that \$15 billion market value of assets could generate such large effects, especially when it's important to recognize that the nonprime RMBS market is actually shrinking over time because there's no new issuance. So this is a market that's actually amortizing over time.

I want to give you briefly an update of where we stand. The next big event is going to be on July 15, when we actually publish the results. I'm going to give you a heads up about what those results are going to look like. The good news is that the sales that we've actually done have gone very, very well. We've put out nine bid lists. We sold \$10 billion, face amount, which is roughly one-third of the portfolio. So we've achieved \$4.7 billion of actual proceeds, and we're running about \$400 million ahead of our December 31 marks which, if you remember, were the basis of AIG's bid for this portfolio. Part of that reflects the fact that we have positive carry on these assets, but a lot of this reflects the fact that the bids we got for these assets were

quite a bit higher than our marks. There's been no issue in terms of, Do you get bids for the assets, to sell the assets? We've had multiple bids on all of the assets. We haven't faced the issue of being left with "cats and dogs" at the end; we can sell everything. There are bids for everything. We may not necessarily like the bids that we get, but there's actually plenty of demand to take these off our hands.

The bad news is that there has been, as Brian showed in one of his charts, a significant decline in prices in this market. As a result, the outlook going forward for prices for the remaining two-thirds of the portfolio is quite a bit less favorable than the prices we've actually achieved to date. If we sold everything that we hold today at the current market prices— instantaneous, no positive carry—we would achieve overall a \$1.1 billion profit, which would be smaller than the \$1½ billion profit that we would have gotten if we'd accepted AIG's offer. What's our response to this? Well, our response is we're going to slow down the pace of sales to reflect the deterioration in market conditions and to reflect the fact that we're in the summer months where there's going to be fewer people around. So you'll see fewer bid lists from us, and we may also reduce the proportion of securities that we actually sell. Up to now we've sold 75 percent of the securities that we put on offer, and we may be a little less aggressive than that. Now, in all this, time is our friend. We have a positive carry as these securities amortize. If we slow down and prices stay steady, we'll actually do better than the \$1.1 billion. So that's where we stand, and I'd be happy to take any questions.

CHAIRMAN BERNANKE. Are there any questions? President Lacker.

MR. LACKER. Help me understand this strategy. Do you place greater value on the upside option, given the uncertainty about the AIG offer, than the market, or do you think that these are underpriced? The market prices are going to take into account the carry, right? So this

change in strategy should be present-discounted-value neutral. So I'm wondering whether you have a different idea than the market about the value or you see a higher value than the market on the upside option, given the appearance and the optics relative to the AIG offer.

VICE CHAIRMAN DUDLEY. Because these are risky assets, there's a big risk premium on these assets. So the yield on these assets is actually high relative to a risk-free asset. With respect to AIG, the issue about not accepting AIG's offer was not really about the price that they were paying for the assets, it was the fact that we thought that there were significant financial stability issues associated with selling what have obviously been very risky assets all to one entity. We also were concerned about the lack of a level playing field in the sense that these assets should be available broadly to whoever wants to buy them. We committed, when we started this process, to basing the rate of sales on market conditions, and market conditions have deteriorated. We're also in the summer months where demand is less because there are fewer people at their securities firms. For those reasons, we're going to slow down a bit.

CHAIRMAN BERNANKE. Okay. We can turn to questions for Brian, and if anyone wants to ask Bill another question, that's fine, too.

Brian, let me ask you about the release date on the swap agreements. Because of the timing of my monetary policy testimony, I believe that there will at least be a serious consideration of releasing the minutes on July 12, and of course, that will contain the information. That creates a little bit of a concern for me. Is there any way to move this up? For example, if we say that Bank of Japan will be considering, when would the next latest possible date be? What's your thought on that?

MR. SACK. I didn't learn that the minutes were going to be accelerated until yesterday. It's certainly an option to have the statement come out earlier from everyone except the Bank of

Japan, with an indication that the Bank of Japan would be expected to take a similar action. If so, we can bring it forward at least several days. I think the Bank of Japan didn't want it too far in advance of their action, but there's some flexibility there. The other thing is, given the timing of their meeting, we would like to release the statement in the morning. So perhaps we could consider whether a release in the morning ahead of the minutes would still be acceptable. We're thinking of a 9:00 a.m. release.

CHAIRMAN BERNANKE. Okay. Now we're open for general questions. President Fisher.

MR. FISHER. On the swap lines, there are no current outstanding balances—is that correct? And they've been minimally utilized, including from Japan?

MR. SACK. That's correct. There was a small amount of activity from Japan over the life of the lines and a larger amount from the ECB, although still relatively small, at the beginning of the lines. They haven't been actively used in a while, but yet we continue to think that their presence is a useful backstop.

MR. FISHER. And they're open ended in terms of the amount?

MR. SACK. Yes, they're open ended, with the exception of the line with the Bank of Canada; the other four are open ended.

MR. FISHER. Mr. Chairman, I think that's also a selling point to our critics. We put them there. They haven't been heavily utilized. The pricing is important. I don't know if the timing is right—you asked for approval. I'd like to move that we approve this, unless we have other discussions on the swap lines.

CHAIRMAN BERNANKE. We'll vote as soon as the Q&A session is over. Thank you. The pricing terms, plus 100 basis points, are intended to keep utilization minimal unless conditions actually are worsening. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Brian, regarding the debt ceiling, you noted two things. One, this could be very disruptive if taken to the limit, and, second, that the market has not yet priced that into bond prices. When do you think the market will begin to react to a lack of resolution if we go right up to August 2?

MR. SACK. That's very hard to say. We're in a very awkward equilibrium where the markets assume there will be an outcome because not having an outcome would be so catastrophic. However, that assumption means you don't see any pressure in markets, and it relieves the pressure on the political process. And the problem is that the markets may be expecting this to go up to the last minute, so they may be expecting an eleventh hour solution. I think that means that there's a chance we won't see any significant source of pressure in the markets until we're right against the deadline or so, perhaps late July or very early August.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. I have a question about the reinvestment policy going forward. The table on exhibit 4, chart 20, shows that the reinvestment strategy has the same maturity structures that we have been doing. What are the tradeoffs to thinking about changing the maturity distribution, skewing it perhaps more toward short-term securities or Treasury bills? What's the thinking about the mixture, the maturity structure of the reinvestments going forward?

MR. SACK. As I noted, this strategy of course will keep the duration of our purchases in that same range of five to six years, which is slightly higher than the duration of the portfolio in total. Our thinking was that that was a good maturity range to be in. It isn't too different from

the maturity of the portfolio. It maintained the current policy and seemed consistent with the idea of policy going on hold, which I think is how many FOMC members have described what the stance of policy will be after June in terms of keeping the balance sheet unchanged. And we thought that, from a communication perspective, this was also the simplest outcome, to simply maintain that current distribution.

MR. PLOSSER. What would be the consequences, do you think, in the markets of skewing that slightly toward shortening the maturity structure a little bit?

MR. SACK. In a portfolio-balance type of theory, a shortening of the structure would put a bit of upward pressure on yields. We tend to think of the portfolio as having the effect through the duration risk it removes, so if we shift toward shorter maturities, we're removing less duration risk, but it would be quite modest.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. Brian, I had two questions related to the debt ceiling. The first question is about credit default swaps on U.S. debt: Are their prices showing any movement at all related to concerns about the debt ceiling? And the second question is, when you talk to market participants, do you perceive any contemplation of some kind of extraordinary unspecified intervention by the Federal Reserve to maintain market function in the wake of hitting the debt ceiling or breaching the debt ceiling?

MR. SACK. On the first question, five-year CDS, which is the most liquid part of the structure, has moved up modestly but not dramatically. The one-year measure, in fact, has moved up noticeably, but we don't put a lot of weight on that evidence because the CDS market for U.S. sovereign debt is very small. I think the net outstanding amount from DTC data is something between \$4 billion and \$5 billion. So we're pretty dismissive of that signal. We

would prefer to look at the yields on actual Treasury securities to make inference about the likelihood being priced into the market.

In terms of the Federal Reserve's role and whether market participants are talking about that, I have not heard a lot of discussion about that. As I noted in my briefing, we've begun contingency planning. We want to make sure that our operations can be conducted in these circumstances. We've also begun a process of thinking about how those operations might affect the market and how that may interact with the debt ceiling; there are a number of issues there. For example, if we're buying Treasury securities and there were securities with missed payments, would market participants want to show us large amounts of those securities to get rid of them and not have to deal with the market consequences? If those particular securities have cheapened a lot, do our existing procedures bias us toward buying them? Would they have the same incentives to give us those securities in securities lending? And, last, might there be a substantial need for funding if the repo markets dried up that we would have to meet with repurchase agreements? We have a list of those kind of issues that we're working through, but we're not yet to the point where the market is really focused on that next step.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. Just to follow up on this, are you approaching that task with a principle in mind that you don't want our actions at the Desk to blunt the market effects of a nonpayment event? To some extent, anything we do there is essentially ameliorating the consequence of a fiscal action and implicates us in fiscal action. I wonder how you're thinking about that. I understand that, at the same time there's a concern about market functioning as well.

MR. SACK. There are some issues that I think are covered under the current directive. If upward pressure on repo rates were to drag the federal funds rate up as well, the current Desk directive would mandate that the Desk do RPs and inject reserves, so those I'm taking as given. More broadly, in terms of how the operations may be affected or how the operations could be changed in response to the consequences—that's an area where I would seek consultation from the Committee. I'm assuming the Committee does not want to structure operations for the sole purpose of helping the markets through the debt ceiling problems. If you wanted to go to the extreme, you could imagine operations like CUSIP swaps, where we would buy defaulted securities and sell nondefaulted securities out of our portfolio. I'm sure there are a number of very creative things we could do to help the markets through a debt ceiling problem. I'm assuming there's not an appetite to go to those extremes. However, there's a lot of area in between the extremes in terms of how the operations we conduct regularly will be affected, and those are the things we'll be sorting through. If we're doing anything outside of our regular operations or outside of what we see necessary to meet the directive, we would consult with policymakers.

MR. LACKER. Do you view a CUSIP swap as beyond the pale?

MR. SACK. Yes, absolutely.

MR. LACKER. Okay. But there would be a securities lending operation, right?

MR. SACK. Yes. The authorization to the Desk for securities lending is in part based on market functioning, so that's a standing facility that I assume we would maintain. The authorization for buying and selling Treasury securities, as would be needed for a CUSIP swap, is tied directly to the directive, and the directive does not have a broad market-functioning aspect

to it. I think to design operations for market-functioning purposes that involve buying and selling securities would require some kind of consultation with the Committee.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. I just want to make sure I understand this. We do have contingency plans in place. So you have some decision-tree analysis here.

MR. SACK. Yes. We started with a half-page list of potential issues related to the debt ceiling, which has now grown to four pages. There are a large number of issues we need to think through in terms of how our systems work, how our pricing feeds work, whether the way we do relative value analysis for valuing collateral that comes in or for buying assets outright is affected by all of this—there's a whole range of issues. We are working through them. I wouldn't say we've worked through them completely at this point, but we are now making good progress.

MR. FISHER. Well, I would expect you to be doing so, and if it does require coming to the Committee, you've said you would but, obviously, first you have to develop all the possibilities. So thank you for answering that question.

CHAIRMAN BERNANKE. I guess my thought, Brian, is that you should think about options for preserving market function, and so on, and if we get close to this point, we can obviously have a teleconference and have a decision about which, if any, we want to adopt. President Lacker.

MR. LACKER. Obviously, you understand the importance of the appearance of maintaining distance from funding a fiscal crisis with our balance sheet. But back to President Lockhart's question, it strikes me that August 1 is probably not the time for us to figure it out. Because market participants have a long history of watching our actions in securities lending and

market operations, communicating to them before then our stance regarding this might be useful in order to avoid putting us in a box where we're forced to act in a way we don't want to in order to forestall a discontinuity. I'd urge you to put effort into this as up front as possible and, if consultations with the Committee are needed that those be done earlier rather than later.

CHAIRMAN BERNANKE. I'm quite confident that if August 2 passes, that there won't be an immediate default. I think it would take some time, but there are dates like August 15 where there's a big coupon payment required that would be much riskier. But I think end of July would no doubt be sufficient time from the Committee's point of view.

MR. LACKER. Does the federal government have enough payment-delay options outside of the Treasury redemptions, these weekly notes, to be able to get through to the 15th?

CHAIRMAN BERNANKE. I think it does—Bill, you can add to this. It has a number of unattractive but nonetheless available options, like selling MBS and so on, to raise revenue, and, of course, there's tax revenue. If they prioritize and decide not to pay Social Security, for example, which of course is a political disaster, they could still make the principal and interest payments, certainly, for a couple of weeks. President Kocherlakota.

MR. KOCHERLAKOTA. At the risk of being repetitive as to what President Lacker already said so eloquently, Mr. Chairman, I think it will be important, in advance of any big event in the markets, for us to be clear to the markets about what our stance is. I think we might be clear within this Committee, but it's going to be important as well for that clarity to go through to the markets. Maybe that can be done by late July or early August or something like that.

CHAIRMAN BERNANKE. Any other questions? Then we need to vote to ratify domestic open market operations since the April meeting. Can I have a motion?

MS. YELLEN. So moved.

CHAIRMAN BERNANKE. Without objection. Okay. President Fisher has moved to approve the extension of the liquidity swap lines. I would just add that we've had a number of calls lately concerning the Greek situation. There's a lot that could be happening in the next few weeks there. Japan seems to be improving, but still there's some financial risk related to the disaster. So I think our stance, which is a penalty rate, no current outstanding balances, but providing what could be a very important backstop, is desirable. Are there any other comments or questions about the swap lines? Concerns? [No response]

CHAIRMAN BERNANKE. All right. In that case, all in favor, say aye. [Chorus of ayes] Any opposed? [No response] Okay. Thank you. Let's go on now to item 4, the economic and financial situation, and let me turn to Larry Slifman.

MR. SLIFMAN.⁴ While we're changing players, the materials we'll be using are titled "Material for Staff Presentation on the Economic Outlook." As we highlighted in the Tealbook, the economic news that we've received since late April has been almost uniformly to the downside of our expectations. At the time of the last Tealbook, we were seeing signs of softness in many of the key spending indicators. But we discounted those indications in light of what appeared to be ongoing improvements in the labor market and factory output. One data point that affected our thinking in the current Tealbook was the May employment report. As shown by the red line in the upper-left panel of the first exhibit, private payroll employment is estimated to have increased only 83,000 in May.

Another key data point was the downward revision to manufacturing IP in the first quarter and the tepid pace of expansion so far in the second quarter.

Meanwhile, as highlighted in the middle-left panel, the news for consumer outlays has been disappointing. Moreover, the BEA revised down the historical estimates of real DPI, leaving the published first-quarter level nearly \$70 billion lower than we had anticipated in the April Tealbook. In addition, consumer sentiment remains at a low level. Accordingly, we project that real PCE will rise at only a 1½ percent rate in the second quarter, compared with the 3 percent pace that we wrote down in the April Tealbook.

⁴ The materials used by Mr. Slifman, Ms. Wilson, Mr. Reeve, and Mr. Covitz are appended to this transcript (appendix 4).

As shown in the panel to the right, most national and regional survey indicators of business conditions have dropped noticeably, and spending for equipment and software (not shown) appears to be rising less rapidly in the second quarter than we previously projected.

As noted in the lower-left panel, we think that part of the recent weakness in activity reflects transitory effects of the disasters in Japan on U.S. production of motor vehicles and parts. The higher price of imported oil and a temporary drop in defense purchases also appear to have played a role.

All told, we projected in the Tealbook that real GDP would increase at a 1.9 percent annual rate in the second quarter—line 1 of the table to the right—down appreciably from our forecast in the previous Tealbook. Activity should receive a temporary boost next quarter from the alleviation of supply chain disruptions in the motor vehicle industry. But, as you can see from a comparison of lines 3 and 4, underlying our GDP forecast for both the second and third quarters is a substantially more guarded assessment of the economy even after excluding earthquake-related effects.

The loss of momentum in economic activity recently has brought to the fore the question: Why isn't the recovery gaining traction? This is the subject of your next exhibit.

The upper-left panel illustrates two ways to think about this question—compared with previous business cycles and compared with our own previous forecasts. The blue and green lines are for two earlier deep recessions—the one beginning in late 1973 and the one that started in mid-1981, while the black line is the current recession and recovery. For each recession, the data are indexed with the value of real GDP in the peak quarter set equal to 100. The time scale across the bottom shows the number of quarters after the peak, with 16 quarters equivalent to the fourth quarter of 2011 for the current cycle. Finally, the red dashed line shows our GDP projection from a year and a half ago, in January 2010—after the start of the recovery had become apparent to us but before the European debt crisis had gained prominence and before the run-up in oil prices. The two takeaway points from this panel are pretty obvious: The current recovery has been far slower than previous recoveries from deep recessions, and it has been noticeably slower than we expected a year and a half ago.

The next three panels lay out the data in a similar manner for three key components of GDP—namely, PCE, residential construction, and equipment and software. Clearly, the bulk of the shortfall—either compared with previous cycles or with the January 2010 forecast—can be attributed to residential construction and PCE. But, because of the relative size of consumption in overall GDP—about 70 percent compared with only 2 percent currently for housing—arithmetically, the contribution from the shortfall in PCE is the most important factor for overall GDP, especially in comparison with the two previous deep recessions.

So, why has consumer spending been so sluggish? Before addressing that question, let me digress for a moment. Earlier this morning, the Chairman noted that this is Dave Stockton's last meeting. Over the years, among Dave's many extraordinarily valuable qualities, one of the most useful for the staff—and, I would imagine, for the Committee as well—has been his openness about the limits of our knowledge. Many has been the time that he has offered some plausible hypotheses, but in the end admitted, "We just don't know." I should note that privately with the staff, the phrase "we just don't know" is typically expressed in much more colorful language. It is in that spirit, then, that the lower-left panel offers some hypotheses, with the caveat that we just don't know for sure.

Unlike the recessions of the mid-1970s and the early 1980s, this recession was sparked by the collapse of a housing bubble and subsequent financial crisis whose aftereffects are proving to be quite persistent. One result of the bursting of the bubble, of course, has been the drop in house prices, which are now down by about 40 percent in real terms from their peak. As a result, currently, more than one out of every four mortgage borrowers is underwater. With no home equity to tap, unable to refinance and take advantage of low interest rates, and access to credit card debt still restricted, these households likely have few, if any, resources available to smooth their consumption through income losses from unemployment or other economic misfortunes.

Reduced income expectations doubtless are also playing a role. The panel to the right shows the median year-ahead expected change in family income from the Michigan survey. As you can see, expected income plummeted during the recession. But what is more remarkable is that these expectations have not recovered a bit. So a plausible possibility is that household concerns about expected income—exacerbated perhaps by such things as fears of further declines in house prices, concerns about job loss, and geopolitical uncertainty—have led to a heightened desire to build precautionary savings by those with the wherewithal to do so. But I end where I began, with a note of uncertainty: We can't be sure about the magnitude of these effects or how persistent they will be.

The next exhibit presents the medium-term forecast. As shown in the upper-left panel, with underlying momentum in the recovery weaker than previously thought, we marked down our projection of output growth significantly in the second half of this year and in 2012. Excluding Japan effects, we now expect real GDP to increase 3 percent over the second half of this year and 3½ percent in 2012, both down about ¾ percentage point from the April Tealbook. In addition, I should note that in light of what appears to be the greater fragility of the recovery and the risks posed by a number of factors, including the fiscal situations in both Europe and at home, we now think that the risks to our growth projection are skewed to the downside.

Reflecting the slower pace of overall economic activity, we expect that the recovery in the labor market to be slower as well. As shown in the upper-right panel, in the current forecast, the unemployment rate still is slightly above 8 percent at the end of 2012, nearly ½ percentage point higher than in the April Tealbook.

The middle-left panel highlights some of the key influences on the contour of the forecast. As in previous Tealbooks, we expect that accommodative monetary policy, a lower foreign exchange value of the dollar, increasing credit availability, and the waning effects of earlier declines in wealth should all be supportive of a modest pickup in the pace of the recovery. And, as those influences gain greater steam, we expect household and business confidence to recuperate. That said, the recent data suggest that the impetus provided by these factors may be smaller than previously thought.

The remaining panels focus on the three main components of private domestic purchases. An important element underpinning our forecast of a gradual pickup in economic growth is the continuation of sizable increases that we expect for business capital spending. As shown in the middle-right panel, growth in the stock of E&S capital currently remains low, both relative to historical trends and given current levels of profitability. Over the medium term, we expect that the growth rate of the E&S capital stock will return to more normal levels.

In addition to adding more capital, firms should eventually become more aggressive in adding more workers. As job growth picks up and the effects of energy price increases earlier this year fade, household incomes and confidence should rise, driving a modest acceleration in consumption—the lower-left panel—albeit considerably less than in the April Tealbook.

In the housing sector, the panel to the right, single-family construction will likely be restrained by fears of purchasing into a falling market, the large stock of vacant unsold homes currently hanging over the market, and tight credit conditions for builders and for many potential homebuyers. As a result, we see starts going essentially nowhere over the next 18 months.

Exhibit 4 focuses on wages and prices. At recent meetings, several of you noted that some of your business contacts have raised concerns about skill shortages and their implications for upward pressures on wage costs. As part of the Beige Book process, we asked the staffs at the Reserve Banks to make inquiries on several questions related to hiring plans and wages. Some key results are summarized in the upper-left panel. As shown on the first line, 45 percent of respondents indicate that they plan to increase employment over the next 12 months. Among all respondents—those planning to hire and those not planning to hire—about 20 percent felt that skill shortages were an important factor restraining their hiring. Despite this, however, very few respondents anticipate raising starting pay as a recruiting tool. With regard to pay for current workers, a majority of respondents expect that wages per employee will change less than 2½ percent this year compared with 2010.

All told, the results suggest that upward wage pressures over the next 12 months are likely to be subdued. As shown in the panel in the upper right, the staff forecast takes a similar view. We project compensation per hour will rise 2.1 percent this year and 2.6 percent next year.

The middle-left panel presents our price forecast. The incoming data on prices have been above our expectations, and we have taken some signal for the inflation path going forward. Nevertheless, we continue to expect that the rate of headline inflation will step down significantly in the second half of this year, primarily reflecting a drop in consumer energy prices (line 4). As illustrated in the panel to the right, retail gasoline prices have already retreated about 30 cents per gallon from their recent peak, and we expect some further declines in the next few weeks before prices level out. Returning to line 5 of the table, we anticipate a near-term deceleration in prices excluding food and energy as well. As Trevor will discuss, non-oil commodity price pressures have begun to ease, and we expect that this, along with some slowing of dollar depreciation and foreign inflation, will be translated into much smaller increases in the prices of imported goods.

More importantly, we anticipate that the substantial slack in the labor market (the lower-left panel) will continue to put downward pressure on inflation. At the same time, longer-run inflation expectations, the red line in the panel to the right, are projected to remain stable. All told, we expect headline inflation to increase $1\frac{1}{2}$ percent next year, $\frac{1}{4}$ percentage point higher than in the April Tealbook. Beth Anne will now continue our presentation.

MS. WILSON. Since the last FOMC meeting, we have had to continually expand the vertical scale of the upper-left chart in exhibit 5, as spreads on Greek sovereign debt over German bunds soared ever higher. As indicated in the upper-right chart, a year into the IMF–EU program, Greece’s debt-to-GDP ratio remains on an unsustainable trajectory. The official sector has been struggling with how to finance Greece, given that a return to the markets early next year, as originally envisioned, seems doubtful. After much *Sturm und Drang*, EU leaders appear prepared to provide additional funding to help get Greece through the next 12 months, conditional on greater fiscal and privatization measures from Greece. But with the Greek political situation worsening, there is some uncertainty about whether these measures will be approved in time. Without the next official-sector disbursement, the Greek government runs out of cash in mid-July.

Our working assumption is that Greece manages to secure the funding needed to avert a disorderly default next month. We also expect that some combination of additional official financing, private-creditor contributions, and Greek government actions will be cobbled together to cover Greece for some time to come. Eventually, however, more ambitious steps will be needed to make Greece’s debt sustainable—either through significant restructuring of Greek sovereign debt, extended transfers from the euro area, or both. That process will likely be messy. But should restructuring occur, we assume sufficient financial backstops will be put in place to prevent contagion from spilling over to Spain, the rest of Europe, and beyond. We cannot discount the very real possibility, however, of far more disruptive outcomes than in our baseline.

In the event that the debt of Greece, or even Ireland, or Portugal—the three most vulnerable economies—is restructured, the direct channels of contagion to the U.S.

banking system are likely to be relatively limited. As seen in the table, U.S. data provided to the BIS show that in December, the direct credit exposure of U.S. banks to Greece was \$7 billion, or 1 percent of Tier 1 capital, and to Greece, Ireland, and Portugal combined was 7 percent of Tier 1 capital. Moreover, exposure to Greece and the other vulnerable countries, including Spain, has fallen notably since March 2010, as seen in the middle-right chart. Information gleaned from individual U.S. banks provides corroborating evidence that their direct exposure to the three weakest peripheral countries is limited.

In contrast, according to the BIS, many “core” European banks, including those in Germany, the United Kingdom, and France, are significantly exposed to peripheral Europe. And the U.S. financial system, in turn, had credit exposure to banks in core Europe topping \$½ trillion in December. As Dan will discuss shortly, the exposure to Europe of prime U.S. money market mutual funds is especially worrisome. Therefore, although we believe core Europe has sufficient resources to make up capital losses suffered by its banks as a result of a peripheral crisis, uncertainties about which banks are most affected and how their problems will be resolved could lead to sharp reductions in confidence and disruptions to markets globally, including in the United States.

So far, broader indicators of financial stress emanating from the Greek fiscal crisis are more subdued than when tensions flared a year ago, but the sharp swings in the euro–dollar exchange rate (lower-left panel) and the decline in European stock prices (shown to the right) are recent evidence of the ability of the Greek crisis to rattle markets.

Heightened fears about Greece and weaker incoming data have created a sense of uncertainty in markets about global growth, discussed in your next exhibit. As can be seen in the top line of the table, we are forecasting a step-down in foreign growth to 2¾ percent in the second quarter. Much of this step-down reflects a moderation from the very rapid 4 percent expansion last quarter. We had already anticipated some of this slowing in the April Tealbook, and our view has been reinforced by first-quarter output data (shown to the right) that generally came in higher than we’d expected. Thus, we haven’t been too surprised by the weakening in foreign manufacturing PMI data through May (shown in the middle panel), nor by Chinese consumption and lending data (charted to the right) indicating that recent policies are contributing to a moderation in Chinese GDP growth to around 8 percent this quarter.

An exception has been Japan, where the economic impact of the March earthquake was felt more quickly and more severely than we had anticipated. We have built in a larger decline in Japanese activity in the second quarter (line 4 in the table) than we had in April, and this contributes to our estimated step-down in aggregate foreign growth. However, a normalization in Japanese suppliers’ delivery times and a recovery in real consumption (shown in the middle-left panel) give us confidence that Japan’s economy will snap back in the third quarter, supporting a corresponding revival in foreign growth as a whole. Nevertheless, in light of developments in the United States, the recent signs of slowing abroad have given us

pause, and we will be watching closely for signs of slowing in foreign growth that is more deep seated.

Evidence of moderating foreign output growth and the recent turndown in commodity prices, which Trevor will discuss, undergird our forecast of stable or falling inflation abroad, shown in the lower-left panel. These factors, as well as increased risks surrounding Europe, have contributed to a notable downshift in market expectations of policy rates (as seen in the bottom-right chart). And we, too, have marked down our policy-rate path for the major economies.

MR. REEVE. Our forecast for solid growth abroad that Beth Anne just described underpins our favorable outlook for U.S. trade. As shown in the first panel of exhibit 7, we expect real exports to expand at a robust 9 to 10 percent pace over the projection period, with a good part of this growth reflecting the fall in the dollar since its crisis-related run-up a few years ago.

The lower dollar, along with subdued U.S. demand, also provides some restraint to real import growth (the blue line in the first panel). In addition, imports are held down in the current quarter by disruptions from Japan's earthquake but then bounce back. Smoothing through these disruptions, imports expand at a 4½ percent pace this year and next. With exports outpacing imports, the external sector's contribution to U.S. GDP growth, shown in the next panel, averages ½ percentage point though next year.

As illustrated by the blue bars in the lower-left panel, the recent depreciation of the dollar has also pushed up U.S. import prices. We see nonfuel import price inflation falling from 7½ percent in the first half of this year to just 1½ percent next year, reflecting slower dollar depreciation and, as shown in the final panel, a projected leveling out of commodity prices.

Since April, commodity prices have declined amid heightened concerns about global growth; oil prices were down about \$10 per barrel when we finalized the Tealbook and have fallen further since. Following the repeated upward revisions to our commodity price projections over the past two years, this recent downshift may make our futures-based projection for flat prices seem less far-fetched. Nonetheless, we recognize (and share) the widespread dismay with how poorly futures predict commodity prices. Accordingly, the Division of International Finance has been engaged in research to improve our commodity price forecasts. In the remainder of my remarks, I'll summarize our key results.

The first panel of your next chart shows how futures markets missed the run-up in oil prices from 2003 through 2008 by calling for prices to remain flat. But, as noted to the right, flat futures curves should not come as a surprise. Through adjustments in inventories, market participants can arbitrage between spot and futures prices, thus embedding expectations for future supply and demand conditions in current spot prices. For example, if futures prices are far above spot prices, it will be profitable to

buy the commodity in the spot market, store it, and sell it forward in the futures market, thus tending to push spot prices up and futures prices down.

There are limits to how far this arbitrage will flatten the futures curve, as the costs and benefits of holding inventories create a wedge between spot and futures prices. When these costs or benefits are not large, futures curves will tend to be flat. In other times, such as when inventory levels are very low or very high, futures curves can have a significant tilt. And in these instances, we find that futures prices do better at forecasting than a random walk.

With commodity prices incorporating forward-looking information, the reason futures missed the run-up in prices may be that markets were simply surprised by the evolution of supply and demand. As shown in the middle-left panel, consensus forecasts of industrial production in emerging Asia—a key source of commodity demand over this period—were indeed revised up in step with the upward shifts in commodity prices. And forecasts of world oil supply (not shown) tell a similar story of repeated surprises, but to the downside. More generally, our empirical research confirms that revisions to forecasts of economic growth explain commodity prices better than growth itself.

Based on these findings, we've devised a new approach for forecasting commodity prices that begins with futures prices but adjusts them to account for the extent to which we think markets will be surprised by the evolution of global growth. We predict these surprises as the difference between the staff's forecast for global activity and private-sector forecasts, then map these surprises into prices based on the historical relationship between such surprises and commodity prices. As we have also found the dollar to be informative for commodity prices, we include dollar surprises in our adjustments as well.

The lower panels show a few examples of the predictions this approach would have generated in the past (the dashed lines), along with the forecasts from futures prices for oil and our nonfuel commodity price index. The new approach delivers a forecast that can vary noticeably from the futures path, sometimes for the better and sometimes for the worse. Unfortunately, as noted in your next exhibit, this approach does not deliver an improvement in forecasting accuracy. As shown on the right, its root mean squared error over the past decade is actually a touch worse than a random walk or futures—though the difference is small and not statistically significant.

However, our proposed approach has two important advantages. First, it yields a forecast that is more internally consistent with the staff's Tealbook forecast. Second, it helps us to characterize the risks to commodity prices. For example, in the middle-left panel, the flat forecast of oil prices generated by our new approach (the solid black line) is almost the same as the futures curve used in the June Tealbook forecast (the dashed line). But in an alternative scenario, where world growth next year exceeds market expectations by $\frac{1}{2}$ percentage point, we would expect oil prices to move up about 15 percent.

We plan to implement this new framework on a trial basis starting in the August Tealbook, although we will not blindly adhere to it if problems emerge. In addition, we intend to continue our quest to better understand—and hopefully predict—commodity prices. Dan will now continue our presentation.

MR. COVITZ. My remarks will focus on the staff's assessment of the stability of the U.S. financial system. On balance, while the system has healed significantly in the past few years, we see some risks and vulnerabilities. The upper-left panel of exhibit 10 plots an index that aims to measure the resemblance of financial market conditions to those that have prevailed during periods of financial market stress, such as during the recessions in 2001 and 2008, and around WorldCom's default in 2002. This index is notably lower than it was last spring when stresses erupted in Europe, though it has jumped recently, reflecting mostly an increased correlation in asset prices.

As shown to the right, the leverage of households and nonfinancial businesses has been moderating. The ratio of private-sector debt to GDP (the blue region) has fallen. However, this ratio for federal government debt (the red region) has risen sharply, and problems related to the debt ceiling are, of course, a risk to financial stability, as Brian already discussed.

Two additional measures, shown in the middle panels, indicate that the economy's reliance on relatively unstable forms of short-term debt has abated substantially over the past few years. The first such measure, shown on the left, is the share of banking assets funded with nondeposit short-term debt. This measure has fallen to its lowest level in over a decade, suggesting that banks now employ a more stable mix of funding than they did in the years leading up to the financial crisis.

The second measure, plotted to the right, is a staff estimate of the share of nonfinancial sector liabilities that is ultimately funded by nondeposit short-term debt. For example, in the case of a mortgage, the share would be the lender's portion of funding from nondeposit short-term debt, such as unsecured commercial paper issued to money market funds. Or, if the mortgage was securitized, the share would be the MBS investor's portion of such funding, where MBS investors could include insurance companies and ABCP programs. The plot shows that this share has declined to its lowest level in over a decade.

Despite the reduced reliance on nondeposit short-term funding, however, the staff believes that a disruption in short-term funding markets is a primary risk to financial stability, an event more likely because of the exposures of U.S. prime money market mutual funds (MMFs) to Europe. As shown in the bottom-left panel, aggregate exposures of prime MMFs to fiscally vulnerable European countries such as Spain, Italy, and Ireland—the red, black, and blue lines, respectively—fell late last year and since then have remained relatively low. However, even the diminished exposures to these countries can be potentially problematic for individual MMFs. As shown to the right, new publicly available data indicate that most funds have little to no exposure to Spain, but about 75 funds have exposures to Spain alone that exceed 50 basis

points of the respective fund's assets, large enough such that defaults on Spanish paper could by themselves cause these MMFs to "break the buck." And past experience has shown that one MMF breaking the buck may be sufficient to set off a wave of runs.

Moreover, returning to the left panel, exposures to the rest of Europe (the green line) have hovered near a striking 60 percent of fund assets. And the risk is very concentrated. Indeed, about 15 percent of total U.S. prime money fund assets are the liabilities of the three French banks whose long-term debt was recently put on watch for ratings downgrades due to their exposures to Greece.

Your next exhibit presents market indicators of the financial condition and systemic risk of domestic LISCC firms. Stock prices for the firms, plotted in the upper-left panel, have dropped about 10 to 15 percent over the intermeeting period, adding to already substantial losses earlier this year. Share prices for these firms have been weighed down recently by the weaker-than-expected economic data, heightened concerns about the cumulative effects of proposed regulations, and continued mortgage servicing and foreclosure problems.

As shown to the right, CDS spreads for LISCC firms have moved up over the intermeeting period. The increases are more notable for Bank of America (the red line) and Citigroup (the green line), likely reflecting, in part, Moody's announcement on June 2 that it was putting the long- and short-term ratings of the two holding companies on watch for downgrades because of reduced expectations of government support.

The "heat map" in the middle-left panel presents five measures of downside risk for domestic LISCC firms. In the table, yellow shading denotes a level between the 75th and 90th percentiles in the direction of greater risk, where the percentile is determined by the distribution of a particular measure for each firm over the past five years; orange shading denotes a level between the 90th and 95th percentiles; and red shading denotes a level above the 95th percentile. As shown in the first row, all five measures for Bank of America are above their respective 75th percentiles, and its expected default frequency (EDF) and relative EDF (a comparison with a larger set of A-rated financial firms) are above their 95th percentiles. Morgan Stanley and Goldman Sachs, the next two rows, each have three measures that are above their 75th percentiles, while the map shows few signs of trouble for the rest of the domestic LISCC firms. Of course, downside risks implied by market indicators might be muted by anticipated government support.

Three downside risks to LISCC firms are noted in the middle-right panel. One is an actual downgrade to the short-term ratings of Bank of America or Citigroup, as this would reduce their access to the commercial paper market and preclude them from providing credit and liquidity lines to commercial paper programs. A second risk is that the U.S. housing market deteriorates substantially further, which could lead to substantial additional losses on first and second liens and amplify mortgage servicing problems. A third concern is an escalation of the fiscal strains in peripheral

Europe. Confidential supervisory data, collected in recent months, confirm that the direct net exposures of LISCC firms to Greece, and to Ireland and Portugal, are limited. However, exposures to Spain are more material. For instance, three large LISCC firms have direct net exposures to Spain that total about \$25 billion, or 7 percent of their Tier 1 common equity. Moreover, U.S. firms have substantial direct exposures to the rest of Europe, and sizable indirect exposures through the MMFs that the U.S. firms sponsor.

The bottom two panels provide a perspective on the systemic risk of LISCC firms. As noted in the lower-left panel, the conditional value at risk (CoVaR) is a market-based estimate of the downside risk to the financial sector, conditional on a stress event for a firm. To illustrate recent trends, the panel to the right plots the staff's estimate of CoVaR through May of this year, summed for the domestic LISCC firms. As can be seen, this measure remains elevated relative to pre-crisis levels in early 2007 but well below peak levels in 2008. Current levels suggest that investors perceive that a stress event for these firms, an event in the worst 5 percent of realizations, would cost the financial sector about \$50 billion.

Your next exhibit highlights some emerging risks to financial stability from pressures on asset valuations. As discussed in recent memos sent to the FOMC, the staff sees signs of valuation pressures in the high-yield corporate bond and leveraged-loan markets. To illustrate such pressures, the upper-left panel plots both near- and far-term forward spreads on high-yield bonds. While near-term spreads (the red line) are well above levels typically seen during expansionary periods and have risen recently, far-term forward spreads (the black line) are near the bottom of their historical range. This term structure of credit spreads suggests that investors are not sanguine about credit risk over the next few years, but they are accepting unusually low levels of compensation for credit risk far into the future. In addition, high-yield corporate bond issuance (the red bars in the panel to the right) has been extremely elevated of late, consistent with issuers viewing current pricing as quite favorable.

Leveraged-loan issuance has also been robust this year. As shown by the bars in the middle-left panel, volumes issued to institutional investors, such as CLOs and insurance companies, have been approaching levels last seen in the years leading up to the financial crisis.

The staff also sees signs of valuation pressures in a number of other markets. As noted to the right, real house prices in Taiwan and Hong Kong continue to rise rapidly despite actions taken by authorities to restrain further increases. In addition, some equity markets in Latin America have elevated price-to-earnings ratios, and in emerging Asia may reflect what appear to be overly optimistic earnings outlooks. In domestic markets, valuation metrics for small capitalization stocks are elevated relative to those for larger firms, and IPO volumes have increased somewhat. Farm land valuations in the U.S. also appear high, though farm real estate debt in dollar terms has remained well below its levels in the early 1980s, a period in which farm land was thought to have been overvalued.

Despite these signs, it seems unlikely that even a fairly rapid correction in valuations, at this time, would trigger a disorderly deleveraging process. As shown in the bottom-left panel, the majority of dealers in the Senior Credit Officers Opinion Survey (SCOOS), which was completed in early June, reported that the current use of leverage by their “most favored” hedge funds has been somewhat middling—well below pre-crisis highs and well above post-crisis lows. In addition, conversations with dealers since early June suggest a noticeable pullback in leverage and risk-taking in recent weeks, which should help to ease valuation pressures.

One additional emerging risk to financial stability is from the development of new products. As outlined in the lower-right panel, these innovations appear to have arisen in response to proposed liquidity regulations inducing banks to lengthen liabilities and new liquidity rules further restricting MMF investments in longer-term securities. For example, puttable CDs allow banks to issue long-maturity securities, while investors have the option to shorten the maturities, and extendable repurchase agreements allow investors to purchase what appear to be short-maturity securities but give the banks the option to lengthen the maturities. Going forward, monitoring these products will be an important part of our overall effort to better understand and track maturity transformation and liquidity in the U.S. financial system. Seth Carpenter will continue the presentation.

MR. CARPENTER.⁵ I’m going to be referring to the package labeled “Material for Briefing on FOMC Participants’ Economic Projections.” Exhibit 1 depicts the broad contours of your current projections for 2011 through 2013 and over the longer run. As shown, you expect a gradual economic recovery over the next two and a half years, with real GDP growth—the top panel—little changed this year from its pace in 2010 and then increasing modestly in each of the next two years. The unemployment rate—the second panel—steps down slowly over the same period. With regard to inflation—the bottom two panels—the central tendency of your projections for PCE inflation indicates a transitory increase this year before it settles back in 2012 and 2013 to levels roughly consistent with or just slightly below your estimates of its longer-run, mandate-consistent level. Your projections of core inflation generally remain at or somewhat below 2 percent over the forecast period.

Exhibit 2 reports the central tendencies and ranges of your projections for 2011 through 2013 and over the longer run; the corresponding information for your April projections is indicated in italics, and the current and April Tealbook projections are included as memo items. You generally see somewhat weaker real activity over the forecast period than you did at the time of the April meeting, but your forecasts for inflation have not changed appreciably on balance. In your forecast narratives, most of you indicated that these revisions were the result of disappointing incoming data on production and spending and elevated energy and food prices.

The central tendencies of your longer-run projections—detailed in the column to the right—show that over time, the annual rate of increase in real GDP is expected to

⁵ The materials used by Mr. Carpenter are appended to this transcript (appendix 5).

converge to about $2\frac{1}{2}$ to $2\frac{3}{4}$ percent, and the unemployment rate will fall to between $5\frac{1}{4}$ and $5\frac{1}{2}$ percent. Your longer-run projections for total PCE inflation suggest that most of you see PCE inflation between about $1\frac{3}{4}$ and 2 percent as consistent with your dual mandate. All of the longer-run projections were unchanged from April.

In the near term, each of you marked down your projections for real GDP growth this year, with the central tendency of your estimates, shown in the top panel, almost $\frac{1}{2}$ percentage point lower than in April. Most of you now anticipate that real GDP will increase just under $2\frac{3}{4}$ to 3 percent in 2011, versus just over 3 to $3\frac{1}{4}$ percent in the previous forecast. The downward revisions to your GDP growth forecasts for 2012 were of a roughly similar magnitude, with most of you expecting growth next year to be between $3\frac{1}{4}$ and $3\frac{3}{4}$ percent compared with expectations of $3\frac{1}{2}$ to $4\frac{1}{4}$ percent in April. Your revisions for 2013 were smaller, with most of you still expecting growth in real GDP between $3\frac{1}{2}$ and $4\frac{1}{4}$ percent in that year. This pattern of revisions is similar to, but slightly less pronounced than, the changes in the corresponding Tealbook projections since April.

Your unemployment rate projections are summarized in the second panel. Reflecting the increase in the unemployment rate in recent months and your weaker projections for economic growth, all but one of you raised your forecast for the average unemployment rate in the fourth quarter of this year, with the central tendency of your projections running from just over $8\frac{1}{2}$ to almost 9 percent, versus the central tendency of just under $8\frac{1}{2}$ to $8\frac{3}{4}$ percent in April. Similarly, most of you now project that the unemployment rate will only fall to 7 to $7\frac{1}{2}$ percent in late 2013, a range that is about $\frac{1}{4}$ percentage point higher than your previous projections and still well above the roughly $5\frac{1}{4}$ to $5\frac{1}{2}$ percent central tendency of your estimates of the unemployment rate that would prevail over the longer run in the absence of further shocks (shown in the right-hand column). The revision to the Tealbook forecast of the unemployment rate over the forecast period was roughly similar.

Turning to inflation—the bottom two panels—the central tendency and overall range of your projections for total PCE inflation this year narrowed slightly. Most of you now anticipate that headline inflation will be between $2\frac{1}{4}$ and $2\frac{1}{2}$ percent, compared with a central tendency of just over 2 to $2\frac{3}{4}$ percent in April. You generally view inflation as likely to subside in coming years, and the central tendencies for both 2012 and 2013 are $1\frac{1}{2}$ to 2 percent. While the top of these central tendencies—and ranges—has not changed since April, the bottoms of the central tendencies are a bit higher, as fewer of you now anticipate very low inflation rates than at the time of the last SEP. The central tendencies for 2012 and 2013 are a bit below the central tendency of your estimates of the longer-run, “mandate consistent” inflation rate, shown to the right. The central tendency of your projections for core PCE inflation for 2011, shown in the bottom panel, has shifted up a touch and now runs from $1\frac{1}{2}$ to $1\frac{3}{4}$ percent, about $\frac{3}{4}$ percentage point below headline inflation. By contrast, the central tendencies of your core inflation projections for 2012 and 2013 are about the same as those for headline inflation, as most of you see the factors boosting headline inflation this year—including higher commodity prices and supply chain disruptions related to the events in Japan—as likely to be largely temporary.

The Tealbook forecasts for both total and core inflation in 2012 and 2013 are in the lower part of the central tendency ranges of your projections.

The next exhibit summarizes your assessments of the uncertainty and risks that you attach to your projections. As indicated in the two panels on the left-hand side, a sizable majority of you continue to judge that the levels of uncertainty associated with your projections for both real GDP and inflation—as well as for the unemployment rate (not shown)—are greater than the average levels that have prevailed over the past 20 years.

As shown in the upper-right panel, there has been a noticeable shift in your views about the risks to your GDP growth projections, with a substantial majority of you now seeing the risks as weighted to the downside. The downside risk to GDP growth that you most frequently mentioned included the persistent weakness in household income and spending, uncertainties about the domestic fiscal outlook, possible spillovers from the European debt situation, and a slowdown in economic activity in emerging economies.

Your assessments of the risks attending your inflation projections—shown in the bottom-right panel—have also shifted somewhat, with a majority of you now seeing the risks to the inflation outlook as generally balanced, although several of you continue to see upside risks. Some of you noted that although you expect the inflationary effects of elevated food and energy prices to abate, these effects could prove to be more persistent. Others pointed to the risk that monetary policy could remain accommodative for too long, resulting in an undesirable rise in inflation.

The last exhibit is an alternative presentation of the ranges and the central tendencies for GDP growth, unemployment, and PCE inflation. This exhibit presents the same information about these projections as is presented in exhibit 1; however, a fan chart is used to depict the dispersion in views instead of a so-called box-and-whiskers chart. The Chairman intends to distribute the fan chart, along with the table, shown in exhibit 2, in conjunction with his press conference tomorrow afternoon. While the fan chart was judged to be more helpful in the context of the press briefing, we plan to continue to use the box-and-whiskers chart for now in the SEP that is published with the minutes. That concludes my prepared remarks.

CHAIRMAN BERNANKE. Thank you very much. A couple of things. First, it is still possible to change your projections if you have new information. It would be very much appreciated if you could do it after the end of this meeting. There will be staff in the Special Library who can help you do that. If you can't do it by today, I implore you to do it by the beginning of the meeting tomorrow morning, because this information will be released on an embargoed basis at 1:30 p.m. tomorrow. Second, the Conference of Presidents requested that we

have an opportunity for those around the table who wanted to make observations or comments about the financial stability situation to do so, and we will do that very shortly. But let's first do the Q&A, and then we'll come back and allow people to make comments about the financial stability issues.

Let me start with a question for Trevor about the approach to forecasting commodity prices he described. You showed no forecasting benefit, but all you're really doing there is augmenting the futures curve by something which is effectively the difference between your forecast and other people's forecast. So I think what you're basically just saying is that over the sample period that you tested this on, the Tealbook forecasts weren't noticeably better than private-sector forecasts.

MR. REEVE. That is right. We actually did a little bit better on the dollar than our perception of outside forecasters, which we take to be, basically, a random walk, because through most of that period we were projecting some modest depreciation; but we lost a little bit on global growth.

CHAIRMAN BERNANKE. But in the memo that you circulated, if I remember correctly, you found that futures curves actually are more informative when they are sloped either up or down. So an alternative forecasting method would be one that puts a heavier weight on those situations and, otherwise, when it's flat, uses some other types of information. Why didn't you make that forecasting comparison?

MR. REEVE. Well, actually that observation is a big reason that we retained futures as our starting point in the first place. Alternative approaches that we tried along the way were just relating commodity prices more directly to our expectations of global economic growth and the dollar and any other factors that we could find, disregarding the information in futures. But we

found that you really are throwing away that useful information when you have a material slope to the futures curve. So this was a way that we wanted to preserve that useful information but then basically just tweak it based a bit on how we view the world evolving a bit differently than maybe outside forecasters do.

CHAIRMAN BERNANKE. Mine is just a suggestion to take a weighted average of the two types of forecasts and put a heavier weight on futures when they're far from being flat.

Okay. Questions for anybody? President Rosengren.

MR. ROSENGREN. I have one question on the downgrade risk of Bank of America and Citigroup. Let's use Bank of America as an example because it has Merrill Lynch underneath it. If Bank of America were to lose its A1/P1 status, would that affect its ability to serve as an investment bank? This may be too detailed—and if so I can take it offline—but are we concerned about the investment bank model under bank holding companies if A1/P1 status is lost?

MR. COVITZ. I think probably yes, but I'm not sure exactly which functions they wouldn't be able to conduct and which functions they would be able to conduct. It's pretty clear that if they no longer have an A1/P1 rating, their ability to support entities—provide liquidity support or credit support—would go away right away. I think in the past when something like this has happened, and providers of support have been downgraded to tier 2 status, the rating agencies give the structures a little time to actually make that adjustment. They don't instantly say, "Okay. All of these structures are downgraded right away." But ultimately they would be.

CHAIRMAN BERNANKE. Governor Tarullo.

MR. TARULLO. Maybe Bill and I could supplement this a little bit, because we have been talking about this a lot in the context of B of A and Citi, but also, to some degree, Morgan

Stanley. And I think, Eric, our best understanding, which Bill may want to supplement, is that in the past, it's been very hard to conceive of anybody surviving as an investment bank with an A2/P2 rating. Bank of America may present a somewhat novel experiment, insofar as they're such a huge retail bank, with a very big liquidity base and lots of deposits and all the rest, which is associated with the investment bank, but it's by no means clear that that would be the case. So I think our expectation has been that, at best, it would be a significant challenge for B of A, and probably more than a significant challenge for Citi and Morgan, which is what's led to all of the planning by Richmond and New York over the course of eight or nine months since this first became a possibility. Bill.

VICE CHAIRMAN DUDLEY. Yes. I think we are worried about it, and I think one of the issues is, what happens to people's willingness to take that entity as a counterparty? So it's not just their own funding, it's also their transactions in, say, the OTC derivatives markets. One thing that is very hard to assess here is, what is the damage to the franchise? And how does that manifest itself over time? You could have a situation where nothing happened very dramatically on day 1 or day 90, but the franchise of the entity would erode over time. The bank's funding costs are also likely to be higher, and that's also a competitive disadvantage in terms of generating reasonable returns on equity. All of these things might have a medium- to long-term effect. I think it's a little harder to judge from historical experience, though, because usually what happens is, when you get downgraded to A2/P2, you're on your way to something even worse. And so you never really know what would happen if they were downgraded to A2/P2, but then their earnings performance subsequently improved. We just don't have a lot of examples of that type of survival.

MR. FISHER. Mr. Chairman, may I ask these two gentlemen—in the early '90s, we had a problem with several banks being downgraded in terms of their commercial paper, including Citi. They weren't as reliant on short-term funding back then as they are now, and, of course, the complexity of their business was less so. But are there any lessons we learned from that experience?

VICE CHAIRMAN DUDLEY. There's a difference between a bank and a bank holding company, and how do you fund the nonbank subsidiaries? That's really the key issue, I think.

MR. TARULLO. That's right. And the second thing is, I think there was a lesson, Richard, insofar as with all three of these institutions, there's been a heavy emphasis on liquidity preparation over the course of the past eight or nine months. The liquidity preparation doesn't do anything to address the business-model question that Bill was just describing, but it does mitigate the potential for a sudden discontinuous event.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. Questions? President Hoenig.

MR. HOENIG. I have a question on exhibit 2. It's around the discussion of why consumer spending is so sluggish, and you compared it with the three past recessions. I'd be curious, did you track, for example, the ratio of personal debt to disposable income and compare it with those three periods? Because although you say one-fourth of the mortgages are underwater, I think it could be more than that; it could be just the leverage that the consumer is working off that is slowing consumption.

MR. SLIFMAN. I did not actually do that cyclical comparison. I am going to put that on my to-do list, however, because I think it's a good point. But without having the actual facts in front of me, I would suspect that your hypothesis has a lot of plausibility to it.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. Turning to exhibit 6 on the forecasts of the external sector, my question relates to China and perhaps to Japan. What, notionally, is the confidence interval you have around those forecasts for the second half and next year—the sharp bounceback in Japan, but more importantly, perhaps, the relatively flat and still very strong growth in China. Put differently, is there any risk of a China slowdown that really does change the global outlook?

MR. REEVE. There are always risks. We're always mindful of them and looking as carefully as we can to find them. In the case of China, obviously, policymakers there have been trying to engineer a slowdown from unsustainably rapid growth. So far they seem to have done a pretty good job at doing that. One of the main indicators for that is that outstanding bank loan chart that is shown in the exhibit. There were some fears earlier this year when some soft readings were coming in; they were a little bit hard to interpret because of the lunar new year and the strange dip in retail sales and so forth. But I think a lot of people took confidence from the May readings, which showed investment picking back up and retail sales still expanding at a healthy pace. House prices, which are a big concern in a lot of cities in China, have essentially stabilized and are not either increasing at really rapid rates or in a freefall. So far, it seems like the overall pattern of macroeconomic policies that the authorities have undertaken is achieving the type of reduction in the very rapid rates of economic growth that they were looking for. And, of course, as you noted, that's our baseline forecast. There certainly are risks around it. Some people are worried about power outages later this year and other disruptions that could emerge. But so far, we actually feel quite positive on the Chinese outlook.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Back to exhibit 2 and these charts comparing the recessions of '73, '81, and '07. I've looked at charts like this myself, and my comment is that the '70s was a really volatile period in the U.S. economy, and the economy behaved very differently after 1984. It's true that these are the previous two recessions that are the most severe, but on the other hand, the economy doesn't seem to have behaved this way for 25 years, so I'm not quite sure that's the right comparison. What I try to look at instead is the period coming out of the 2001 recession and the '90–'91 recession, even though those recessions weren't as deep. And there the current recovery looks roughly similar. Although there are some differences, it does look more similar to those cases. In this recession there was a huge drop-off, which I would interpret as a bursting of a housing bubble, and then the recovery has been very similar to the last two. So that gives you a very different perspective on how to think about this recovery as opposed to looking back to the 1970s. But again, we haven't really experienced that for 25 years.

MR. SLIFMAN. Obviously, the comparisons you're talking about are ones where you, in effect, index them from the trough rather than from the peak, and the charts do look different if you were to do that. It's all in the eye of the beholder, but it would seem to me that the more relevant comparisons were to start at the peak, so that one could take in the extraordinary depth of this recession. And it was for that reason, then, that it seemed the right thing to do, to compare it with other deep recessions. But I grant you that, in some sense, it depends on the question that you are trying to address.

MR. BULLARD. I'm just saying, from a recovery perspective, I'd welcome a theory of why those recoveries look different in the earlier era than they look in the modern era.

MR. SLIFMAN. Another thing we did was to look, for example, at the residuals in spending equations at different points in the recovery. Typically at this point in a recovery, you would expect, for example, that, because of pent-up demand and deferred purchases that occurred during the recession, consumer spending would be higher than one might expect based simply on income and wealth and the usual other kinds of right-hand-side determinants, whereas now it's just the opposite. Consumption is far below what might be expected. The facts that you present are the facts, but in terms of trying to get some purchase on why this recovery just doesn't seem to be getting any traction, I think that focusing on these problems in the household sector provides some insight.

MR. BULLARD. Okay. Let me put it a little more strongly. You're pining for something that hasn't happened in a quarter-century.

MS. WILSON. Can I step in? When we've looked at the similar charts to what you've looked at for the United States, and we've included a broader range of recessions, we found that the results that were shown here hold in terms of the components. So aggregate GDP, you're right, shows up more in the middle—this current recovery indexed to the trough looks fairly in the middle of the range. But Larry's point about the weakness of consumption—as well as the unemployment rate—still holds true. The components are where you see differences. You can tell by looking at Larry's charts that if you index the trough, investment is actually going to look pretty strong now, but what you're going to see is incredible weakness in consumption as well as on the labor market side, and of course in housing. And those results still hold regardless of where you index.

MR. BULLARD. For those of you that are interested, I'll put out our advertisement. All of these kinds of charts are plotted on the St. Louis website, not just for the United States, but also for other countries, monthly and quarterly.

CHAIRMAN BERNANKE. It's a propos that President Bullard just commented that this recession followed the popping of a housing bubble. Larry Slifman made a similar comment. I think there is an important and interesting distinction between whether it was the housing bubble or the housing bubble plus the financial crisis. We have some evidence on financial crises, but we have also seen housing bubbles around the world that weren't accompanied by a financial crisis. I think Australia is one example. You may not know off the top of your head, but do we have any sense of whether recessions are very deep and recovery is very slow when there are housing bubbles popping but not a serious financial crisis?

MS. WILSON. What we've done is that we've taken a series of about 150 episodes and broken them down the way the IMF has broken them down, by various types, so we know something about financial crises and banking crises. However, there are not a huge number of observations of housing crises, and while it's very difficult to say, I'm sure that for the housing component itself, you could find a difference. Comparing banking and financial crises and normal recessions, when you index to the trough, it's extremely difficult to identify a difference in the pace of recovery. You do see differences, to some extent, in how deep or how long the recession is. But on the way up, you don't see huge differences, in the aggregate, although you see various differences in the components.

MR. SLIFMAN. Could I add one more comment? This is related to the point that President Hoenig was raising as well, and that is, we have seen in the United States other times when, regionally, there have been sizable declines in house prices. It happened in California in

the early 1990s, for example. The big difference was that, even though we had sizable declines in house prices, we did not see a spike in households having negative equity because in those days, you had to put 20 percent down. But when you put zero down and house prices fall, that's a big change. I think that's an important difference between the situation that we faced in the latter half of the past decade and previous periods of past declines.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. I have a question for Beth Anne, Mr. Chairman, if I may. When we went through your exhibit about the bond spreads and so on, I didn't hear anything about France. And the reason I mention that is because, in visiting the ECB last March, including with Mr. Trichet, the subject of the French primary deficit came up—that perhaps it is much worse than anybody really knows. Last Wednesday, which was an interesting day in the marketplace, for the first time I heard, at least from my interlocutors, some concern that this is a shoe that would drop at one point. So I wondered if you've done much work on that, if you have any insight into it, and if not, if you would be kind enough to look at it, because so much of what we have been hearing about Greece is obviously somewhat discounted in the marketplace as it seems to get worse and worse. But the one thing that would be a total surprise, if it were to occur, would be a surprise coming from the French fiscal situation, particularly given that they're an anchor country.

MS. WILSON. In terms of the fiscal situation, per se, France was running about a 7 percent headline deficit with about a 5.3 percent primary deficit last year and is expected to reduce that to 5.6 on the headline this year and 4.7 next year. So they are certainly above Germany, which is the star player here, but it doesn't look particularly disturbing. We have seen a run-up, just like many other countries, in their government debt, which went from an average of about 60 percent of GDP in the 2000 to 2006 period, and we anticipate will be about

86 percent of GDP—so, obviously rising, but not at a level that would disturb us. You may have gotten different information than what we have here, but I think what is somewhat disturbing is that France is exposed to the periphery countries, and it has a number of institutions with some high concentration in Greek debt and other peripheral debt. You're starting to see spillovers, not necessarily coming from the French fiscal situation itself, but from its exposure to the peripheries. But I wouldn't discount the political difficulties they are all facing in terms of bringing deficits down over time. At this point, we haven't heard anything, but we will certainly keep our eyes and ears open.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Yes. I just want to make an observation on the discussion following President Bullard's question, relating that discussion to our DSGE presentation. You cite low expected income growth as a cause for sluggish consumption growth. In all those models, though, it's all together. You don't have business and consumer confidence floating around as an exogenous variable. The economy is on some path, and consumers and businesses are expecting some path, and their income expectations are geared off of that. So from that point of view, looking at the household sector might lead you to look somewhere else, right? If their income prospects look poor, then you might peel back the onion. Maybe it's hiring prospects that are poor, and for some reason they are not getting hired. I wonder about your reflections on that sort of perspective.

MR. SLIFMAN. When you give a briefing, you have to give things linearly, sequentially. But obviously these things are all endogenous, and there are interactions among all of them. I think I tried to stress in my remarks that low expected income interacts with fears

about future job loss, concerns about further house price declines, and concerns about geopolitical situations—that all of these things interact with each other to affect short-term spending decisions. Yes, there is some longer-term spending path that we would expect households to converge to over time, but in the current situation, over the period that's relevant for us, I think that, for a variety of reasons, households can get thrown off those paths or choose to go off those paths for a while.

MR. LACKER. I was wondering whether some impediment to hiring would necessarily show up as lower consumer spending growth.

MR. SLIFMAN. Absolutely. Part of your consumption plan is going to be related to income, which is going to be, of course, related to labor market conditions.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. I was going to add to what President Lacker said, that I think there's a way to put Larry's comments on the situation in a DSGE framework. Think about a DSGE model that layers on more heterogeneity among households and maybe has some income uncertainty for households as well. If you think about those households as facing higher amounts of income uncertainty, possibly because of the impediments to hiring that President Lacker points to, those people are going to be engaging in more precautionary saving to buttress themselves against those risks. And then that will show up in the form of lower individual consumption, and then aggregate up to lower aggregate consumption. We live for the day when we have a DSGE model with full and complete markets and that allows for heterogeneity.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. The chart showed exports above imports. Are the imports weak relative to our actual growth rate? In other words, do we think there is import

substitution going on? And if so, how much, and how significant is it? You can have trade improvement for three reasons: One, our exports are strong; two, our economic growth is weak; and three, our imports are weak. But import substitution could be another factor. We hear a lot of anecdotal reports about the United States getting more competitive relative to China and other places. I was wondering if that is showing up at all.

MR. REEVE. Well, the way that shows through in the way we do our projections is really through the exchange rate. And, certainly, the lower value of the dollar in this projection over time is a restraining force on imports and a supportive force for exports. In that sense, I think some of that actually is occurring. But in terms of the question, are imports out of line with domestic demand growth or GDP growth? Not really. Our model, which includes U.S. activity and the exchange rate, is doing a pretty good job tracking import growth. If anything, core non-oil imports are maybe just a touch higher than that model would suggest, but not materially so.

VICE CHAIRMAN DUDLEY. Thanks.

CHAIRMAN BERNANKE. Other questions? [No response] This might be a good time to take a coffee break, and come back at 3:30 p.m.

[Coffee break]

CHAIRMAN BERNANKE. The next item on our agenda is billed as a chance for Committee discussion of financial stability issues. This represents a request from the Conference of Presidents that we have an opportunity for some discussion on this area. I would like to get to the economic go-round in time to, if at all possible, get through it today. So I am not encouraging a full go-round on financial stability. That being said, anyone who would like to make comments, observations, ask questions—I see Nellie Liang is at the table—about issues related to the financial markets and financial stability, of course, is welcome to do so. We will

solicit your views after the meeting as to whether this format is effective or if there are other ways to do it. But today, again, we will take comments from whoever would like to speak, and I have on my list here, first, President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. I would like to thank the staff for a very comprehensive overview of financial stability issues and for getting it to us early enough that we could actually digest it for this meeting. I plan to expand on a theme that has been emphasized already in the briefing materials and has been an area of focus both at the Board and elsewhere in the System; it concerns the continuing risk posed by the structure of money market mutual funds. Money market mutual funds played a pivotal role in the disruptions to short-term credit markets during the crisis. During the crisis, a credit loss resulting from Lehman at a non-bank-sponsored prime money market fund caused a run on money market funds more generally and evaporated their demand for short-term credit instruments. I fear they could play a similar role were European problems to evolve in unexpected ways.

Let me be more specific about my concerns. If one looks at the top-yielding prime money market funds on June 7, their gross yield ranges from 37 to 44 basis points—a very healthy yield for 2a-7 funds that are restricted on both maturity and duration of assets. However, of these 12 funds, 9 funds yielded a net return of 3 basis points or less for investors. As a result, taking less risk would not affect the investors who are only receiving 1 to 3 basis points, but would have an effect on the management fees. Of the 12 high-yielding prime funds, only 1 was sponsored by a bank, and it is 1 of only 2 funds to experience growth year to date among those 12. The 4 smallest funds experienced double-digit declines in assets under management.

How are these prime money market funds obtaining such high gross yields? In part, it is by taking credit risk, including to European financial institutions. Let me give just one example.

The highest-gross-yielding fund has taken a large position in Dexia CDs yielding 66 basis points, while the Ambassador Money Market Fund—the only fund to see significant year-to-date growth among these 12—holds a substantial stake in Dexia commercial paper. Dexia is partly a Belgian and French government-owned bank and has recent five-year credit default swap quotes of 326 basis points, more than double that of Citigroup and Bank of America, who we discussed earlier for possible downgrades. Dexia has a €4.3 billion direct exposure to Greece and is on credit watch for being downgraded. Note that money market fund investments are intended to be invested in highly liquid, low-credit-risk assets. The high credit default swap rates on European banks that are among the assets held by money market funds indicate that many financial market participants view these as having significant credit risk.

While the outcome of events in Europe is unclear, it seems that some money market funds are making investment decisions partly based on expectations of European government support, not unlike the assumption that was a problem for the Reserve Fund when Lehman failed without government support. However, taking credit risk with a promise of a fixed net asset value means that if they are right, they get high management fees, but if they are wrong, they risk another serious disruption to short-term credit markets in the United States. This may be a particularly acute risk given the examples I provided of funds with exposure to Dexia. Both of these funds are managed by small, independent asset managers that may not be capable of providing the noncontractual sponsor support that has served as the primary backstop to this industry.

What can we do to reduce this financial stability risk? A group of academics that met at Squam Lake have suggested capital buffers that convert funds to floating-rate NAVs if the capital buffer is breached. There are a variety of other suggestions, but two and a half years after

the run on money market funds, there still has been no agreement. Given the risk to financial stability, the Federal Reserve should be actively advocating for more progress on this issue. The Chairman and several Presidents have raised this as an issue publicly. I would hope that we will strongly encourage the SEC to take action, and, in the absence of a major change, to try to use the FSOC to encourage more aggressive action. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you, President Rosengren. I share your concern. I want you to know that we have in fact worked with the SEC, both in the FSOC as well as through a roundtable they recently held on these issues that Governor Tarullo attended, and I think we have had some effect. Certainly, Mary Schapiro is very sympathetic to the idea of some of these stronger measures, but we'll keep monitoring it, and I hope you'll keep us informed as well. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you. First of all, I want to thank the staff, Dan and Nellie. I thought that was a terrific presentation that covered a lot of material, and there were some interesting exhibits that presented the information in a way that I hadn't seen it before. It was extremely helpful.

I want to talk about two issues that I have been talking about for a while, Europe and the federal debt ceiling. On Europe, let me be very brief. I suspect that we will avoid a catastrophe in the near term as Greece reluctantly agrees to do more and the private sector participates by rolling over some debt on a "voluntary basis." But even if we get this outcome, we should not be very comfortable with where we are. The intersection of what Greece can or will do, and what the core countries demand—especially from a political perspective—continues to shrink, and we seem very close to a null set. We might not get to a null set this time, but we are not very far from getting to a null set. I can easily imagine Greece falling short of its objectives 6 to

12 months down the road, and then we will have another episode, and at that point we actually could reach the end of the road.

With respect to the debt ceiling, I would only reinforce Brian's comments. We are on a very risky course. No one knows precisely what will happen if the debt limit is not raised in a timely manner in August, but we do know it will be a mess. Not only would there be short-term disruptions to financial markets and the macroeconomy, a default, even if temporary, could have a lasting effect on U.S. debt costs and the role of the dollar as a reserve currency. So I would encourage everyone in this room to raise the alarm in their public comments and in their private discussion of this. The Chairman spoke about this issue I think quite forcefully recently. I think the more people that make it clear that this is really serious, the better. I am particularly worried because the financial markets up to now are so relaxed that the debt limit will be raised in a timely way, and I worry that this is going to give false comfort to those that think a temporary default would not be particularly harmful. And I think we really need to lean against that notion as hard as we can.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. I was going to bring this up later, but I think this is an appropriate time to ask a question raised by Vice Chairman Dudley's remarks. Even though we will come back together again in early August, is it appropriate to be doing some contingency planning around the early August period, just to know what we would do under various circumstances? I took Brian's comments earlier to be that, essentially, he's clear on operational questions, but if it turned out to be a big deal, it would be back to the Committee to have to decide how to respond.

CHAIRMAN BERNANKE. Well, either Bill or Brian can add on, but the earlier discussion that Brian led was about contingency planning from the Federal Reserve's operational

point of view, and much of that is mandated by the directive of our normal procedures. I asked Brian—and I think he is already thinking that way anyway—to consider possible actions that we might take to stabilize markets to the extent we can, with the thinking that if we came close to that time, the Committee would be able to talk about them and see what we were comfortable doing. So from the Desk’s point of view, I think we have a plan going forward.

The other consideration is, we have been strongly discouraged by the Treasury from doing the kind of planning that would involve talking to the private sector. For example, we have no idea whether the computer systems of BNY, JPMorgan, and the FICC and so on can even manage. It might be a Y2K type of event in the sense that they don’t contemplate the possibility that they wouldn’t receive principal and interest. The Treasury’s reasoning is that it doesn’t want to create too much anxiety in markets, and its view is that it intends not to default until it was unavoidable. You know, we are continuing to talk to the Treasury, and I think at some point we may just have to say, as supervisors and regulators, that we need to do this on our own, and the Treasury doesn’t have to take responsibility for it. We are, I think, very close to the point where we have to fish or cut bait on those kinds of issues. So those are the two areas where we are planning. President Lacker.

MR. LACKER. Just following up on our earlier discussion—I understand the need for stabilizing the market, but at the same time, would it make sense to contemplate a bright-line policy, like “We will not take a defaulted security”?

CHAIRMAN BERNANKE. Well, that’s something for the Committee to discuss. We have competing public policy objectives here. One of them is to avoid Armageddon in the financial market. We have done some pretty non-bright-line kinds of things in the past to avoid that Armageddon.

MR. LACKER. I would just point out that the ECB seems to have drawn a pretty bright line, but this is a very different situation.

VICE CHAIRMAN DUDLEY. I have some sympathy with what President Lacker is saying. You don't want to give comfort to make the debt default more likely. But at the same time, if a debt default were to occur, you don't want to make it much worse in terms of the consequences. You are balancing those two basic issues.

CHAIRMAN BERNANKE. I see no harm in having a list of the options, and then we can make some decisions.

MR. SACK. Yes, I think it would be useful to write out some of the Desk policy issues that could arise in coming weeks and consult with the Committee on approaches they would like to take and where you would like to draw the line. For example, I would assume we would draw the line past what you just said. I would think we would probably want to continue to take securities with delayed payments in open market operations. Excluding them could seem like a very negative market signal about how we were assessing credit quality. But we could lay all those issues out in a memo and get some guidance from the Committee.

MR. LACKER. This is obvious, but we are facing a couple of decades of fiscal stringency. If they actually cross this line, our behavior is going to set a profound precedent here. So the usual time consistency considerations tip the scale a little bit toward a solid contingency plan.

CHAIRMAN BERNANKE. Of course. I would say that I don't think there is anything we can do within our powers to prevent a default from having extremely negative consequences, if only because of the effect on expectations and the creditworthiness of the U.S. Government. Whatever we do, I don't think it's really a question of us being able to completely eliminate the

expectations factor or prevent it from being extremely stressful. All I can say is, I think we ought to discuss taking into account those expectational effects in what we are prepared to do.

President Hoenig, I have you next.

MR. HOENIG. Thank you, Mr. Chairman. I really thought this was a good report, and the chart show was enormously useful as we think about it, because one of my concerns has been that we have this fairly fragile equilibrium at these very low interest rates. You can see it come out in different forms. And I thought President Rosengren's point about money markets was right on. I think another area is the repos that are also funding longer-term assets under the guise of short-term liabilities. It is a problem that I think needs to be addressed.

In my region you see it in different ways, as I mentioned before. Agriculture is still moving very, very much toward leverage as gains are recognized and new opportunities present themselves. We are seeing it in energy, where there are now huge profits on some of these drilling projects, and they are leveraging that up for incredible turnovers. I think it's something we need to pay a lot of attention to, and I know we are. One element of the ag sector I want to mention once again is the effects of GSEs. There are two things—what they say and then what they do. And they are saying they are tightening their standards, but when you look at what the Farm Credit System is doing, it's something else. Our commercial banks and ag banks are fairly concentrated in agriculture loans, but still less concentrated than the Farm Credit System, and yet the Farm Credit System is maintaining half the reserve levels as the commercial banks are in that area; it is setting the standard, and it drives you toward the lower common denominator. So you see the leverage going up, and we are seeing big increases on a quarterly basis now in that sector. We are seeing big increases associated with energy, and then some leverage deals on energy. As they search for these returns, we are seeing the financing around money markets on a broader

scale than other repos. This is very helpful, and the use of leverage around this is going to only grow. How we work our way out of this very fragile equilibrium matters, and that's why this exit strategy, I think, was so important, that we had that discussion today, and I think it gives us, if you will, a guide for beginning to think forward on how we deal with this. This is a very good report. These are things that are emerging that we should pay attention to, and I think it will serve us all well. Thank you.

CHAIRMAN BERNANKE. Thank you. Would anyone else like to comment?

President Fisher.

MR. FISHER. On the financial stability, I do want to thank Nellie for her good work and for the work of the 70 people, as I understood your footnote, which were affiliated with it, and for the presentation we just had. I distinguish between the faucet, which is how we address monetary policy, and the sprinkler system, which is how we water the lawn of the economy. That is, we either have it distributed properly so that we don't kill it with inflation, or starve it and destroy it with deflation. I think this financial stability aspect of it is very, very important. The transmission mechanism is critical. And I do want to tip my hat to Governor Tarullo for the work he is doing in terms of "too big to fail," which to me is one of the major hindrances to the proper conduct of monetary policy—all the work he is doing on capital ratios and other aspects of getting our system right. I think it is very important that we focus on the shadow banking system and the trip wires that are out there—for example, those that Eric and the staff have pointed out—because it puts us in a very difficult position.

One of the risks that I think we need to contemplate and that I worry about is the possibility that we could have a significant selloff in the market. This wasn't discussed in terms of financial stability, but having been a market operator, I know these things can happen

sometimes inexplicably. Let's say that we had a 20 percent selloff in the S&P. What would we do? I'm going to switch here from the sprinkler system to what I call the soufflé; soufflés don't rise twice. And by that I mean that I'm not sure that we can just pour on more large-scale asset purchases or more quantitative easing. I think the impact of this, as it goes through time, becomes less and less potent. I would ask you to consider that as a financial stability risk, in addition to the specifics we have gone through in terms of the specific banks, the short-term funding of those banks, the exposure of money market mutual funds, and also some of the risks that you have in your much longer paper dealing with, say, Goldman Sachs and JPMorgan. I think this is a very valuable exercise. I don't think we can conduct monetary policy without considering how the sprinkler system works and what Rube Goldberg devices are being attached onto it or where the leaks are and what the repair mechanism needs to be. I think this should be a part of our ongoing discussions. It is so much better than we had before. When Governor Warsh was here, he would bring up certain issues, I would bring up issues, others would bring up issues—this is much more systematic. Again, I want to pat you on the back, Nellie. And if I could pat 70 other people on the back, I would. Having an organized discussion here rather than pulling out layers of anecdotal evidence that we can layer on top is very, very important. So I want that to go down as registered.

CHAIRMAN BERNANKE. I agree with you, President Fisher. I think we are making very good progress, with the intermeeting memos, the operations of the Office of Financial Stability, and these kinds of discussions. Your comments raised a useful point. At the beginning you talked about a number of things, like the shadow banking system and so on, which might be amenable to regulatory or microeconomic-type policies. I think it's important for us to have enough granularity so that we can decide when the first line of defense is appropriately

microeconomic regulation, which gives more cushion to monetary policy to focus on macroeconomic conditions. But the stock market is an example where microeconomic regulation probably wouldn't work, and we want to think about that, although I resist any Greenspan–Bernanke put ideas.

President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. Now I want to mention some anecdotal evidence, following up on something President Hoenig said. My banking supervision group and I have heard concerns expressed repeatedly from banks that specialize in ag lending about what they consider weak or lax underwriting practices being used by the Farm Credit System. Now, the Farm Credit System, when you think about the big banks in the United States, is relatively small—it's \$200 billion in assets—but it owns about one-third of all the farm debt in the United States. Its failure is an interesting thing to think about, because it wouldn't be systemic from the point of view of the U.S. economy, but it would certainly be systemic, I believe, in terms of the agricultural sector, which is often viewed as being more significant from a national perspective than its weight in the national income and product accounts would suggest.

The Farm Credit System is a government-sponsored enterprise; it raises funds by issuing debt, and that debt is highly rated, probably because it's a government-sponsored enterprise. Now, I have to say that we should take into account that our banker contacts who tell us that the Farm Credit System's underwriting practices are lax are competitors with the Farm Credit System, and their concern should be viewed in that light. At the same time, the fact that we kept hearing about this means I think that those comments are sufficiently prevalent to warrant further investigation by the Board of Governors, and perhaps by the FSOC. One thing that's worth

noting is that the FSOC has no representation from the Farm Credit Administration, who is the safety and soundness overseer for the Farm Credit System. So in some sense, there is no direct way for this to get to the attention of the FSOC. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Nellie.

MS. LIANG. This issue has come up. The FSOC and the Board have had that discussion. The FDIC is also concerned. You're right, the Farm Credit System does have about one-third of the outstanding farm credit debt. On your point about its failure, it has a huge surplus so that seems not to be an issue. But we have heard complaints about them causing community banks to loosen their standards. We have been watching it. Whether it's a systemic issue or if it's just something to point out and have examiners be aware of this issue is still in discussion, but it's good to hear it being raised again.

CHAIRMAN BERNANKE. President Rosengren.

MR. ROSENGREN. I would be interested, Mr. Chairman, from your own perspective, in how the FSOC is working and how that process is going. Do you have any observations?

CHAIRMAN BERNANKE. Well, as is often the case, all the real work gets done by the staff, and I will ask Nellie to comment in just a second. [Laughter]

We have a meeting only about every eight weeks or so. We're doing some important assigned tasks, like developing the criteria for evaluating SIFIs. We've also had some useful interactions: As I mentioned earlier, I think that the money market mutual fund discussions have moved the SEC's position and have increased the possibility of a stronger credential system for money market mutual funds. But because it only meets periodically, it doesn't have the ongoing working relationships that would be necessary for a truly interactive and effective council. That being said, of course, we have bilateral relationships with many of the members, and they've

been quite extensive in the process of Dodd–Frank rulemaking, for example. Moreover, there are many committees of the FSOC, which are made up of senior staff and even deputy principals in some cases, and my sense is that a lot is happening in those. Perhaps Nellie could give us her sense of how it is working.

MS. LIANG. Yes. There are about five or six committees that have been set up. One is the Systemic Risk Committee, and that one is very busy trying to write an annual report, which will be released, we expect, near the end of July. That’s a key committee that I think is going to form the core of what FSOC will do going forward. It wasn’t as active over the past year. Going forward, it’s designed to get staff together to discuss emerging risks they’re seeing. So you would have the SEC and the CFTC and all of the banking regulators, et cetera, get together and have discussions that will allow issues about risks to bubble. Then that committee would make decisions about what to bring to the principals for discussion. In the past year there hasn’t been a lot of discussion because there has been so much work under Dodd–Frank to finish. There has been a whole slew of studies and proposed rules to write. As a result, when the principals get together, it’s just all about approving a study or rules, without much opportunity for discussion. But I think that will change. One of the two big issues on the table right now that the principals have started to engage in, and the staff has worked quite a bit on, is the designation of the nonbank systemically important institutions. The FSOC was heavily criticized for not being very transparent about how they were going about this process. They were going to put out a proposed rule in May and pulled that back, but we’ll put out another document for comment fairly soon. We are trying put something out to the public that reduces some of the uncertainty about what institutions might be evaluated further for designation. There is a view out there that

the designation could encompass hundreds of firms; because there is just so much uncertainty, there's an effort to try to reduce some of it.

The second piece right now is the annual report. There will be a couple of sections on topics like: What does the system look like? How it has evolved since the financial crisis? There will be a big section on emerging threats. It won't sound too different from what some of you have been hearing lately in terms of what the key threats or the vulnerabilities in the system are, including bank capital, liquidity, money markets, and infrastructure. And then there are some recommendations that we're now crafting. The principals will have to make decisions about which recommendations they would want to include in the annual report and to sign the reports. That's what will be going on over the next four to six weeks.

MR. FISHER. What's the time frame?

MS. LIANG. The goal is to release something in late July. Dodd–Frank's anniversary is July 21, and something around that time is the goal.

CHAIRMAN BERNANKE. Mr. Fisher, did you have a comment?

MR. FISHER. When you say they're going to issue suggestions, are these remedies to mitigate the risk or to deal with risk if it occurs?

MS. LIANG. For example, if we were to highlight vulnerabilities—the banking system, capital cushions, short-term funding instability, for example—the recommendations could be to continue to pursue money market reforms, which probably is something that the FSOC has come to view as important because they have made a lot of progress on money markets. On the bank capital, it could be to implement the Dodd–Frank enhanced prudential standards, plus to have the supervisors continue with their CCAR exercises, the internal capital planning processes, something along those lines. These will all get negotiated over the next few months, but it would

tend to be structural, regulatory reform at this point, trying to stay away from fiscal policy and monetary policy.

CHAIRMAN BERNANKE. Other comments? [No response] All right. I hope that was helpful, and it is certainly the case that Nellie and many other people have contributed to making financial stability a more explicit part of our policy discussion. I think it's only to the good to do that. All right, we're ready now for our economic go-round, and I'll start with President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. Since our last meeting, my business contacts in New England have turned surprisingly negative. This negative sentiment particularly pertains to smaller businesses that are not seeing significant increases in demand and are deciding to put off additional hiring or investments until it is clear that we have a more self-sustaining recovery. When I press these business leaders on the causes for their change in sentiment, they focus on domestic, not international, concerns, and particularly cite that incoming data continue to surprise on the downside, and they do not see what will turn that around. Unfortunately, I share the disappointment with the incoming data. For most of this recovery, the Boston forecast, like many other forecasts, has expected that in a couple of quarters, economic growth would pick up. However, with each additional quarter we keep pushing back when the self-sustaining recovery begins. Since the beginning of the recovery, we have only grown slightly above potential, and our forecasts have been too optimistic, resulting in serially correlated errors.

What accounts for the inability of this recovery to make significant headway in reducing the significant slack in the economy? First, I think we have underestimated the financial headwinds generated by the financial crisis. The impaired balance sheet of many consumers and

businesses reduces their access to capital and makes them sufficiently risk averse that they are not anxious to take risks even if loans are available. Second, our housing policies have been unsuccessful. Housing prices are unlikely to rise as long as there's a large overhang of vacant and foreclosed homes. We need policies that return people to sustainable housing situations but quickly remove the inventory of unsold homes. Housing is one of the sources of serially correlated errors in the forecast, and our research suggests those errors explain a significant fraction of recent forecast errors, a greater fraction than can be explained by housing's share in GDP or its obvious connection to household durable goods purchases. Third, more recently we have underestimated the move to more austerity at local, state, and federal levels.

What's my current forecast? Well, the Boston forecast, once again, foresees an acceleration in economic growth in a couple of quarters. And while it's technically a self-sustaining recovery, the growth rates we envision in the out quarters continue to slip lower and lower. While such acceleration is our best guess, I am becoming less and less confident that we will actually get that outcome, and even with that forecast of accelerating growth, I'm expecting the unemployment rate to remain above 8 percent at the end of 2012.

So what about inflation? The DSGE models presented earlier had inflation in 2013 ranging from 0.3 percent to 1.5 percent. The Tealbook has inflation measured as core or total PCE at 1.5 percent in 2012. The Boston inflation forecast is a little below the Tealbook forecast. Thus, despite some increase in core inflation from extremely low levels, these forecasts all expect us to be well below 2 percent at the end of the forecast period. I would also note that some of the increase in current measured inflation is related to higher measures of owners' equivalent rent. This is striking given that mortgage rates have fallen, housing prices have fallen, and foreclosures remain elevated. So at a time of increasing affordability for new home buyers,

their reticence or inability to purchase new homes has caused a shift to rentals. I would view this as reflecting more the dysfunction of the current housing market than any significant risk that inflation in the medium term was at risk of breaching my target of 2 percent.

If these forecasts are right, we will continue to miss on both elements of our mandate for several more years. What about the risks to this forecast? I see significant risks to the downside, but I will focus only on one, the international risk. While the Europeans may manage a temporary infusion of money for Greece, I am seeing little evidence of significant mitigation of the underlying problem. The primary deficit remains problematic. The debt-to-GDP ratio continues to rise, there seems to be limited political tolerance for more austerity in Greece, and the political desire in the rest of Europe to subsidize Greece seems to be ebbing with the passing of time. Given my modal forecast and assessment of risks, it's critically important that the economy begin to grow above potential. Tomorrow I will discuss the implications of this assessment for an appropriate monetary policy that balances all of the risks in the economic recovery. Thank you.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Overall sentiment of our business contacts and directors in the Sixth District remains positive, but they are not as optimistic as they were before the last FOMC. Several directors mentioned greater uncertainty around their cautious optimism for the second half. Few of our contacts cited major changes to their plans for the remainder of the year. Among the larger contacts we spoke to, the indications of a slowdown were mixed. Those that expressed disappointment in activity levels cited causes we had heard before: higher gasoline prices that reduced shopping trips or ate into consumer discretionary spending and supply chain disruptions that affected auto manufacturing. A large package

shipping company headquartered in Atlanta—you can guess who it is—has seen a general slowing of domestic volume year to date. In contrast, the country’s largest home improvement retailer is seeing very strong traffic in sales volume, to some extent defying broad perceptions of the economy. Tourism remains quite strong across the region, both international tourists and domestic. Our New Orleans directors were notably bullish about the energy industry in the Gulf. They foresee strong activity and job growth in the coming year.

We asked a number of contacts about the pass-through of higher input costs. The atmosphere seems to have shifted from resistance on the part of major buyers to being resigned to some pass-through from suppliers, and a number of contacts across several sectors spoke of having raised prices or having plans to do so soon. One grocery chain attributed rising fresh-produce costs to higher fuel costs, and I’m hearing similar accounts from business contacts in places I wouldn’t expect. The distinction between energy and non-energy consumer goods and services that was suggested in the first draft of the policy statement may not be so neat a distinction.

Turning to the national outlook in comparison with the Tealbook, the Atlanta Bank’s forecast and the Tealbook are now essentially the same, whereas earlier there was some separation in terms of the overall trajectory, with Atlanta being more pessimistic. We decided to hold to our basic forecast path of rising economic growth and interpret the recent incoming numbers, particularly the household spending data, as a temporary setback. Our forecast incorporates a modest second-quarter number, but jumps to a GDP growth number above 3 percent in the third and fourth quarter. I actually find this an awkward moment to make a call regarding the implications of the recent disappointing data. I am “tentative” about both the growth and inflation pictures and won’t be holding to my forecast much longer if incoming data

continue to disappoint. I took note in our recent board meetings of concerns expressed by more than one director about the economy simply being on a longer-term weak growth path, say, a 2 percent economy. Also, as was mentioned earlier in the financial stability discussion, I think the shock risk has risen dramatically with the debt ceiling, Greece, and Europe, and as my question inferred earlier, the potential of a slowdown in China.

As regards the balance of risks, I assess the risks to economic growth as heavily, if not exclusively, weighted to the downside. The alternative scenarios in the Tealbook ably covered the most obvious downside risks. Regarding inflation, I think there is a reasonable chance that core inflationary pressures play out for longer than I assume as final prices come to reflect the influence of elevated commodity prices. I don't expect this to be on a protracted basis, but I'm concerned that such a story might adversely affect inflationary sentiment with uncertain follow-on effects thereafter. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

PRESIDENT PLOSSER. Thank you, Mr. Chairman. Since our last meeting, I have revised down my forecast for economic growth in 2011 from 3.2 to 2.8 percent. This adjustment is driven by obvious temporary factors, in my mind, that we have much discussed: adverse weather, floods in the Midwest, oil prices, supply chain disruptions, and concerns about the fiscal situation both in the United States and abroad. I admit that these effects are proving somewhat more persistent than I had anticipated earlier this year but still consider them largely transitory in nature. Similar to the soft patch we saw last year, I don't perceive a significant change in the underlying fundamentals that will push the economy back into a recession. I continue to expect output growth in the United States to be slightly above trend over the second half of this year and employment conditions to improve gradually.

The Third District economic conditions mirror the nation. Payroll employment growth in our three states weakened somewhat in May. Unemployment rates, though, edged down in Pennsylvania and Delaware, but inched up in New Jersey. For the three-state region, unemployment now stands at 8.2 percent, down ½ percentage point since December and almost a full percentage point below the national rate. The region's manufacturing activity weakened this month. The index of general activity has fallen over the last three months and actually turned negative in June. The indexes of new orders, shipments, and employment also weakened this month with new orders turning negative. The slowdown in activity has also weighed on regional manufacturers' expectations. Our survey is showing the same kind of behavior it showed last summer and early autumn when the economic expansion hit the soft patch. At that time, we experienced some weak positive and some negative readings in our survey for about four months before activity strengthened.

Thus, while I've changed my risk assessment around my GDP forecast from tilted to the upside to balanced, I've not changed my overall forecast for 2012 and beyond. I've been projecting a weaker pace of expansion next year all along, in contrast to the Tealbook and other private forecasters. The April Tealbook projected 2012 output growth of 4.2 percent while my forecast has been about 3 to 3.5 percent all along, which is still above trend. I didn't think we'd see as much strength in this recovery because I thought the structural changes that we're facing in this economy had to work through, and, given the nature and depth of those economic shocks, would weigh on economic growth for some time to come. The Tealbook forecast now looks like mine.

I also hear views from my directors about the financial sector—concerns about deals being done on Wall Street, sales of firms where the leverage ratios are growing, where firms are

promising financing at very, very favorable EBITDAs, and lots of leverage and lots of money to lend for deals. They're concerned that the types of deals they're seeing, in fact, look a lot like the deals that they saw before the crisis and the run-up to the crisis.

I have made little change to my inflation forecast. Both total and core inflation have accelerated significantly since the beginning of this year. Year-over-year PCE inflation has risen over 1 percentage point. Core PCE inflation has risen about 0.3 of a percentage point so far this year. In the Third District, price pressures remain high. In our June manufacturing survey, there continued to be more firms reporting increases in prices paid and received than are reporting decreases, although the indexes are down from their extreme highs we saw earlier in the year. You wanted to hear some further evidence on the ability of firms to pass on their higher input costs to their customers. In response to a special question, half of our firms told us they had been unable to pass on cost increases, and about half said they had already raised prices significantly since the beginning of the year. About 20 percent of the firms reported that they had instituted price surcharges, and 14 percent said their current contracts already contained escalation clauses. I do expect some deceleration in headline inflation over the second half of the year as oil and commodity prices stabilize or perhaps even reverse course somewhat, but not as much as in the June Tealbook. I project inflation to be around 2¼ percent in 2012, which is up from 1 percent in 2010. My forecast is higher than the Tealbook, which is projecting about 1½ percent this year. But I note that the Tealbook has consistently revised up its inflation forecast over the past six months. I found the chart on the bottom of page 33 in Tealbook, Book A, which shows the evolution of the staff forecast for inflation, pretty unsettling. We need to take seriously the possibility that we could be missing some emerging signs that medium-term inflation is accelerating. This is particularly troubling in an environment where our policy is very

accommodative. Given inflation developments and the upside risk I see to inflation forecasts, I think we may very well need to take some action to withdraw some accommodation sooner than what's priced into the funds futures market or in the Tealbook. In fact, if the current forecast plays out, I believe we may need to take action before the end of the year, which means we will need to signal that that's a possibility sooner than that.

As we discussed in the last meeting, if we were following the Taylor principle, policies should respond to changes in inflation so long as there is no reversal in the unemployment rate or output growth. As you know, I'm not a big fan of output gaps, but even in their revised forecast, the staff projects that the output gap will be down ½ percentage point this year and another full percentage point next year. Given this, the acceleration in inflation indicates that we should be acting to reduce the degree of policy accommodation. Ending redemptions is one step, but we should be prepared to take further action as well. Even when we begin to reduce the level of accommodation, policy will remain very accommodative for some time to come. A 1 percentage point funds rate is an accommodative policy. I think we should make an effort to explain this to the public and prepare them for the start of normalization. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. The latest economic news has been pretty discouraging. I have been wrestling with determining how much of the surprising information represents temporary noise or a more fundamental change in momentum. At this point I judge the recent slowing in output and employment as mostly temporary, but I regard much of the increase in core inflation this year as signaling a lasting upward shift in the path of inflation.

The uncertainty surrounding this assessment is extraordinarily high. In my view, the level of uncertainty around my outlook is higher than it was at the April meeting, and the balance

of risks is even less favorable. Let me explain my reasoning. In terms of the most likely outcomes, there are a few reasons that I view the recent slowing in the pace of the recovery as mostly temporary. First, some portion of the deceleration of GDP growth has been due to a pullback by consumers in response to past increases in food and energy prices. We're now seeing those prices level off or, in the case of gasoline, decline. So these effects should start to wane. Second, economic growth has also been temporarily slowed by disruptions to motor vehicle production and sales associated with the earthquake in Japan. Third, while the pace of job growth in May was disappointingly slow, gains were much stronger in previous months. As the temporary negatives dissipate, I expect that GDP growth will pick up to about 3 percent and remain at that rate in 2012 and 2013.

My forecast for these years continues to be more pessimistic than the Tealbook's because I continue to see the headwinds as being greater. Housing poses such a headwind. With house prices still falling and inventories still high, I don't expect residential investment to add significantly to GDP growth in the next couple of years. In contrast, the Tealbook forecasts that residential investment will grow at 6 percent next year. Through the effects of house prices on household wealth and consumer confidence, the continued woes of the housing market are also likely to hold back consumer spending, which is the key to the pace of the recovery. I expect consumer spending to expand a little more than 2 percent this year and a little more than 3 percent in 2012 and 2013. The pace of the recovery will also be slowed by cutbacks in government spending. On a medium-term basis, budget pressures likely mean that federal spending will grow more slowly than in the decade before the crisis or perhaps even fall. Many state and local governments will have to cut spending through the next year as stimulus funds from the federal government wind down and property tax revenues continue to fall. Even if

governments can avoid cutbacks, they won't be able to increase spending, as in past economic recoveries.

Turning to the inflation outlook, with gasoline prices easing off, overall consumer prices should slow in coming months. As to the underlying trend in prices, measures of core inflation, including the median and sticky price measures that are produced at the Cleveland Fed, have clearly moved higher this year. That said, in May the median and sticky price measures suggested less inflation than did the CPI excluding food and energy. Whether the broader increases in core inflation will last or lead to yet higher inflation is uncertain. The Tealbook interprets a fair chunk of the recent increase as temporary, and forecasts have fallen for core inflation from 2011 to 2012 in response to a large output gap and other forces. I'm instead inclined to treat the increase in core inflation this year as an upward shift in the path of inflation, although it does not signal an ongoing rise in inflation. I expect PCE inflation to gradually rise from about 1½ percent in 2011 to 2 percent over the next two years.

I base this inflation assessment on a few key factors. First, I have shifted the path of inflation up in light of the historical sluggishness of inflation, which suggests a lasting effect of the increase in core inflation this year. Also, the historical tendency for core inflation to rise during economic recoveries leads me to expect increases over the next few years. The reasons I expect only a small increase in inflation are that longer-term inflation expectations remain stable and labor cost pressures are very subdued. According to the model maintained by my staff, inflation expectations a few years forward have recently dipped a little and remain below 2 percent. With unemployment still very high, growth in labor costs is likely to remain low. New research done by my staff shows that recessions have long-lasting effects on growth in compensation.

I'll conclude by returning to the considerable uncertainty surrounding my outlook. While I've been saying uncertainty is elevated for the past few years, I believe that the level of uncertainty surrounding the economic growth outlook has increased since the last meeting. I base this assessment in part on the string of disappointing data releases and in part on the reports from my business contacts. A number of my contacts noted a growing sense of unease in the business community, and some reported a sharp falloff in activity in the past month. At this point my contacts haven't reacted too much to the swing in sentiment, but an increase in uncertainty makes a further erosion of business and consumer confidence a significant risk.

At the same time that the level of uncertainty has risen, the balance of risk has shifted in an unfavorable direction. In my view, the risks for GDP growth have shifted to the downside for some of the reasons I just mentioned, but in my view, the risk to inflation remains tilted to the upside. I worry that core inflation could continue to increase more than projected, especially if I prove to be wrong on the direction of energy and other commodity prices or if longer-term inflation expectations become unanchored. As we'll no doubt discuss in the policy go-round, these recent changes in risks have added to the challenges for monetary policy. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. The Eighth District economy is showing some signs of a slowdown consistent with recent developments in the national economy. However, the June data, where available, do seem to indicate better business conditions going forward. Transportation companies in particular reported good business in the first weeks of June. Large firms remain lean and profitable, with plenty of cash. They are looking for opportunities to expand to take advantage of the continuing boom in Asia. The agricultural

industry in the District has been slowed by a wet spring, but poor weather has not so far been enough to hamper the outlook for agribusiness income in 2011. The recent pullback in commodity prices is likely to be helpful for many District businesses, as it means more disposable income for households. It appears that the recent experience with \$4 per gallon gasoline did not significantly dent volumes at a major convenience store retail chain.

The District experience with consumer behavior and response to gas prices provides a small piece of evidence that Hamilton is right. Jim Hamilton, from the University of California–San Diego, has argued over many years that an oil price shock must send the price of oil significantly higher than recently experienced in order to really alter household behavior in a large enough way to send the economy into a prolonged downturn. And \$4 per gallon gas has reduced disposable income for other purchases, to be sure, but does not appear to have caused a wholesale change in household behavior as it did in 2008. Partly because of this, it seems reasonable to me to look through the recent weakness in U.S. data toward better prospects for the second half of this year.

The U.S. economic outlook has been weighed down during the spring because of four global events, any one of which could develop into a significant global macroeconomic shock. I think none of the four will actually become a shock large enough to put the United States into recession. However, we have worked our way through only two and one-half of these events. The events are Japan, oil price increases due to disruptions in supply coming from the Middle East, the European sovereign debt crisis, and the U.S. fiscal situation. The effects of the disaster in Japan, while more significant than I had originally thought, are now fading and are projected to be temporary. Commodity prices are retreating, as we sit here at this meeting. Europe is in the process of trying to resolve its way through the latest hurdle, but remains worrying as several,

including Vice Chairman Dudley, have commented already. There are certainly worrying questions about the willingness of Greece to repay under any conditions. There's no real longer-term solution on the table. I think restructuring will eventually be necessary. I think it can be carried off effectively, but right now it seems quite difficult to do without causing a global crisis or further crisis in Europe. Despite all this, I think a temporary solution is likely and will push this off to some future date. On the U.S. fiscal situation, I think a deal is possible and likely, but that event lies a little bit ahead of where we sit today. All in all, I think this assessment augurs for looking through the current weakness. The slowdown that we have seen so far in the United States this year does not strike me as being as severe as the one last summer that led to further easing by this Committee.

The prognosis for a second-half resurgence and a resolution of remaining key risks requires patience on the part of the Committee. We will have to wait and see whether stronger data materialize or are confirmed before we can evaluate the situation further. That puts the Committee in a "wait and see" mode for the time being. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker

MR. LACKER. Thank you, Mr. Chairman. Since the last meeting, we've continued to see a flow of soft economic reports: Retail sales, payroll employment, personal income, and national and regional manufacturing indexes have all been disappointing. It looks to us like a temporary soft patch in an otherwise recovering economy, and information from our District contacts supports that idea. Survey respondents have been mentioning the Japanese earthquake and tsunami, and most expect the effects to dissipate. This month we've heard reports of increased sales from manufacturers that are active in global markets as well as those supplying stronger sectors of the domestic economy, such as energy, transportation, and medical research.

And the composite index for Fifth District manufacturing, which fell sharply by 16 points in May to a reading of minus 6, actually ticked up 11 points at least so far in our preliminary numbers, which are almost all complete, for our June report that's due to be released next week some time. Reports from our region are consistent with this recent sluggishness being more of a temporarily lull than a protracted slowdown.

There are a number of one-time factors you can point to that can plausibly explain the soft patch being temporary. In addition to supply disruptions related to the Japanese disaster, there's the run-up and recent easing in gasoline prices and the spate of adverse weather. Others have mentioned these around the table. Soft patches are not unusual in growing economies, and some potential sources of strength remain. The fundamentals for export demand continue to look reasonably promising, and business investment demand continues to advance despite relatively modest overall sales growth. This is the second major soft patch in this recovery, and that makes it even more disappointing. When the recovery began in mid-2009, some economists hoped it would be relatively rapid, comparable in pace with the recoveries following other deep recessions, like the two that Larry Slifman showed us earlier. We did see a decent pickup in GDP growth in early 2010, and that prompted discussions of our exit strategy. In the fall, though, disinflation and a weakening growth outlook prompted our QE2 asset purchase program. But as the year ended, consumer spending firmed and the pace of employment gains increased, and that provided some grounds for optimism that economic growth was finally picking up, but now once again we're seeing slower growth than we had hoped.

It's easy to see why you would have expected a more robust recovery two years ago. Real GDP in the U.S. has shown a remarkable tendency, going back over 140 years, to return to a simple trend line corresponding to 3 percent annual growth. The exceptions, of course, are the

Depression and the period in World War II where it went above that line. But other than that, it generally goes back to that line and sticks remarkably close to it. That suggests that sharp declines are going to be followed by growth more rapid than trend—that is, significantly above 3 percent growth. But as the staff presentation makes clear, that's not what we've seen; that's not what we've gotten so far. Real GDP growth has averaged just $2\frac{3}{4}$ percent over the last two years, and the level of employment is almost 5 percent below its cyclical peak. In contrast, two years after the big recessions of '73–'74 and '81–'82, which Larry Slifman showed earlier, real GDP growth had averaged more than 5 percent per year, and employment was about 4 percent higher than the previous cyclical peak. We seem to have had the worst of both worlds—a sharp, deep recession, as in the pre–Great Moderation era, together with a sluggish recovery, more typical of the Great Moderation era.

Obviously, if real GDP grows only around 3 percent, it will never catch up with that trend line. In that case, real GDP would trace out a parallel trend line that lies significantly below the one we've been on or around for 140 years. Even if growth gradually rises toward 4 percent over the next year or two, as in the Tealbook, it will still look as if our economy has experienced a downward shift to a new, much lower trend line. Now, admittedly, this type of large, highly persistent step-down in real GDP happens very rarely in the historical record, but for several decades now, many other developed economies have been tracking a trend line that's lower than ours—parallel but lower than ours. If you plot per capita GDP for OECD countries, the ones in Europe and Japan, which suffered in World War II, have come back growing more rapidly than ours but seem to have converged to a trend line that's at a parallel level below ours. One explanation that's been offered for the level difference between per capita measures for Europe

and the United States is differences in tax and regulatory regimes that increase the cost of doing business in those countries.

It's also been suggested that the United States could now be in the midst of a transition to a more European type of policy mix. This would be consistent with the widespread anecdotal reports we've been getting for a year and a half about regulatory and tax changes that discourage business expansion. It's also consistent with our earlier discussion about sluggish consumer spending growth and was the motivation for my question about whether some impediments to hiring like regulatory and tax policy could be resulting in lower income growth which, of course, shows up in lower consumption growth. If policy changes are having such macroeconomic effects, we may need to accommodate ourselves, since they're outside of our control, to a persistently lower path for per capita output for some time to come. Now, there's certainly no conclusive evidence or proof that this is the case, but I think it's hard to rule out this disheartening possibility, given what we know. It's worth noting that to the extent that economic growth is being held back by the evolution of tax and regulatory policies in the United States, there would be virtually nothing monetary policy can do to correct the problem. Moreover, if we misdiagnose the problem as a deficiency of aggregate demand and adopted stimulative monetary policy to try and correct it, we would just raise the inflation rate and have little lasting effect on growth.

The current economic weakness is occurring alongside of a reversal of disinflation. Last year, year-over-year core PCE inflation declined from 1½ percent to 0.7 percent from April to December but then reversed—it's risen to 1 percent. And over the past three months, core PCE inflation has been running at an annual rate of about 2.3 percent. There isn't much to suggest, as President Obama argued, that this increase was driven by transitory factors. In that case, I agree

with President Pinalto. This looks like a fairly persistent step-up. In this connection, I think the evolution of the forecast on page 33 is pretty interesting. It shows that since last fall, the core inflation forecast has been steadily revised upward, but the forecast for real GDP has been revised down a little bit on net. The GDP forecast was revised down through September, and then in November, under the assumption of the QE2, it was revised up. However, since then it has been revised down again, and that's consistent with the notion that perhaps QE2 had very little lasting effect on economic growth but, if anything, just raised inflation. It also suggests that further stimulus aimed at pumping up real growth would be futile and would risk raising inflation too high.

CHAIRMAN BERNANKE. Thank you. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. The intermeeting data have been worrisome. The extent of the bad news is starkly evident in the Tealbook projection, which shows a steep downward revision to growth this year and next—a remarkably large revision for just two months. Furthermore, despite the deep cuts to the output projection, the Tealbook has also shifted to a downside skew to the risks of the growth outlook. This combination of a downward modal revision to the growth forecast and downside risk assessment is a truly sobering development, but it's consistent with what we see in financial markets, such as lower Treasury yields, the faltering stock market, and the rise in high-yield bond spreads since our last meeting. The key question for the outlook for both output and inflation is how much of the recent news is transitory and how much reflects more lasting influences, clearly what a number of you have already been referring to. Now, I agree that many transitory factors have been working to push down output during the first half of this year. These include unseasonably cold and snowy winter weather, Japan-related supply disruptions, and the spike in energy costs,

especially the \$4 per gallon gasoline, which I think we still have in California even today. Indeed, my business contacts trace much of the source of the first-half moderation in consumer spending to this spike in energy prices. They refer to both the direct hit to disposable income, but also the psychological punch to confidence that staggered consumers. In this regard, the substantial decline in oil prices and now, more recently, gas prices since our April meeting should help.

I remain stubbornly confident that the economy will bounce back from its recent stumbles. The recovery appears intact, though with significantly less underlying momentum than I had previously thought. Like the Tealbook, I expect economic growth to pick up in the third quarter of this year and to average about 3½ percent over the second half of this year and next year. With this return to above-trend growth, I expect to see renewed improvement in labor market conditions.

My business contacts provide two notes of optimism. First, my contact at a major Japanese auto maker reports that the Japanese auto industry is returning output to pre-crisis levels more quickly than initially estimated. Some plants are already operating at 90 percent of pre-crisis levels, and they're expected to be at full capacity shortly. Second, my contacts are quite enthusiastic about the economic boom developing in Silicon Valley. To give just one indicator, home prices in the Palo Alto–Cupertino area are up double digits from a year ago. New IPOs for private-share sales for LinkedIn, Facebook, Twitter, and other social media companies are providing a shower of cash. But we're nowhere near the craziness of the dot.com era of the 1990s—well, at least not yet. My contacts stress several important differences between the current episode and the dot.com bubble. First, any bubble-like exuberance is limited to a relatively small set of companies, and even these generally have solid customer bases,

revenues, and in some cases, even profits. For example, Facebook, with reportedly well over 600 million users worldwide, is no Pets.com. Furthermore, the broader tech sector, including, for example, Cisco and Intel, has matured considerably over the past decade. Some of the most actively traded tech stocks have valuations that seem reasonable, certainly by comparison with the levels of the dot.com era. Finally, my contacts describe a very different financing environment. The amount of venture capital in play is on par with its pre-crisis level, well below the dot.com surge, and a healthy dose of investor skepticism is evident. Importantly, from a policy perspective, I hear of no indication that near-zero interest rates are fueling the bubble in the venture capital sector.

Turning to inflation—and I guess this is my defense of core inflation—the story in the first half of this year was a sizable bump-up in headline inflation, and the second-half story may well be falling oil prices and an undershooting of headline inflation. These extreme movements in oil prices over the past few years reflect the underlying economics of inelastic short-run supply and demand in this market. Such idiosyncratic volatility is a reason energy prices are typically stripped out to formulate measures of underlying inflation. Indeed, research shows that including the measure of underlying inflation in forecasting models helps in forecasting headline inflation, and this result holds across a variety of samples and specifications. Various alternatives measures of underlying inflation all perform about equally well. The simplest of these—that’s the ex food and energy core—I find to be a useful series to keep an eye on. It’s also completely consistent with how we treat a variety of macroeconomic series. We look at core capital goods, which exclude the volatile aircraft and defense categories, and core retail sales numbers. Of course, I’m not—and I don’t think anyone is—arguing that core inflation

should be the goal for policy. It's simply that core inflation has proven useful in forecasting overall inflation and provides a straightforward summary statistic for underlying inflation.

Let me turn to how I'm interpreting recent inflation numbers. Despite the dramatic fall in oil prices since our last meeting, I'm actually a bit more worried about the outlook for inflation, much along the lines of President Pianalto, and that's because of the somewhat firmer readings we have gotten on core inflation in recent months. It appears that there has been somewhat more pass-through of import and commodity prices into the core measures than we anticipated, and similar to the report from President Lockhart, my contacts have repeatedly stressed the pressures they are facing from higher raw materials costs, energy and transportation costs, and price increases from China. Still, they see recent price increases as a result of a confluence of a number of factors that are raising the level of prices rather than indications of a much higher inflation trend. This view is consistent with market-based measures of inflation expectations having retraced their increases from earlier this year. Therefore, looking ahead to next year, I see both headline and core inflation settling in at around 1½ percent.

In sum, looking through the temporary factors affecting output and inflation, I expect the recovery to continue, albeit at a more muted pace, and inflation to return to levels below my preferred long-run goal of 2 percent. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. As widely noted, we've hit another soft patch. The key question is, what are the causes? Only by understanding the reasons for the soft patch can we gain confidence about its duration and the medium-term trajectory of the economy. It's clear that some special temporary factors played a role. First, the run-up in gasoline prices crimped real disposable income, and this weighed on consumer spending and

confidence. Supply disruptions stemming from the Japanese catastrophe limited motor vehicle output, and may have also depressed demand, as incentives were cut and some popular models were in short supply. In addition, there is considerable sentiment for the view that the ongoing housing market mess has played a role, with renewed weakness in home prices crimping household wealth and dampening confidence. And the price declines may have caused prospective home buyers to hold off, even though housing affordability has improved dramatically over the past few years. Bankers and other business people we talked to also cite regulatory uncertainty, although it's hard to see why, if this were indeed important, it would bite so abruptly.

Regardless of the cause, the weakness of the economy has to be viewed as quite striking at a time when monetary policy is viewed as very stimulative and the healing process following the crisis is evident in a number of areas, including household debt service burdens and credit availability. I would argue that there is a bit of a puzzle here. I'd like to suggest that there may be another factor—namely, monetary policy may not be as stimulative as we think it is. In this regard, I'm not arguing that monetary stimulus is less powerful than normal because of the housing mess or the fact that there are still necessary balance sheet adjustments in train. I'm making a different argument—that the degree by which monetary policy at a given accommodative setting stimulates real economic activity may diminish over time. This is not something that we've had much experience with, because normally the economy responds quite rapidly to easier monetary conditions. As a result, this will not show up empirically very clearly in our models or via econometric estimation. Put simply, we typically don't stay at very accommodative settings very long, so we don't have much empirical evidence by which to judge this.

Let me explain what I mean in a bit more detail. Monetary policy at a given setting might provide less lift to the economy over time because either the linkage between the federal funds rate and financial conditions or the linkage between financial conditions and the real economy may weaken over time. For example, as short-term interest rates stay low, the yield curve will flatten and stock prices will rise, but eventually the yield curve will have a more normal shape and the stimulative effects of monetary policy will peter out. Japan would be a good example of this. Similarly, the effects of easier financial conditions on aggregate demand may also diminish over time. Consider, for example, the prospective homebuyer or car purchaser who responds to a drop in interest rates by moving up the timing of the purchase. The homebuyer or car purchaser who purchases today will then not purchase tomorrow. To the extent that monetary policy influences the timing of purchases, its effects will peter out over time.

If I am correct that the degree of stimulus at a given rate setting to the economy lessens over time, this has a number of important implications. First, we might need to increase our degree of accommodation to have the same desired effect as earlier. Of course, this may not be easy to do at the zero lower bound and with an already enlarged balance sheet. If we cannot or will not do more, we should expect the recovery to be less robust because monetary policy has lost some of its power. Second, it implies that exit might need to wait until later because monetary policy will become less stimulative over time just as a natural matter of course. There may be less reason to exit early because the degree of monetary policy stimulus naturally wears off over time. Third, early tightening might actually exert considerably more restraint than we anticipate if policy is not providing that much of an impetus to economic growth at present. We don't have much experience sitting at the zero lower bound for years, and I hope we won't repeat

this in the future. That's why I think we must be open-minded and challenge our assumptions that the current stance of monetary policy is as stimulative as we think it is. I have encouraged my staff to work on this issue, and I would encourage others to do so as well. Thank you.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. First of all, our region has slowed as others have around the May–June time period. We are seeing some pickup more recently. Our regional factory activity has decelerated a little more than we thought it would, but it has appeared to stabilize, and we've seen some real pickup in our technology industry, especially in the communications sector. Certainly energy remains strong and agriculture remains strong, with very sizable profits in those sectors.

Turning to the national economy, I do expect that the outlook over the next several years is one of moderate growth for GDP. I think that reflects the fact that we are going through a necessary rebalancing due to both demographics and leverage, as households, especially an entire generation, are saying, "I want to get this debt off my balance sheet." And we have a younger generation that had too much and has to get it off the balance sheet, and they're pulling back. Businesses are repositioning themselves, and certainly local governments have to get rid of a lot of commitments and a lot of debt. The federal government is the only exception to that at the moment, and we see what they're doing with that. I do, though, expect a resumption of moderate growth. I think it's a testament to this economy that, given the amount of leverage we are trying to work our way through, we have seen economic growth at 2½ to 3 percent. As far as inflation goes, I think it's inevitable as long as we keep our policy as accommodative as it is. It will slowly—not rapidly, but slowly—increase, and we will have to watch that as we go forward from here. In terms of the risks, I think they're real. I think we have a very fragile equilibrium.

If you think about how many things we're worried about that could draw us back into a slowdown, it's pretty amazing. And when a situation in a country the size of Greece has the world at risk, we know how fragile this economy of ours is, global and nationally.

Solutions are not simple, I realize, and I know that's a discussion for tomorrow, but I'm not sure that keeping ourselves in this highly accommodative situation indefinitely will do anything but make it more fragile to where something very minor will tip us back, and that's what we have to be mindful of. Thank you.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. Like the Tealbook, I believe there has been a slowdown of the pace of the recovery since our last meeting, and I think this slowdown has been influenced by temporary factors—factors that will reverse themselves in the months to come. My forecast for real GDP growth is similar to the Tealbook. I'm expecting growth to accelerate to close to 3½ percent over the second half of 2011, and I'm expecting growth to be between 3½ and 4 percent over the course of 2012. My relative optimism is shared by Ninth District business contacts. We'll be releasing a midyear business poll in our *fedgazette* later this month. That poll shows continued moderate improvement in business conditions in the Ninth District over the past year, with broad-based increases in sales and employment. Consistent with my national forecast, respondents in our District predict that the next 12 months will be even better. They indicate, too, that labor markets are relatively slack. By and large, they are finding that workers are widely available with muted wage pressures, and to put that in context, I should add that unemployment in our District is well under 7 percent. Firms do expect to expand hiring in the coming 12 months, and that labor markets will tighten slightly.

The poll also shows that firms expect to be able to raise prices over the next 12 months. This finding is consistent with what I see as the national inflation story. Over the past six months, annualized core PCE inflation was 1½ percent; this is a sharp acceleration of the rate of inflation. From April to October 2010, annualized PCE core inflation was 0.6 percent. Such a rapid rate of increase in six-month PCE core inflation has occurred but twice in the past 15 years. Other more broadly based measures of inflation paint a similar picture. The trimmed mean PCE inflation calculated by the Dallas Fed was 1.7 percent from October 2010 to April 2011. The median CPI reported by the Cleveland Fed was 0.9 percent from April to October of 2010 and then rose to 1.9 percent, annualized, from October 2010 to April 2011. Like the Tealbook, I do expect core PCE inflation to be 1.7 percent over the course of 2011, but unlike the Tealbook, I see core inflation accelerating still further into 2012, and I think this is a symptom of the fact that I see potential output as being lower than the Tealbook does, perhaps for some of the reasons that President Lacker mentioned.

The behavior of inflation points to diminution of slack in the economy over the past six months, and I think that the behavior of labor markets also does. Unemployment has fallen from 9.8 percent in November 2010 to 9.1 percent in May 2011. Roughly half of this decline is accounted for by people finding jobs. The employment-to-population ratio has risen—small, but it has risen—by 0.2 percentage point. The rest of the decline in unemployment is due to people leaving the labor force. Now, a key question is: Are the people who departed the labor force waiting on the sidelines to jump back in when conditions improve? The Bureau of Labor Statistics provides monthly estimates of the number of people who are marginally attached to the labor force—more formally, those who were not currently looking for work but who would like to work and have looked for work in the past 12 months. That number has fallen by 9 percent

over the past half-year. This is suggestive that many of the recent departures from the labor force will not be temporary. More generally, as the unemployment rate falls, people find jobs or people decide that they're no longer available for work, and both of these decisions reduce the pool of available workers for a firm looking to hire. From the point of view of monetary policy, both kinds of decisions work in the same direction: They increase wage and inflationary pressures. That's why forecasting models tend to use the unemployment rate and not labor force participation as a predictor of future inflation.

I fear these recent data are reflective of longer-term uncertainties. Like most of you, I believe that the unemployment rate will fall back to between 5 and 6 percent by 2016, and in that sense, I do think labor market slack will normalize, but I am highly uncertain about how that reduction will be accomplished. Will the unemployed find jobs or will they leave the labor force permanently? The answer to this question is a critical one for the United States economy and for our thinking about monetary policy because it really will shape the longer-run behavior of what we consider to be potential output. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. The incoming data clearly show a reduction in the recovery's already modest momentum. In particular, the revisions to income, weak jobs and claims numbers in May, and the softness in second-quarter consumer spending throw cold water on my previously more optimistic forecast for a strengthening in aggregate demand. At this time it's hard to tell how persistent this weakness will be. My business contacts say their own businesses are still doing well. Indeed, several large manufacturers, like Caterpillar and Deere, continue to register very strong sales.

Like the Boston outlook, our baseline scenario is that economic growth will inevitably pick up to average about a 3¾ percent pace in the second half of this year and in 2012. These rates are down three or four tenths from our last projection. Nevertheless it's easier to see the downside risks to the forecast than the upside potential. An important ingredient in my 3½ to 4 percent recovery rate is stronger consumer expenditures. Such pickup requires more robust job growth to kick spending into a higher gear. The labor market, though, is a continuing risk. I only heard a few firms talking about hiring more permanent workers. My contacts basically repeated their mantra: Businesses will continue to emphasize productivity gains and keep labor costs flexible. Translation: No robust hiring is planned.

More generally, uncertainty is substantial. Businesses have become more concerned about the economic landscape, but things are still only at the worrying stage, so the actual impediment to growth remains small for the moment. Substantial problems due to a financial distress cascade in Europe are still seen by nonfinancial firms as a vague tail risk. The U.S. budget debate is also adding to the climate of uncertainty and caution. To summarize my feelings about economic growth, writing down a forecast of 3¾ percent over the next 18 months continues to be a nice intellectual exercise in the power of positive thinking. [Laughter]

With regard to inflation, I admit that a case can be made that today there is more reason to worry that underlying inflation could be headed higher. After all, we've had the recent increase in core inflation piled on top of the already higher overall index. But I would like to stop at this point and, in line with President Williams, defend what I'm talking about in terms of underlying inflation. Recently in the press and other places, it seems like it's almost a dirty word to mention the core CPI or underlying inflation. To me, underlying inflation is the component of total inflation that's persistent and useful for forecasting inflation over the medium term. I agree

that this is a pretty common concept in so many other things that we do for forecasting the real economy, like core orders and things like that. My view is that the core and median CPI, PCE, and trimmed mean fit this characterization, and they're very helpful for forecasting inflation.

We convened our academic advisory council last week, and many of the participants were uncomfortable with our assessment that inflation expectations remained well anchored, and disconcertingly, even the most ardent efficient marketer among them didn't think we could rely on financial market data or other such indicators to provide reliable forewarning that inflation was going to take off. This viewpoint I find maddeningly short on actionable state-contingent triggers. People just throw up their hands and don't really help me think about what we should be looking at, no matter how hard I press them.

Having noted these inflation worries, the recent higher inflation data have caused most of our inflation models to revise up a bit, but nearly all still generate forecasts for total inflation well below 2 percent in 2013. Interestingly, the model that focuses most squarely on financial market data, the one that uses the term structure of Treasury interest rates, has a noticeable bump-up in core inflation to 1¾ percent in 2011, but then sees core inflation coming down to 1¼ percent by 2013. I'm sure that these dynamics would be the same for other measures of underlying inflation, such as the median and trimmed mean measures. This model builds an overall inflation forecast by adding in expected price changes for food and energy, and that analysis projects total PCE inflation over the medium term will be well below my 2 percent goal. I just do not see the medium-term risk to inflation as accelerating, as others have mentioned. Indeed, the model's 2013 inflation projection is a bit below its previous forecast. This reflects the decline in nominal interest rates we've seen in this period, as well as TIPS breakevens, inflation swaps, and inflation caps. They all suggest that financial markets are not expecting an

outbreak of inflation. After putting all of our model and anecdotal information together, we submitted a forecast that has both overall and core inflation coming down to about 1½ percent in 2012 and staying there in 2013. Now, there are upside risks to this inflation forecast, but inflation continues to be below what I think of as our goal, 2 percent over the medium term, and I think that we should be symmetric in our attitudes toward these policy losses. After all, I think of 2 percent as a goal, not a catastrophe or a ceiling. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you very much. President Fisher.

MR. FISHER. Mr. Chairman, I am going to dispense with my usual sunshine report about my Federal Reserve District, if only for fears that the governor of Texas will run around saying we've created 3 trillion percent of the jobs—[laughter]—in America, but with one exception. I want to say that whatever momentum President Pinalto has in her District is solely due to the fact that the Dallas Mavericks trashed LeBron James and the Miami Heat. [Laughter]

Very quickly, Mr. Chairman, what I'm hearing is that liquidity is not an issue. I have talked about that before; I won't repeat it. There is no question that the rate of the recovery has slowed, and I just want to make a few comments on this inflation discussion that we have heard from many of our colleagues. With regard to the trimmed mean, which, as you know, is our guidepost in terms of the PCE inflation, the fraction of prices declining has come down to 29 percent in the last PCE measurement. In two of the last three months, the number of components increasing at a rate greater than 2 percent have exceeded 50 percent, and that number has been near 50 percent in three of the last four months. Having said that, we have seen a rise in the trimmed mean, but over the last 12-month period, and even the 6-month period, we are really still talking about 1½ to 2 percent. So it has risen from 1, or actually from 0.9.

The anecdotal evidence is something of a cognitive dissonance message. Going back to President Lockhart's initial intervention, we are hearing from the big-box retailers that they are indeed passing through price increases. In one particular instance, starting at the end of June, 40 to 50 percent of their entire product line will put through price increases of between 5 and 8 percent. Dissonance comes from those with alternative business models. Dollar General, for example, has made it clear it is just going to eat into its margin to buy market share, so there's a bit of a tug of war taking place. We are hearing constant concerns about escalating prices in China due to not only wage increases in an effort to push people inland, but also the transportation differentials and the structural changes associated with the infrastructure of moving inland; you are still running at 15 to 18 percent in terms of adjusted labor costs. The good news is that people are looking elsewhere in terms of changing their supply chains and are doing so rather quickly. This puts Mexico, by the way, despite its crime problem, in a much better light. I was reminded at the last meeting that I have to be careful about using anecdotal evidence, but I think it's not clear yet whether or not these companies will succeed in pushing through these price increases. Yet significant price increases, on the order of 5 to 8 percent, are indeed planned at present on some basic products, ranging from diapers to paper products to essentials. We'll have to see what happens, because I think that might affect inflationary expectations.

With regard to job creation, one of the things that I am concerned about is the constant effort by businesses to enhance productivity. This was mentioned earlier, I believe, by President Evans. Again, they're using inexpensive money, widely available capital, to continue to drive their productivity—and I know the numbers have come down—to try to do as much work and have as much output in goods and services with the least amount of human labor possible. So I

remain very concerned about job creation in the United States. And I think this dampening of demand and this slowdown that we have all discussed here may further that process and retard the process of job creation. I will report one thing I have noticed in my own sampling of anecdotal evidence from the CEOs and have now heard from other people. For example, Ivan Seidenberg's last act as the head of the Business Roundtable was to instruct the staff to reduce the estimations of cap-ex and headcount, because what both of us have noticed is that those that operate internationally seem to be much more optimistic about the United States than those that operate solely in the United States. So I am worried about job creation. I do note that there's a tug of war taking place on the price front. It is driven not simply by commodity prices, and I think that still needs to be resolved. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. Like everyone around this table, I grappled with two main questions in developing my forecast for this round. First, does the unanticipated weakness in economic activity evidenced since April represent a temporary soft patch or, instead, a more significant and disturbing absence or loss of momentum? And second, does the recent escalation in inflation represent a temporary bulge or, instead, portend a more persistent upward shift in the medium-term inflation outlook? I found the second question easier to answer than the first, so let me start with inflation.

The key question bearing on the medium-term inflation outlook is how to account for the very substantial increase we have seen in core. For example, core PCE inflation in the three months ending in April, and core CPI inflation in the three months ending in May, were 1.9 percent and 2.5 percent, respectively. And that contrasts with 0.8 percent and 0.6 percent inflation for the same indexes in 2010. Delving into the details, it appears that a large fraction of

this increase was attributable to surging commodity and food prices and the Japanese supply disruptions. In particular, exceptionally large increases in the PCE prices of transportation, restaurant services, and motor vehicles and parts explain a substantial fraction of the run-up in the core PCE. A whopping 0.8 percentage point of the roughly 2 percentage point step-up in core CPI inflation reflected higher prices of new and used motor vehicles. With popular models in short supply, there has apparently been less discounting and fewer incentives, and pressures have spilled over to the used car market. We should also not be surprised to see limited pass-through of recent commodity price increases in a broad array of non-energy goods and services. Our directors and business contacts have told us consistently that they intend to pass higher input costs on to their consumers, and it seems obvious from the data that they have succeeded. Importantly, commodity prices have stabilized, even receded a bit, and Japanese production has come quickly back on line, so these pressures on core should dissipate going forward. With stable longer-term inflation expectations, minimal cost pressure from wages, moderate productivity gains, and a higher projected path for unemployment, I anticipate, in line with the Tealbook, that inflation over the forecast period horizon will decline below the 2 percent level I consider most consistent with our dual mandate.

Turning to the weakness in spending, I had a much harder time deciding how large a share to attribute to rising food and energy prices and the Japanese supply disruptions. Higher food and gas prices have taken an obvious toll on cash-strapped consumers. This is evident in anecdotal reports indicating that businesses catering to lower-income consumers have seen particularly large declines in sales. The response of consumer spending to the increase in higher food and energy prices may have been abnormally large in recent months, given that a sizable fraction of households are currently underwater in their mortgages and heavily credit and

liquidity constrained. And with exceptionally high unemployment, many households may be unable or reluctant to respond by tapping precautionary savings. However, with commodity prices having stabilized, even receding slightly, and Japanese production coming back on line, it seems reasonable to project that the growth rate of consumer spending will pick up noticeably in coming quarters. That said, I followed the Tealbook's lead and lowered slightly my medium-term economic growth forecast in response to incoming data. I also revised my risk assessment relating to growth from balanced to skewed to the downside. These revisions reflect the broad-based character of the recent weakness and my growing concern that business confidence is eroding, causing firms to put plans for capital projects and hiring on hold—a response I see as exacerbating the slowdown and creating the potential for a self-fulfilling negative feedback loop to develop, a phenomenon that could cause the recovery to stall.

During the past month or so, I have met with Reserve Bank directors here at the Board and on a visit to Cleveland, and I have been carefully reading the reports that the Reserve Bank presidents submit in conjunction with your discount rate requests. The two words that crop up continually are “uncertainty” and “caution.” Survey measures of business confidence have declined, and a growing, albeit ill-defined, sense of malaise has surfaced. It reflects uncertainty about the strength and the durability of the recovery, along with myriad other worries including concerns about ongoing sovereign debt issues in Europe and the United States, uncertainty about fiscal and regulatory policy, and anxiety about geopolitical risks in the Middle East and North Africa.

In this regard, an interesting Tealbook box documents that uncertainty, while below the highs achieved during the financial crisis, is now abnormally high. Interesting theoretical work by Nick Bloom at Stanford has modeled time-varying uncertainty. Bloom finds that increases in

uncertainty can lead to large drops in economic activity because a rise in uncertainty makes firms cautious. It causes them to pause hiring and investment. Of course, our Chairman's early research focused on exactly such behavior. He developed a theory of cyclical investment fluctuations based on the idea that events whose implications are uncertain can depress investment by temporarily increasing the returns to waiting for additional information. Waiting is a way to avoid costly mistakes. The reports of Reserve Bank directors provide abundant evidence of such behavior. They routinely report that, because of heightened uncertainty, they are postponing hiring and investment decisions, and, more generally, deferring commitments. In financial markets, we have witnessed a pullback from risk-taking activity that may reflect similar motivations. For example, conversations of our staff with market participants after the June SCOOS survey point to a broadened, persistent decline in the use of leverage by investors. Our staff notes that this phenomenon appears to be longer-lived and to lack any specific and identifiable trigger, instead reflecting a confluence of worries about sovereign debt, geopolitical risks, and a slower pace of recovery. Market participants report that this pullback has been accompanied by a significant decline in market liquidity.

While firms and investors are apparently waiting for the fog of uncertainty to lift, my modal outlook is that it will. It is premised on the assumption that a revival in auto production and sales next quarter, coupled with diminishing drag from food and energy prices, will cause economic activity to rebound in coming quarters, in turn diminishing business uncertainty, improving confidence, and setting the stage for moderate economic growth. The current weakness is, thus, a soft patch. But I also attach some probability to a darker scenario in which businesses' responses to uncertainty add to the numerous other headwinds and financial risks and end up aborting an already fragile recovery.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. My first observation is that the commercial banking conditions are not nearly as twitchy as financial markets. As Governor Yellen noted, financing conditions in the dealer space tightened noticeably in recent weeks. Reports covering bank credit have followed the same contours for months. Bankers are still reporting slow but steady progress on credit quality, and all are facing weak loan demand. It's hard to judge, but I get the sense that those who are seeing their outstandings increase are the ones who had less significant credit problems originally, and now have less dollars invested in runoff portfolios or are losing less volume to charge-offs.

New production seems about the same everywhere at levels one-fourth to one-third of pre-crisis levels. In areas where there is volume to be had, competition is ferocious. All banks characterize the competition, in C&I lending especially, as irrational, and they call out each other's names—particularly at the upper ranges of the middle market. For quality credit, banks are competing on price, terms, and hold amounts, which is the portion of a credit they will hold in syndicated deals. Competition for small business and lower-middle-market deals seems a bit more disciplined, at least so far, and several larger banks reported that smaller banks were entering the market for C&I lending as they were being forced out of commercial real estate lending, but they warned that the smaller banks lacked the same level of controls, covenants, infrastructure, and experience in commercial lending that the larger banks have.

Auto lending may also be emerging as a battleground. As you might recall, auto lending was the first product to return to normal. A few banks talked about increasing focus or entering this market, and another traditional auto lender complained that at any given price point, other

banks are buying deeper into the credit pool or lending at higher loan-to-values than has been prudent in the past.

All this competition stems from pressure on earnings, as deposits continue to grow and banks have no place to invest the funds. This became really evident when nearly every CEO, unprompted, told me exactly how much cash he was carrying. Clearly, the incentive to lend is there, but the demand is not, and banks do not yet have any stomach for easing credit standards to get it. In addition to the lack of loan demand, the profit dynamics of checking accounts are changing radically, with regulatory restrictions on overdraft fees, higher FDIC insurance costs, interest on commercial accounts, and, of course, the prospect for reduced income from interchange fees.

Finally, anxiety levels are quite high about capital and liquidity requirements, stress tests, and regulatory burden. On the side of displaying confidence in the future, however, unassisted M&A heated up in the last week, with the positions of the fifth-, sixth-, and seventh-largest banks, in terms of deposits, shifting twice in the last week.

In reviewing my notes, I started to muse, like Vice Chairman Dudley, and it occurred to me that there are still significant populations of borrowers that have not been able to take advantage of lower rates—or, in the language of the DSGE memo, those who are still facing risk premium shocks. [Laughter] So I wonder if we might be able to increase the effectiveness of the actions we have already taken by looking at some ways to reach those who have not yet been able to refinance or restructure at the lower rates. First, in the mortgage market, as rates fell, those with good credit, income, and equity refinanced, often more than once, but there is still a significant number of performing mortgages with higher coupons that for some reason have not been able to refinance. We should look at them and try to figure out why. Second, although we

have steadily pressured lenders and servicers to modify residential mortgage loans, when lenders modify commercial real estate loans, including reducing interest rates or even removing interest rate floors, they are labeled as troubled-debt restructures, and the banks who do them are subject to additional examiner pressure. So we should take a look at the incentives or disincentives to reduce rates on commercial mortgages. Third, guidance recommending increased risk management as construction and commercial real estate lending approached 100 percent and 300 percent, respectively, of capital are now almost universally regarded as caps. Banks that are over one or more of the guidelines have reduced CRE loans by more than 11 percent, while those who are comfortably below the guidance have reduced CRE by less than 2 percent. The population of banks may not be exactly the same, but more than half of the dollar decrease in CRE outstanding over the past year is in portfolios held by banks that are at or close to one of the guidelines. And while losses have been high in construction lending, they have been significantly lower in loans on existing properties, and lower still on owner-occupied properties. Revisiting these guidelines and the way they are being enforced, especially the overall CRE limit, could enable some borrowers to refinance commercial properties at lower rates and some small businesses to access more credit. And it might also allow some smaller banks to lend more in real-estate-secured credits that they understand and less in some of the C&I space that they don't.

And because the theme of this meeting has been models, I would like to challenge the notion of a single representative household making decisions based on rational expectations. In my experience, most of the households I saw as a banker made spending decisions based on how much money they could put their hands on. [Laughter] A lot of that came from debt—from growing credit card balances, home equity loans, cash-out refinances, and using home equity and

cash-out refinancing to pay off credit cards and reload for more spending. In those years, spending grew faster relative to income than we might have expected. Now that mortgage, home equity, and credit card debt is shrinking and consumer spending is disappointing, it seems likely to me that housing wealth and the ability to tap into it through debt may be more important to consumer spending than investment wealth. Finally, the inability of a growing number of credit-impaired borrowers, combined with additional regulation on mortgages and credit card products, means that a large population of consumers have no access to credit and can only react to higher food and energy prices by cutting spending on other things. I guess the model in my head has at least two households: one that is making rational choices based on preferences and expectations, and another that is just trying to survive using whatever nominal dollars they can put their hands on to buy the things they need. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. The polite term for those folks is “liquidity constrained.” [Laughter] Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I want to give my own rendition on a theme on which Eric, Jeff, and Bill have already played variations—and that is, the way in which the gap between what most people, including many of us, expected in terms of the recovery and what has actually happened should affect the intellectual constructs that we are bringing right now in thinking about policy. If you count this quarter as complete, there have been eight quarters since positive GDP growth reappeared in the middle of 2009. And of those eight, growth was significantly above trend in only two, 2009:Q4 and 2010:Q1. These, of course, are the two quarters that probably benefited the most from stimulus spending and, to some degree, probably from relief that a full collapse of the financial system had been averted. There is only one other quarter with above 3 percent annualized growth, and just barely so. Of the other five,

one was just about at trend, given the central tendency in our forecast, and four of the eight had economic growth well below trend, as reflected in the central tendency. So this looks to me a lot less like a case of cruising along and occasionally hitting a soft patch than a case of slogging through mud and once or twice hitting a stretch of dry pavement.

Similarly, while the supply disruptions caused by the Japanese earthquake are surely transitory, the lower level of defense outlays early this year probably is, and the run-up in commodity prices may be, I recall that some other less-than-robust growth quarters over the past couple of years have also been explained by reference to transitory factors. The factors in question may well have been transitory, but new negative transitory factors still seem to keep cropping up. This pattern suggests that the dominant narrative during the past year and a half of a recovery characterized by solid, if unspectacular, growth as the economy recovers from a serious recession may not be the best diagnosis of what has been going on. And if that's the case, there are obviously potential implications for policy. And, in fact, to wrap in the earlier discussion, I think the differences among the DSGE models that Michael was explaining earlier today reflect a lot of this, because, as we saw, the depressing New York Fed DSGE model seems to do best, I think, because it places so much weight on the breakdown of financial intermediation, which is obviously related to what we've seen over the past couple of years. This leads to a search for a better explanation for the past couple of years, one in which I know the Board staff is vigorously engaged right now, and some suggestions about which were offered earlier by Jeff and Bill. Jeff offered what I might characterize as a neo-declinst explanation.

MR. LACKER. I thought it was neoclassical. [Laughter]

MR. TARULLO. And Bill offered the explanation that monetary policy has maybe been too timid. Mr. Chairman, I'm not sure if you want to try the second one out in your press

conference tomorrow, but these are two possible explanations. I think there is a third, which may not be inconsistent with Bill's—that what made this recession so different from the other two recessions that Larry was talking about is that this is a financially induced recession.

Returning, once again, to the Rogoff–Reinhart theme that I have mentioned so many times before, there is probably some good reason to believe that the effects of a financial crisis that results in a serious recession take substantially longer to work themselves out more fully. I think when we look at the performance factors that have been consistently overestimated—the house price recovery and PCE, in particular—we see that they may well be linked to the etiology of the crisis itself. So it does seem as though some emphasis upon the continuing effects of the direct impact of the crisis on housing markets, on the operation of financial intermediaries, and on residential mortgage securitization, and on servicing could accumulate into something that has a continuing drag upon not just household wealth, but also consumer confidence and, as Tom was mentioning earlier, the repair of household balance sheets.

I would suggest one other thing, which some people have mentioned a number of times over the past couple of years, and that is the degree to which some secular changes in the economy that were under way before the crisis have maybe been accelerated, and have in turn exacerbated some of the problems associated in particular with job creation. For instance, if we have had a number of relatively mature industries that were already beginning to restructure, and they lost employees very, very quickly during the recession, and other industries have, understandably, not picked up the slack, you'd have a bigger effect on unemployment. Another interesting phenomenon of this recession is that, unlike the past several, there has been relatively little creation of new businesses that, in turn, add employment. There have been lots of new businesses formed, but they are overwhelmingly sole proprietor businesses, which are deemed

businesses just because people file a Schedule C. In terms of new businesses that actually add employees, the performance in the recovery from this recession has been the worst since these numbers were kept. Other things may be going on with job creation that have been exacerbated by the housing crisis and its aftermath.

This is all hypothetical, obviously, just as I know Jeff and Bill were offering hypotheses. But I do think that there may be implications for policy going forward—and not just retrospective, better explanations for what has happened over the past couple of years. I will hold those for tomorrow. But at the very least, I think we all need individually to come to grips with the degree to which our own expectations over the past couple of years have been—maybe for some of you they haven't—more or less continuously dashed. We need to find a better explanation, I think, as to why, and thus what we may want to do in the future.

Now two other points that have very little, if anything, to do with this theme. One, regardless of what the right metaphor is, whether it's cruising along with soft patches or slogging along and hitting a little bit of dry pavement, there is no question but that the economy is particularly vulnerable right now for all the reasons that many of you have mentioned. Janet talked about the Middle East and North Africa, which is an area that almost fell off of everybody's radar over the last couple of months, but of course it's still there, as are a bunch of others that are not front and center. I think this raises the possibility, to change transportation metaphors, of a stall-speed risk, and thus something else to be watching for. And then a final point on inflation. I asked staff and others a bunch of questions about inflation, and I was struck by the fact that they perceived persistent inflation in services. I am told that the lion's share of the explanation for that is in rents. And if that's the case, that could be another byproduct of a dysfunctional housing market. I suppose if I'm questioning whether otherwise conventional

explanations of transitory factors are actually holding, we should probably watch this as well over the next couple of quarters. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. The moderate pace of the economic recovery continues to be shaken by various forces. As a result, in the short and medium terms, we seem to be moving further away from our mandates. And, as we learned from this meeting's financial stability presentation and memo, financial stability, too, is presenting a key risk. To my mind, the forces that are shaking us off the moderate growth path are related to declining home values, rising prices, and growing and longer-term unemployment, all of which are weighing on consumer confidence. Wrangling over the debt ceiling isn't helping as our lawmakers remain at odds over raising the cap by \$2.4 trillion. The Conference Board shows a dip in the confidence index, even from April. Americans are more pessimistic about the economy and their income prospects. Something I had never heard of before I came here, the so-called misery index, which means what it sounds like it means, is on an upward trajectory.

As I have noted before, one fulcrum of concern is housing. Residential construction has subtracted from growth in GDP in four of the seven quarters since June 2009. That is a contrast with the past three recoveries, when housing added to economic growth for at least a year and a half following the downturns in the 1980s, 1990s, and early 2000s. Two years ago home prices stopped falling, as low prices, along with homebuyer tax credits, spurred a surge in sales. Demand then collapsed last summer when those credits expired. Markets currently don't have enough buyers to absorb a steady flow of foreclosed properties. This phenomenon is broad based. Twelve of the 20 metropolitan areas tracked by Case-Schiller have posted new lows. Only the Washington, D.C., and Seattle metropolitan areas saw month-to-month growth. Indeed,

the share of mortgage borrowers who have negative housing equity has moved up further in recent quarters to above 25 percent. This figure translates into about 12 percent of all households. These falling equity values dent consumer confidence. They remind homeowners that each month they are making monthly payments on mortgages that exceed the value of their homes; it underscores that the investments in their homes are shaky and not capable of being drawn upon for home improvements, college tuition, or unforeseen medical expenses. Some of these homeowners will throw back the keys, but even more will attempt a modification in order to try to get some relief from a burdensome monthly payment. Those who become delinquent will get on the slow train toward foreclosure.

This is a train to nowhere, not just for the homeowner, who will soon no longer be a homeowner, but for the bank that holds the mortgage. The large bank holding companies most actively involved in mortgage-related activities continue to add provisions for repurchase losses. Repurchase reserves for the four largest bank holding companies now stand at about \$11.8 billion, which, even at that staggering amount, is believed by many supervisors to be insufficient. Foreclosure is also a train to nowhere for the economy, because increased foreclosures are a continued rightward drift in supply, further depressing home prices.

One of the big pressures on the demand for housing is the creation of households by younger people. In a sign of the interconnectedness of the problem of unemployment, many young people—who are suffering more than average from unemployment right now—are doubling up, moving in with friends, with family, and with landlords by necessity, who themselves are struggling to pull together the monthly mortgage payment and are posting extra rooms in their houses on Craigslist to bring in extra cash. During normal times, about 1.25 million households would be created each year, but that figure now stands at roughly

750,000. If falling prices cause buyers of all ages to delay purchases, prices will be pushed even lower. One possible method of halting this rightward shift in supply is to intervene with homeowners before delinquency and move them away from the entry point to the foreclosure pipeline. Properly structured short sales are one way this could be explored. In addition, interventions that consist of government purchases of vacant properties in the foreclosure pipeline could also slow a rightward supply shift and a downward demand shift.

To sum up, both declining home values and more, and more longer-term, unemployment are weighing on confidence and consumption. The effects of this dampening seem to be more evident because growth in GDP is not robust enough to mask them. It's like the turbulence you feel on an airplane, which is always worrisome, but is all the more worrisome when the plane is flying closer to the ground. Alternatively understood, the behaviors that are emerging from the intersection of the housing market, unemployment, and confidence impose social costs that are showing up in slow consumption and slow growth in ways that are now unmasked and ways that we are only beginning to understand. We don't completely understand these interactions of depressed indicators, but they seem entirely relevant to our assessment of economic conditions and the future path of our economy.

CHAIRMAN BERNANKE. Thank you very much, and thanks, everyone, for what I thought was a really interesting discussion. I'm going to recess the meeting in just a moment, so that we can all go home and take a shower before the British Embassy dinner. [Laughter] First, let me just say that tomorrow morning we'll start with my summary, and then we'll go into the policy go-round. We also have a short item with Governor Yellen relating to the external communications policy.

Before you leave, make sure you have a copy of the exit strategy statement. The staff has made some changes based on the discussion we had earlier today. If time permits—and I certainly don't guarantee that it will—we could look at it collectively tomorrow at the end of the meeting. Otherwise, we'll be in touch with you by long distance just to see whether this is an improvement or not. Again, at this point, I don't think we are completely committed to putting this in the minutes, but I think it would be a good outcome, if we can get sufficient agreement. So take a look overnight, if you have a chance.

We'll start tomorrow at 9:00 a.m., and I'll see you shortly at dinner. Thank you.

[Meeting recessed]

June 22 Session

CHAIRMAN BERNANKE. Good morning, everybody. Thank you again for what I thought was an unusually constructive discussion yesterday. Let me start the morning with my attempt at summarizing the economic go-round.

Participants took note of the recent weakness in the economy as incoming data have almost uniformly disappointed. In part, this soft patch is the result of factors likely to be temporary, including the effects of the Japanese disaster on supply chains, the impact on consumers and firms of the sharp rise in energy prices earlier this year, bad weather, and concerns about fiscal developments. Most participants saw a moderate recovery still in train, strengthening somewhat over time, but most also saw some longer-lasting loss of momentum and marked down their forecasts accordingly. A more pessimistic view is that the strong quarters of economic growth since the end of the recession have been the exception rather than the rule, as financial and economic headwinds have been stronger than we thought or potential output growth is slower than we thought. Overall, downside risks to growth have increased as the slow pace of the recovery brings the economy near stall speed and makes it more vulnerable to new shocks. Inflation, both core and headline, has risen recently. Again, some of the factors involved may be temporary, such as the rise in commodity prices that has recently reversed and the effects on prices of the supply chain problems. On the other hand, input costs other than labor remain high in absolute terms, and firms will try to pass these costs on if they can; also, core inflation tends to be persistent. The risks to inflation seem more balanced than at our last meeting, but a number of participants still see those risks as tilted to the upside.

Consumers remain cautious, and spending has remained subdued. In part this reluctance to spend reflects high gasoline prices, especially on liquidity-constrained consumers, and the effects of supply chain disruptions on auto sales, effects that may dissipate. The recent

weakening in labor markets, pessimism about income prospects, and stressed household balance sheets are also negative factors. A weak housing sector has also restrained consumer confidence. In the housing sector, prices have continued to fall in most cities, and sales and construction remain depressed, in part because potential buyers are afraid of buying into a declining market. About 25 percent of mortgage borrowers have negative home equity, implying restricted access to credit and a greater propensity to default.

In the business sector, there are some signs of greater caution since the last meeting, especially among smaller businesses. Surveys generally show reduced expectations for orders and production, especially in manufacturing. As noted, although commodity prices have come down, input cost pressures remain significant. High gas prices have affected consumer demand and shopping trips. Uncertainty about the recovery and about government policies remains an issue. Firms continue to seek productivity gains in lieu of hiring, which may explain some of the relative strength in the rate of investment in equipment and software. For medium and large businesses, balance sheets remain strong, profits high, and access to credit good. Supply chain disruptions were somewhat more severe than expected but are being overcome. Among key sectors, energy, agriculture, high tech (notably in Silicon Valley), and tourism are all doing well. State and local governments are a source of fiscal drag, and the federal government is expected to become such a source as well by next year.

Financial conditions weakened during the intermeeting period, and volatility increased. Equities, bond yields, and bond spreads all reacted to the disappointing economic news. The European sovereign debt situation was a particular source of volatility; although there have been a few moderately encouraging developments in that area, there is little evidence that a lasting solution is forthcoming. The debt limit debate does not appear to have had large effects on

markets as of yet, but the risk is potentially serious. Risk-taking moderated some over the intermeeting period as concerns about the economy and financial stability increased. Liquidity remains ample. Banks are seeing a slow but steady improvement in credit quality but remain concerned about new financial regulations. With loan demand generally weak, competition for creditworthy borrowers, especially larger firms but also some others such as automobile buyers, is intense. Credit remains tight in many markets, however, including those for residential mortgages, CRE lending, and consumer lending.

As noted, inflation—both core and headline—has risen in recent months. Headline inflation should moderate if the softening in commodity and raw materials prices persists. The increase in core inflation also partly reflects effects likely to be temporary, such as increases in the prices of new and used autos. Wage pressures have remained subdued in a weak labor market, and inflation expectations remain anchored. However, there is some concern that the recent rise in core inflation and related measures, such as the median and trimmed mean CPIs, may not be entirely reversed. Such measures historically have tended to be persistent, especially in expansions, and shelter inflation—an important part of the indexes—seems poised to rise, as credit constraints push people into renting rather than buying highly affordable single-family homes.

Several observations were made regarding monetary policy. One participant noted that a pattern of economic growth surprising to the downside and inflation to the upside is consistent with potential output being lower than we might think; the implication is that excessive monetary stimulation will lead primarily to inflation rather than output growth. On the other side, it was suggested that the efficacy of monetary policy may decline when accommodation is maintained for a long time, as financial conditions become less responsive and as aggregate demand is

shifted over time rather than growing persistently. Assuming that monetary policy is not completely ineffective, this implies that greater (or more extended) accommodation may be needed to obtain a given effect.

That was my summary. Any reactions, comments? [No response] Okay. Thanks. So having said all that, I don't know how much more "value added" I have at this juncture, but let me just say a couple of words.

Clearly, we've had a very disappointing first half this year. Indeed, in some ways we're lucky that the unemployment rate on net over 2011 hasn't risen, and so we've maintained much of the gains from November to January, despite the fact that output growth has been below what we think to be potential output growth. In trying to dissect the slowdown, first, obviously there are some temporary factors. Auto production, for example, has been held down by the supply chain disruptions, but currently assemblies are projected to increase by 1.5 million at an annual rate in the third quarter. You can see the demand for that in depleted inventories and the fact that sales were reduced because of unavailability of some attractive models and because the lack of incentives increased prices. It's a reasonably good assumption that, barring a major further slowdown, autos will be a source of economic growth in the next quarter or two. We've all discussed a number of other factors. Defense spending seems to have been unusually low. Regarding the commodity price, and particularly the oil price, effects, even the flattening of oil prices would be supportive of greater growth. In fact, what we appear to be seeing at this point is a decline of nearly \$30 per barrel in oil prices from the peak, which certainly will be a positive going forward. Europe seems likely to be stable, at least for a while, and maybe we will see a pattern similar to last year, when a springtime upsurge in concern about Europe led to stock

market declines and some economic weakness, but those concerns were addressed, and some of that effect was mitigated.

While temporary factors certainly are important, I would add, that there are some positive indicators that a moderate recovery is proceeding, despite the very well-founded concerns about the labor market. I think it should be kept in mind that, in the four months preceding my August 2010 Jackson Hole remarks, which intimated QE2, monthly private-sector job creation was 80,000 on average; in the next four months it was 140,000, and so far this year, including the weak report in May, average private payroll growth has been 180,000 per month. So there seems to be some improvement there. The risk, of course, is that May is more indicative than the earlier months of the year. Real equipment and software spending is still strong, as many people noted. There are different interpretations for that. I think I lean toward the interpretation that maybe the uncertainty is not quite as large as it's sometimes made out to be. Indeed, profits are, in fact, very strong, and balance sheets are very good. Export demand is strong. The other interpretation is that equipment and software spending reflects the substitution of capital for labor, but again, I think that's less likely than the other.

The housing sector is hard to read. It's been a disappointment for some time. I just raise the following observation for your consideration: Regarding the recent house price declines, when broken up between distressed and nondistressed sales, the nondistressed sales show flat prices; the distressed sales are where all of the price declines are. Now, this is not to deny that the effect of distressed sales on prices is not a real effect; it probably is. But to the extent, for example, that the repeat sales indexes don't account for the physical deterioration and other problems—neighborhood problems and so on—associated with distressed sales, it could be that the decline in prices is maybe slightly overstated. But still the housing market is very weak.

Financial conditions, of course, remain accommodative. The stock market has retained most of its substantial gain since last summer, and currently we still have low volatility and low P/E ratios. Those factors would support further gains. Credit quality is improving, as Governor Duke mentioned. We have some positive signs from leading indicators. The Beige Book, I thought, was fairly balanced in its interpretation.

I don't think we should despair with the recovery. I think there is some forward momentum. But, the bottom line does seem to me to be that there has been some loss of momentum. I said so last time, and I've taken down my forecast even further this time. Some of the evidence would be—besides the labor market, of course, where the data have been weak across a whole range of indicators—the very broad range of weakness in manufacturing surveys and in the IP data, which is not just restricted to autos. That's a bit surprising, given the continued strength of exports, but it could be that firms who are oriented toward foreign sales may, for example, already be seeing some of the expected slowdown in emerging markets and that might be part of the reason why they are more pessimistic. Consumption is forward looking, and I while don't want to overstate this, some economic theories would argue that consumption is actually a leading indicator because it reflects the best assessment of the public about where they see the economy going and what they see as happening to their incomes in the future. So the surprisingly weak consumption, even ex autos, is, I think, disturbing. One other thing to mention is that the financial markets really seem to have taken on board a greater weakness in terms of lower bond yields, lower stock prices, larger spreads, more risk aversion, and lower fed funds futures. That's further evidence that there's a broad-ranging consensus in the public that the economy is going to grow more slowly. Again, I think it's appropriate to assume some improvement going forward, but the appropriate Bayesian response in what we've seen would be

to take down the medium-term forecast as well as the near-term forecast. As Governor Tarullo and others noted, very slow growth also increases the downside risks because of the escape-velocity phenomenon. In more econometric terms, we have a lot of research on this so-called two-state model of recessions and expansions that suggests that if you slip from one state to the other, then you can have a somewhat discontinuous decline.

On inflation, there has been a pickup. I think that headline inflation will certainly come down. I noted in my speech in Atlanta that PCE inflation over the past six months has been running at an annual rate of 3.6 percent. Take out one product, gasoline, and that six-month rate is 2 percent. Given that a single product accounts for much of the headline change and given that oil prices have come down quite significantly, I think it's very likely that, at least toward the next couple of quarters, headline inflation will be reasonably controlled. On core inflation, I think there have also been some temporary factors involved. First, obviously, oil prices and other raw materials prices have been passed through, and there are certain areas, like air fares and other transportation, where pass-through is to be expected. That doesn't necessarily mean that there has been a breakdown in inflation expectations, for example, and those pressures should, over time, moderate. In particular, I think that our agreed-upon view is that one-time increases, as opposed to continuing increases, in input costs should not lead to ongoing inflation unless inflation expectations are not anchored and wages respond very directly to those price increases. Neither of the last two conditions seems to be in play, and so I would expect that some of those pass-through effects will at least not continue. There are some other examples. I think motor vehicles are actually a pretty important contributor, and it's particularly striking in the CPI. If you compare the core CPI over the past 3 months against the past 12 months, you see about a 1 percentage point increase in the core CPI over those two overlapping periods.

Arithmetically, about half of that increase is due to auto prices; the effect is somewhat less for the PCE measure. Because we expect a good bit of that to be reversed, that's one factor that should be moderating. Also, I think it's important to note that the TIPS spreads have come down to something close to the middle of their historical range. In some sense, the mini inflation scare that we had has moderated, and I think that should give us some comfort. Now, again, it's one of these "one hand–other hand" kinds of situations. As I think a couple of you noted, shelter costs are potentially an issue. I was a little surprised to see that, at this point in time, shelter costs are holding down inflation. That is, it's still the case that shelter costs are rising more slowly than the rest of core, and so that's one factor that almost certainly will contribute to higher inflation going forward. That's something to watch. Like most of you, barring new shocks, I'm pretty confident that inflation will moderate over the rest of the year, but I have raised my estimates of core inflation somewhat, particularly in the remainder of the year, as some of these factors work through.

In summary, we have a recovery that is very weak, especially given the depth of the recession. That increases the economy's susceptibility to downside shocks, and it does appear that some of that weakness is going to be persistent. For inflation, I think a fair judgment is that we look to be on track to come close to target in the medium term; deflation risk has largely disappeared. As I indicated before, as we look back over the last 8 or 10 months, I think we have seen some improvement in the labor market, notwithstanding the recent slowing, and deflation risk has largely disappeared. I would argue that the second round of securities purchases did help us move closer to our mandate. That being said, because we are at a very different point now than we were last August, as we'll discuss in the policy go-round in just a moment, I think it's an appropriate time to watch and wait. Any questions or comments? [No response]

We can turn now to item 5, which is the current monetary policy and the statement. I'll call on Bill English, who we're happy to see is recovered from an operation and is back on the job. Bill.

MR. ENGLISH.⁶ Thank you, Mr. Chairman. I'll be referring to the package labeled "Material for FOMC Briefing on Monetary Policy Alternatives" that was distributed earlier. The package contains the three draft statements included in the Tealbook, with two minor deletions that are shown in black strikeout text, as well as the associated draft directives.

These alternatives incorporate some significant changes in language relative to the April statement. In particular, consistent with the draft statement language distributed to the Committee over the intermeeting period, the discussion of inflation focuses on the actual and anticipated behavior of overall inflation and doesn't reference concepts such as "underlying" inflation that may not have a clear interpretation. Moreover, the second paragraph of the statement is now more explicit about the Committee's expectations for unemployment and inflation going forward, and how those expectations compare with mandate-consistent values. However, in light of the concerns that a number of you had about providing numerical values for mandate-consistent inflation and unemployment rates, the alternatives do not cite the long-run values of these variables from the SEP.

Turning first to alternative B, on page 3, despite the disappointing data received over the intermeeting period, Committee members may not see the medium-term outlook for real activity and inflation as having changed by enough to warrant an adjustment in the stance of monetary policy today. Policymakers may believe that the weaker-than-expected pace of economic growth reflects in part factors that are likely to prove temporary, including the effects of higher commodity prices on consumption spending and the impact of supply chain disruptions related to the Japanese earthquake. Similarly, the Committee may judge that the rise in inflation this year has reflected importantly the effects of the run-up in commodity and import prices and the impact of supply chain disruptions on auto inventories, and that these effects are likely to wane over coming months.

Looking further ahead, policymakers may see unemployment as too high and likely to remain so for some time. Indeed, your SEP submissions show the unemployment rate remaining at about 8 percent at the end of 2012, well above your longer-run projections of 5.2 to 5.6 percent. And, despite the worries about the inflation outlook that were expressed yesterday, most of you continue to project PCE inflation in 2012 to fall short of your assessment of its mandate-consistent level. Concerns that you might have had earlier in the year regarding a possible unmooring of inflation expectations may have been eased by the stability of survey measures of longer-term inflation expectations and the declines in forward measures of inflation

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

compensation over the intermeeting period. All that said, you may judge that the potential costs of a further increase in the size of the Federal Reserve's balance sheet or a hardening of the forward guidance provided in the statement could outweigh the possible benefits. As a result, you may believe it's appropriate to maintain the current accommodative stance of policy and wait for additional information on output, inflation, and inflation expectations before deciding on your next step.

As for the statement language, the first paragraph for alternative B would be updated to acknowledge that the recovery has been slower than the Committee had expected at the time of the April meeting and to note that there is some evidence of a loss of momentum in the labor market. The statement would indicate that temporary factors have both slowed the recovery and boosted overall inflation. The second paragraph would note that you expect the unemployment rate to decline toward levels consistent with the dual mandate and anticipate that inflation will subside to levels at or below mandate-consistent levels. The third paragraph would indicate that the Committee will keep the target for the federal funds rate at 0 to ¼ percent. This paragraph also retains the "extended period" language, though—in keeping with the change in the discussion of inflation earlier in the statement—it now points to "low rates of resource utilization and a subdued outlook for inflation over the medium run" as the basis for the policy rate expectations. The statement would then indicate that the Committee will complete its purchases of \$600 billion of longer-term Treasury securities and will retain the existing reinvestment policy. It would go on to state that "the Committee will regularly review the size and composition of its securities holdings in light of incoming information and is prepared to adjust those holdings as appropriate."

The relatively substantial changes in the wording of the statement might cause some initial volatility as market participants assessed the new language. Taken as a whole, however, the statement would seem to be about in line with market expectations and would likely have little lasting effect on asset prices. Moreover, the Chairman will be able to clarify the statement if necessary at his press conference this afternoon.

Alternative A, page 2, would be appropriate if policymakers see the weaker pace of the recovery of late as likely to persist, perhaps because you interpret the sequence of downward revisions to the outlook since the start of the year as signaling significantly less underlying momentum in the economic recovery. Moreover, with the housing market still depressed, the likelihood of increased fiscal consolidation, and the unresolved problems in peripheral Europe, members may see significant downside risks to the economic outlook. Alternative A would seem particularly appropriate if policymakers were relatively confident that the recent increase in inflation will prove temporary, perhaps because, in addition to stable inflation expectations, substantial resource slack was seen as keeping inflation in check over coming quarters. Against this backdrop, the Committee may think that a move toward easier policy is more likely than one toward tighter policy over coming months and so decide to indicate in the statement its willingness to provide additional policy accommodation if needed.

Compared with the statement under alternative B, the statement for alternative A would indicate a bit more concern about the strength of the recovery and somewhat less concern about the recent rise in inflation. Paragraph 2 would note increased downside risks to the outlook for economic growth and would drop the sentence stating that the Committee will continue to pay close attention to the evolution of inflation and inflation expectations. As under alternative B, paragraph 3 would report that the Committee is maintaining the current target range for the federal funds rate and will complete its purchase of \$600 billion of longer-term securities. However, the statement would provide more-explicit forward guidance about the expected path for the federal funds rate by specifying that exceptionally low levels were likely “at least through the end of 2012” and would supply similar forward guidance about the size of the balance sheet by noting that economic conditions were expected to warrant the maintenance of the existing reinvestment policy “at least through mid-2012.” The end of paragraph 3 would indicate that the Committee was prepared to expand its securities holdings if needed.

Market participants would be surprised by the adoption of alternative A. Interest rates and the foreign exchange value of the dollar would likely fall, and stock prices would probably increase.

Alternative C, page 4, might be appropriate if the Committee were concerned that the recent rise in inflation might not prove transitory, and if it were relatively confident that the pace of the recovery would pick up in the second half of the year. Policymakers may be worried that the recent rise in inflation has extended beyond the food and energy categories, and they may feel that failing to respond to the increase in inflation could, in a context of very accommodative monetary policy and large federal deficits, lead to an increase in longer-term inflation expectations that would be very costly to reverse later on. Such concerns would seem more pressing if policymakers viewed output as closer to potential than in the staff projection or were skeptical of the extent to which resource slack was likely to restrain inflation. In addition, some members may find a move to reduce policy accommodation appropriate because of concerns about signs of potential asset price misalignments or increased leverage in some parts of the financial system that could contribute to financial instability.

The statement under alternative C would start out as in alternative B, but the first paragraph would indicate that firms are facing cost pressures. The second paragraph would note that upside risks to inflation have increased somewhat before indicating that the Committee will be paying close attention to inflation and inflation expectations. Paragraph 3 would state that the target for the federal funds rate will remain at 0 to $\frac{1}{4}$ percent but would weaken the forward guidance by changing “extended period” to “some time.” While the statement would indicate that the Committee’s \$600 billion purchase program will be completed at the end of the month, it would also say that the Committee will begin a gradual reduction in the current extraordinary degree of policy accommodation in July by discontinuing reinvestments of principal.

Alternative C would surprise market participants and would likely lead to a sizable increase in longer-term interest rates, declines in stock prices, and a rise in the foreign exchange value of the dollar.

Draft directives for the three alternatives are presented on pages 6 through 8 of your handout. Thank you, Mr. Chairman. That completes my prepared remarks.

CHAIRMAN BERNANKE. Thank you. Any questions for Bill? President Evans.

MR. EVANS. Thank you, Mr. Chairman. I've always assumed that this was the time to ask a question about the optimal policy chart that's in the second part of the Tealbook because we don't do it at other times. One thing raised in our discussion of DSGE models yesterday is the possibility of using that type of analysis to do an optimal policy exercise, which we might be more comfortable with. But until then, we have FRB/US, with which I am also pretty comfortable. This time I notice that the inflation projection with the funds rate constant is not really different than the counterfactual in which the funds rate is allowed to be negative. While there doesn't seem to be much discrepancy in these paths, I will note that the core inflation path is a lot higher than the Tealbook extended forecast. First, I was curious as to why that's the case.

MR. ENGLISH. I think that the optimal policy run that we do in the Tealbook Book B is coming out in a different place. If you look at the civilian unemployment rate to the left, at the end of 2012, it's down around 7 percent, which is pretty low, and inflation, as you say, is up closer to 2 percent.

MR. EVANS. I think this optimal unemployment rate path is lower than what the extended Tealbook forecast is, right? Is that what you're saying?

MR. ENGLISH. I think that's right.

CHAIRMAN BERNANKE. Is that because the Tealbook extension respects the zero lower bound and the optimal control exercise doesn't?

MR. ENGLISH. That's right.

MR. EVANS. That's the interesting feature of this particular simulation, it seems to me. And yet the inflation path is about a quarter to a half a point higher than in the Tealbook and still at about 2 percent.

CHAIRMAN BERNANKE. Dave Reifschneider has a comment.

MR. REIFSCHNEIDER. Yes. The model is respecting the zero lower bound. What policy is doing in the optimal control exercise is promising to hold the funds rate lower further out in the future, so that the economy is stronger further out in the future than it is in the Tealbook baseline. Because the model is run under rational expectations, people recognize the economy will be stronger. Marginal costs in the future will be stronger, and the labor market will be stronger. Recognizing that future strength changes their inflation expectations. That causes upfront inflation to be higher.

MR. EVANS. Okay. Thank you.

CHAIRMAN BERNANKE. Other questions? President Fisher.

MR. FISHER. Bill, when you say that alternative C would upset the markets, you're referring to the third paragraph, I presume, and I would be curious if you would be kind enough, from your perspective, to parse the difference between paragraphs 1 and 2 in B and C. Other than one sentence, which is in alternative C, paragraph 2—"However, the upside risks to inflation have increased somewhat,"—is there really a significant difference between the first two paragraphs of B and C?

MR. ENGLISH. I think the end of paragraph 1 is somewhat different as well. To my ear, the end of paragraph 1 in C expresses a little more concern about inflation by saying, "Inflation has picked up in recent months, as firms are facing cost pressures from increased commodity prices and import prices have risen," as opposed to the end of alternative B that says

“Inflation has picked up in recent months, mainly reflecting higher prices for some commodities and imported goods, as well as the recent supply chain disruptions.” I think by parsing it that way, it sounds a little bit more like it’s due to temporary factors, at least to my ear.

MR. FISHER. And maybe the difference is that one sentence in alternative C, paragraph 2, “the upside risks.”

MR. ENGLISH. Yes.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. Let me say one quick thing, but an important thing. First, I thank you for your comments on the mock-up statement. Those were very helpful. I think the language is better. As Bill mentioned, following your input, we did not include the projections numbers in the statement. However, there are a range of issues here that need to be addressed: To what extent we do refer to targets? How do we communicate? That includes inflation objectives, but also what we project in the SEP and a number of other issues related to our communications.

I want to thank Janet’s subcommittee for its good work on guidelines on external communication and on the press conference, and we will, of course, be discussing those guidelines shortly. But given that there are still important unresolved issues relating to our communication of monetary policy, including our projections and so on, I’ve asked Janet to take her subcommittee into a new phase to look at these monetary policy communications issues, including such issues as how we best use our projections. So Janet has asked President Plosser, President Evans, and Governor Raskin to join her in some further discussions of our policy communication, and I just wanted you to know that that process will continue. As the process

continues, she will solicit your input and, of course, will bring any developments to the full Committee for discussion.

Any questions? [No response] If not, let's begin our go-round, and I see President Lockhart first.

MR. LOCKHART. Thank you, Mr. Chairman. I support alternative B. As I said in yesterday's round, I continue to see the most probable path of the economy as expansion at a moderate pace, and I also continue to forecast subdued inflation once the effects of the earlier oil and commodity price increases dissipate. But I do think we are at a difficult juncture. The economic data have underperformed. My outlook, like many, has been marked down moderately, and there are abundant downside risks as well as increased shock vulnerability. At the same time, the uncertainty around the inflation outlook has increased, and upside inflation risks remain. I think maintaining the current extent of accommodation will help mitigate some of the downside risks to the outlook.

Turning to the statement, the characterization of the economy in alternative B is broadly consistent with my own reading of the current circumstances and outlook. I do think, however, that the context in which the Committee would be issuing the alternative B language involves heightened and shifting risks, and I note that the draft statement is silent on risks to the outlook. If the Chairman were not doing a press conference after this meeting, the public would learn three weeks later that the central tendency of the Committee's forecast has been written down somewhat, and the balance of risks adjusted to a meaningful extent. Absent the press conference, a disconnect might be perceived between the statement and the later accompanying information. I think today's press conference affords the Chairman the opportunity, if you wish or if you get the question, to convey the Committee's sense of the risk context. But overall I'm

satisfied with the current draft of alternative B, and I suggest no changes. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. But, of course, the actual projections will be released, so the markdown of the forecast for economic growth will be seen. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. As I discussed yesterday, we have been missing on both elements of our mandate for several years. And according to the Tealbook, the Boston forecast, or the DSGE models in the presentation yesterday, we will be missing for many more. Economic growth at potential, when inflation is too low and unemployment too high, should not be acceptable. Unless we begin to see clear evidence of a self-sustaining recovery above and beyond the temporary surge we expect next quarter as disruptions from Japan and energy prices abate, our focus should be on what additional stimulus should be considered at future meetings.

Alternative A provides more clarity around the size of our balance sheet and the first increase in short-term interest rates. Another option would be to reduce the interest rate on excess reserves to zero. This would provide some marginal incentive for banks to lend. One of the concerns with eliminating interest on reserves was the effect on money market funds. Given that money market funds are already placing many of their assets in Europe, and that the possible exit of smaller, less viable money market funds may make financial markets more stable, this option seems more attractive than it once did. A third option is to lengthen the duration of our security purchases. Should the economy start growing less than potential with the unemployment rate rising and the inflation rate declining, we would need to consider additional asset purchases. My hope is that at this time, the forecast of a self-sustaining recovery becomes

a reality. However, if we continue to be disappointed, the longer-term impact of substantial slack and low inflation rates should not be underestimated. Given the relatively unsupportive fiscal policy we expect, we need to ensure that we are able to fulfill our mandate within an acceptable period of time.

In terms of language, I want to follow up on Dennis's comment. We don't publish the balance of risks. So I think another thing for Janet's subcommittee to consider is whether the charts on balance of risk might also be something that we would start providing publicly. I agree with Dennis that the risks to GDP growth did change quite substantially in the charts that were handed out yesterday, and that the charts showed that the risks for inflation have become more balanced. One way to capture that would be to take the third sentence from paragraph 2 in alternative A, which says, "The Committee perceives that the downside risks to the economic outlook have increased somewhat." I think that captures what is embedded in those pictures. In your press conference you are likely to either be asked or talk about what our exit strategy is. I think it's important to balance that with the reality of the downside risks that this Committee sees, and that I think the public at large sees. It will help emphasize the fact that the purpose of talking about the exit strategy is to say that, when appropriate, we have the tools necessary. But right now is not the time to be actually employing those tools, because we are concerned about the economic outlook. So the only change to language would be to take that one sentence and place it in the same spot in alternative B. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I counsel patience at this juncture. I think alternative B puts the Committee in a good position to wait and see how the data come in over the summer. My expectation is that key risks will be resolved in the next weeks and months, and

that we'll see stronger data in the coming months and quarters. But we are going to have to get confirmation on that before we can make further decisions. So I think it's a good point to pause.

I just have one other comment. I have been an advocate of state-contingent policy. Today we are ending a QE2 program in the midst of a weakening outlook; that puts the Committee and the Chairman in a difficult position. It would be nice to end a program like this when the data say so and not when the calendar says so. That's the key advantage of a state-contingent approach, and I hope we will adopt more of that going forward. But I think this situation nicely illustrates the dangers of putting calendar dates on things. If the economy doesn't cooperate with you, it puts you in a bit of an awkward position. Not that we can't handle it, and not that we can't get through it, but it is a bit awkward. If we were in a normal interest rate targeting environment, that is what we would do. We would make adjustments more on a meeting-by-meeting basis in response to events in the economy and not on a calendar basis. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. The issue, I think, for the U.S. economy is the fact that households and businesses and financial institutions are in the process of deleveraging. But with adjustments like these under way, the economy grows at a moderate pace, and I doubt that we can stimulate strong growth anytime soon through monetary policy, given the deleveraging that has to take place. And as much as we would like monetary policy to solve the growth problems in the economy, I think it is beyond its reach. In my view, accommodative policy generally is appropriate. I remain convinced that what I think of as excessive accommodation will set conditions for the next set of problems and potentially the next crisis. Going forward, I think the Committee should consider ways to limit the amount of

accommodation that we put in place. Experience suggests to me that we often react to negative outcomes by easing policy extensively and often. This easing bias artificially stimulates the economy for a time, as has been noted, and eventually the positive effects of the artificial stimulus fade off. When the negative effects, such as financial imbalances, emerge, we are forced to engage in even more accommodative policy to combat the ensuing downturn. In this way, we become enmeshed in what I think of as an unfavorable cycle of easy policies to offset effects of previous easy policies. And I think it's a very tenuous way to approach this. What I'd like to see instead is that we do keep policy accommodative but within boundaries, so that it would not be excessively so. And I think we're at a point where using the exit strategy that we've worked on can set the context for going forward. It can address some of what we might call an unstable situation that we have from an extended easy policy that we can't get out of. And it would enable us to more gradually bring policy away from this excessive accommodation toward more modest accommodation, and preclude future problems that are years ahead, perhaps, but nevertheless ahead. Thank you.

CHAIRMAN BERNANKE. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. I favor alternative B. We are experiencing what looks to be a transitory slowdown in growth, and a transitory bulge in inflation. If I am still allowed to use this word, "underlying" inflation remains moderate, and the recovery should gain strength over time. Given the sizable slack and the expected decline in inflation, the current very accommodative stance of monetary policy remains entirely appropriate. Indeed, I would like to echo President Rosengren's comments: I worry that 2011 could become a replay of 2010, and we should be thinking ahead to what we would do if the economy stagnates and the risk of sustained deflation reemerges.

Finally, I have a comment on the wording of the statement. In paragraph 3 of alternative B, I'm a little uneasy with the addition of the phrase, "The Committee decided today to maintain the current degree of monetary policy accommodation," which to me is vague and perhaps misleading. The special box in Tealbook Book B makes clear that the degree of monetary accommodation—and I am thinking in terms of stimulus—from our large-scale asset purchases is actually declining by the equivalent of about a 25 basis point hike in the funds rate every other quarter, according to our back-of-the-envelope calculations. This occurs in the Tealbook because the date of the expected future normalization of the balance sheet is drawing near. I prefer a simpler way to describe policy. I would delete the phrase about monetary accommodation. Instead, my suggestion is to begin paragraph 3 with "To promote the ongoing economic recovery and to help ensure that inflation, over time, is at levels consistent with its mandate, the Committee will keep the range for the federal funds rate at 0 to ¼ percent." And then, "It continues to anticipate that economic conditions," et cetera. I think this is clearer and, in fact, in a technical sense, more accurate. Thank you.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. The economic recovery has hit another soft patch. The near-term economic growth is weaker than I anticipated it would be earlier this year. But so far the recent weak data have not materially changed my view on the path of the recovery in the intermediate term. I expect both growth to accelerate in the second half of this year and into next year, a bit above trend, and the unemployment rate to go down gradually.

I have for some time argued in this Committee that the shocks that have hit our economy in this crisis have had important permanent elements to them. As a consequence, I have tried to argue that the traditional measures of resource slack may be overstated, and that, in fact, there

were limits to the effectiveness of monetary policy to mitigate some of this fall in potential output. To that end, I support the Chairman's proposal to begin characterizing our exit strategy in public communications, including the postmeeting press conference and his monetary policy report to the Congress. I would also encourage us to continue our discussion of explicit inflation objectives as well. The press briefing and testimony format allow for a fuller discussion of such an objective to help anchor expectations as we exit and to explain how a numerical objective would help fit into the context of our dual mandate. Explaining the difference between the inflation objective and the unemployment rate, which is something beyond the control of monetary policy in the longer term, is both subtle and not easy. Trying to do this in the statement would be too difficult, but the postmeeting press conferences and briefings are a way around that.

Given the inflation developments and the economic outlook, I am increasingly uncomfortable with the funds rate sitting at zero. The Taylor rule framework suggests that it is appropriate that we begin to remove accommodation as inflation accelerates and the unemployment rate falls, as forecasted last year. Moreover, I am concerned that we are allowing imbalances to build up in the financial sector because the interest rates are so low. I could easily see us simultaneously raising the funds rate by 50 basis points when we stop reinvestment. In discussing the sequence of steps, we shouldn't give the impression that large time frames can elapse between our sequencing of events. We should make sure the public understands that even after we initialize normalization, monetary policy will remain fairly accommodative for some time to come. To give the Committee more flexibility, and to prepare the public, we need to seriously consider changing the forward guidance and the reinvestment sometime in the next couple of meetings, if the current forecast plays out as anticipated.

At this meeting, I can go along with alternative B. I do have two observations about language. The sentence in the first paragraph referring to “a loss of momentum in the labor market” strikes me as going somewhat beyond the facts. I fear that phrases like “loss of momentum” connote to many some indication of a forecast and future path—that is, serial correlation that may or may not turn out to be the case. The previous sentence in the first paragraph says that the pace of recovery is slow in the first half of the year, and to me that would seem to cover any additional observations we need to make about the labor market. I’m not sure we need that sentence at all; I would just strike it. But if that’s unacceptable, I would prefer to simply say in the second sentence, “Recent labor market indicators have been somewhat weaker than anticipated” and drop the word “momentum.”

My second observation concerns the language in the last sentence of that paragraph about “longer-term inflation expectations have remained stable.” I raised this issue last time because at least some measures of longer-term expectations, if you look at TIPS over the past 10 months, have actually moved quite a bit, as much as 100 basis points on some measures. Other measures of longer-term expectations, like the SPF and others, have been more stable, but they have historically been stable. So I am worried about the connotation of longer-term expectations remaining stable. I would suggest we replace “have remained stable” with “remain near historical norms.” That’s all I have, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. At this meeting, I favor alternative B. However, I do believe that if the economy evolves according to the forecast in the Tealbook, it is likely that I will favor an alternative closer to C later this year. I will talk about

why by going back, first, to our discussions yesterday, and then going back to what I said in January.

Our discussions yesterday were quite illuminating for me, because I think people were able to articulate some of the things that I have been struggling with over the past six months or so. I think it really comes down to the question of what is potential output, and what is the path of potential output likely to be. We heard a number of hypotheses offered for why economic activity has remained so slow, and I think one way to capture that is to look at the behavior of employment to population, which is essentially the same as it was two years ago. President Lacker offered the hypothesis that expectations of taxes and regulations, and perhaps the realization of taxes and regulations, are suppressing economic activity. That shows up as a decline in potential output that might not be coming through in our models. President Dudley offered the possibility that the accommodation is becoming blunted by its usage over time, and that is showing up as an increase in the gap and not a decline in potential. Governor Yellen offered the possibility that uncertainty is leading firms to defer investment, including hiring, which can be thought of as another form of investment. And that can be seen either as being a decline in potential or as an increase in the gap, because it would really depend on what kind of uncertainty the firms do see themselves facing. One of the things we've done in Minneapolis is to try to evaluate the extent to which uncertainty about Fed policy itself is really suppressing investment. If you look at measures in asset markets of uncertainty about the movements of interest rates, those at least do not seem to show uncertainty to be a major force at this time, which is, I thought, good news.

At this stage, you hear all of these possible explanations, and it's very challenging to sort out across these. However, I think one key variable that we can be thinking about to cut across

these various possibilities is inflation itself. If it is really that potential is lower than we think it is going to be, then we should start to see acceleration in inflation. To pick up on President Dudley's point, if the accommodation is getting blunted over time, we should start to see disinflation taking place. So that brings me back to January, where I laid out three possible scenarios for the first half of 2011, and they were largely distinguished by the behavior of inflation. In the first scenario, core inflation was near or below its historically low 2010 levels; that did not take place. In the second scenario, which I viewed as the most likely, annualized core was 1.3 to 1.5 percent in the first half of 2011, and core was expected to rise further to between 1.7 and 2 percentage points over the coming year; that is, from this June to June 2012. In the final scenario, annualized core was between 1½ and 2 percent in the first half of the year, and then headline was actually above 2. In the latter two scenarios, I predicted that unemployment would be above, but close to, 9 percent. I think the data on inflation and unemployment have evolved in the first half of 2011 in a way that's consistent with my third, relatively high inflation scenario. As a result, inflation is now much closer to a target of 2 percent than it was in November 2010, and measures of the output gap suggest that it's also less negative. For one thing, unemployment has fallen; for another, the difference between core inflation and its past or expected future values has also fallen. Now, as President Plosser suggested in his remarks, if you use a Taylor-type rule, I think these data all point to a need for reduction in accommodation relative to what we put in place in November. And this is what I said in January—if this third, relatively high inflation scenario materialized, we might need to initiate the first steps of our exit as soon as August.

That said, I should emphasize the points on which I turned out to be closer to being right. I have to say, I was also unduly optimistic in this third scenario in the sense that I simply did not

see the unemployment rate being so close to 9 percent without having had a lot more growth in real GDP than we've had, and a lot more growth in employment. However, I still think that the response I described in January to this relatively high inflation scenario would be the right one. My starting point is that our chosen level of accommodation in November was appropriate. Since that time, I believe that underlying inflation has risen and that slack has fallen. So despite the sluggish growth in real GDP and employment, I would say that the observed increase in inflation and the fall in slack would point to a need for a reduction in accommodation during the second half of this year, beyond the reduction in accommodation that President Williams pointed to.

This somewhat technical argument can be put into a broader context. Many of us, including myself, have said publicly and to each other that we would like the Federal Reserve to target a 2 percent inflation rate over the medium term. And some of you around the table have implicitly or explicitly argued that we can accomplish this goal by basing our policy decisions on our own internal forecast of the medium-term behavior of inflation. I think this approach is potentially problematic. For policy to remain credible in the eyes of the public, we need to reduce accommodation as readily observable and independently collected measures of inflation rise quickly back to 2 percent. Many of us have spoken out in public about why we felt it was appropriate to keep our chosen level of accommodation despite increases in energy prices, and I certainly have spent some time on that myself. I think we are convincing on that because inflationary expectations have not gone up. But I believe it will be much harder to maintain our credibility if we do not reduce accommodation in response to sustained increases in the prices of most goods, as captured by measures of inflation like the core PCE, trimmed mean PCE, and the median CPI. I will try to put it even less technically. We have enormous amounts of

accommodation in place. We have the short-term interest rate essentially at zero. We have \$2 trillion of longer-term assets on our balance sheet; that is roughly equivalent, by some staff estimates, to a cut of about another 2 percentage points in the fed funds rate. I do not believe that the public will view this kind of enormously accommodative stance as being consistent with our claims to target a 2-percent inflation rate when the prices of many, if not most, goods have accelerated as quickly as they have to rates of inflation above 1½ percent. As I say, I support B today, and I would support it with President Williams's emendation, which I think is an appropriate one. But I expect that the evolution of data, and especially data about measures of underlying inflation, will lead me to support an alternative closer to C in the latter part of the year. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Let me raise a question about the application of the Taylor principle in the current context. We can legitimately debate whether the funds rate should be effectively negative in some sense. But if we take for the moment the premise that, given the weak state of the economy, et cetera, the appropriate funds rate is minus 1 to minus 2, I think it's pretty clear in the Woodford style of theoretical literature that, as the appropriate funds rate moves up but still remains negative, you wouldn't respond because of the zero bound. You may disagree that we are in fact still constrained by the zero lower bound. But if we are, I'm not quite sure how I see that the Taylor principle would apply.

MR. KOCHERLAKOTA. I'm attempting to apply the Taylor principle to the joint package of accommodation that we have in place so that we are able to, in a sense, lower the fed funds rate below zero through the LSAP. And so in that sense we're able to have a policy of minus 2 percent through the stock of longer-term assets that we have. As time passes, some of

the effect of that stock, as President Williams has pointed out, will be reduced, but as inflation rises and slack shrinks, then we should be reducing that joint package of accommodation.

CHAIRMAN BERNANKE. Certainly, at some point. Okay. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I support alternative B. From a policy perspective, recent developments have raised concerns about the degree of uncertainty and the balance of risks. As I indicated yesterday in my outlook comments, I believe that we now face the difficult combination of still more uncertainty surrounding the outlook for economic growth and risks that are primarily to the downside for GDP growth and to the upside for inflation. Under these circumstances, the economy could easily evolve along very different paths that could lead me to support either delaying or pulling forward the launch of our exit strategy. So I believe this is an appropriate time to watch and wait, and alternative B strikes that right balance for today.

Regarding the language, I agree with President Plosser's suggestion to drop the second sentence in paragraph 1 on the loss of momentum in the labor markets. One month's data for me didn't indicate a change in momentum. So I would support dropping that sentence. I think that the changes to the wording around inflation in alternative B will be viewed as another positive step in our effort to improve communication, but like President Plosser, I continue to believe that a useful next step would be to publicly announce an explicit numerical inflation objective with an identified time period. A more specific time period for the objective could help the statement to be more specific on the inflation outlook when there is considerable uncertainty about when we are going to reach that mandate-consistent level of inflation, and I am pleased to hear that Governor Yellen's subcommittee will continue to look at ways to improve our language and our communication. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Mr. Chairman, I'm going to pick up where President Kocherlakota left off because I agree with his analysis and with his sentiment. I'm getting increasingly close to alternative C, but I'm going to suggest at this meeting that we should play it up the middle and adopt alternative B. The reasons for that are manifold. One is the weakness that we heard discussed at this meeting, although, like President Pianalto and President Plosser, I would say that one reporting period does not a trend make, and I would change the words as suggested in paragraph 1 and take out the "loss of momentum." I'll come back to that in just a second. The second reason is because we are in the midst of, I hope, the finalization of a budget/debt ceiling debate. I'd like to keep the focus on fiscal policy; I don't want monetary policy to be a distraction. Third are the developments in Japan and Europe. And the fourth is what I view as extreme market sensitivity to what we say and what we do at this juncture, despite the discussion we had yesterday and some apparent alleviation of what we detected a little bit last week. So I would recommend playing it up the middle with alternative B.

In terms of the language, I would like to support Presidents Williams's and Kocherlakota's suggestion to take out that part of the first sentence in paragraph 3—that is, to have it read, "To promote the ongoing economic recovery and to help ensure that inflation, over time, is at levels consistent with its mandate, the Committee will keep the target range," et cetera, and Presidents Plosser's and Pianalto's suggestion to remove "loss of momentum" in paragraph 1. I must say that I find paragraphs 1 and 2 in alternative C, even with the conclusion we have in alternative B, to be much more palatable and, in fact, to reflect what I heard discussed yesterday. I say that with a caveat of somebody who has been married 37 years and is a selective listener. [Laughter] But I do think—and Bill, I appreciate very much your including my

comment on putting imported goods in the statement—it's really the result of how firms react, and we did hear discussion, and it is a fact, that firms are reacting by trying to figure out if they can get away with raising costs or not. While I don't want to argue the point too hard, I'm much more sympathetic to the first two paragraphs in alternative C.

I want to raise one flag of caution, Mr. Chairman. I think President Williams is correct. On either side we need to think about what we will do under different scenarios, and I think I understand what Bill is saying, but I'd be extremely careful about the concluding sentence you had in your summary, Mr. Chairman, about greater or extended accommodation that may be needed to achieve the intended effects. I referenced a soufflé yesterday. I couldn't quite hear your response, but you said something about a Bernanke–Greenspan put. There is an expectation in the market that that is out there. I think the point that Bill was making—and I tried to make a little bit yesterday—is that the potency of our standard monetary accommodation, large-scale asset purchases, is diminishing over time. That doesn't mean we rule out trying to think of other alternatives, and I think that's a good idea. And there has even been a suggestion from President Rosengren that we consider other variables—in your case, the interest paid on excess reserves. I would be very careful about how we state Bill's point in the minutes. And, again, I would do as little as possible in this statement and especially in your press conference—go right up the middle of the course, be very bland, and do nothing that upsets the marketplace or tilts the balance one way or another because we're at a very uncertain point. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Let me quickly respond. My summary, of course, was just trying to incorporate the comment the Vice Chairman made. I'm not going to introduce speculative views into official communications.

MR. FISHER. No, but how it's reflected in the minutes is my point. And I don't disagree with Bill, by the way. Bill and I have talked about this before. But in terms of how we reflect it in the minutes, I think it's very, very important. We're going to be scrutinized very carefully.

CHAIRMAN BERNANKE. Okay. Of course, the minutes will be up for comment and approval, but I think it would, at most, say one person thought that. On the Greenspan–Bernanke put, it was a statement of revulsion. By the way, I don't think it exists—you would think I would know if it did exist [laughter]—and I would like to discourage that perception.

MR. FISHER. And I would encourage you to discourage it. You can't come out and say that, but I'm glad to hear you say it.

CHAIRMAN BERNANKE. Okay, thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. Well, it's tempting to say I agree with alternative B, but I will say that I thought Governor Tarullo articulated a very good point yesterday: This recovery has been marred by sputtering and pauses, and it seems to me that we've never achieved escape velocity. It is reasonable to wait and see today, and so I can support alternative B, but like President Rosengren, I think it is reasonable to consider next steps if we are, again, surprised by economic slowing. That's one reason why I was so interested in the FRB/US simulation under the alternative policy. At first blush I couldn't figure out why the inflation path was higher than what the extended Tealbook had, but then, of course, it is an optimal policy response. When I first looked at it, I thought that the policy path was about the same, but, no, upon Dave Reifschneider's response and looking more carefully, I see that it has more accommodation, and with that additional accommodation what we get from this modeling exercise is 2 percent core PCE inflation. Well, that's on target by most of our assessments. So I

thought that was good. Now, as Dave Reifschneider mentioned, one of the reasons why you get that—and what makes the unemployment rate path better—is that we preannounce, in a rational expectations sense, that policy is going to be accommodative for that extended period of time, which is longer than what we're saying in the Tealbook extension, and that anticipated accommodation has a benefit for the economy and how it plays out. So I think that's something to at least think about as we do this.

Our goals are price stability and to support maximum sustainable employment, and monetary policy has been very responsive throughout this downturn to the economy and the financial situation, even though I know there are lots of complaints about how this has proceeded. But now as things are beginning to change and the risks are more two sided, I think we have to seriously consider what we mean when we say that for inflation we have an objective of about 2 percent. What do we mean as we begin to flirt with 2 percent? And I really think that 2 percent should not be viewed as a ceiling and that if we were to breach the target, it would not be a particularly bad outcome. We have had inflation well below that objective for a long period of time, and I think that, just as we have not been unduly concerned about lower inflation, we should not be predisposed against something perhaps above 2 percent, as long as inflation expectations are reasonable, as long as they're anchored, and as long as the longer-term and medium-term paths are okay. In that regard, I think we need to be careful in how we talk about that, and much more clarity would be very helpful. If we're confronted with another pause, we would be overly risk averse if we were to simply stand pat. So I do, like President Rosengren, have sympathies with the way that policy is described in alternative A, where we get the benefits of mentioning that the funds rate could be held low into 2012. We could very well end up there anyway; we might as well enjoy the benefit of that.

In terms of the wording of the statement, I like explicit references to the labor market, our objective as stated, in terms of maximum employment. It seems to me “loss of momentum” is fairly accurate, and I would prefer leaving that. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you very much. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. I support alternative B. I especially support the language we’re using to talk about inflation. This plain-talk approach is more direct and more likely to be understood by a broader range of American citizens. It should provide us with a flexible framework for being clear about what we think has actually happened to inflation and what we think will happen to inflation. I think this will, in turn, encourage us to be more forthcoming about whether we’re satisfied with the inflation outlook, and if we’re not, what we intend to do about it. All of these things should contribute to stabilizing inflation expectations. I should note that such benefits are similar to those often ascribed to the adoption of an explicit numerical inflation objective, but I would caution against thinking of our new language as being a substitute for being explicit about our inflation objective. So I agree with President Pinalto. I think we ought to strive for greater clarity about our intentions. That greater clarity would be achieved by taking the step of agreeing on an explicit inflation target, and what we’ve moved toward in the statement about inflation makes it even more important that we take that step. I think we’re going to have a hard time talking within the new style of language about where inflation ought to go without agreeing among ourselves about where it ought to go.

On the language changes that have been proposed so far, some strike me as very good. I think the changes we made last time were in the nature of avoiding the use of latent variables, and I think of “momentum in the labor market” as one of those. So I very much support President Plosser’s suggestion that we reword that sentence in terms of observables. It is, after

all, the paragraph that talks about the present and the past, and momentum certainly has a connotation of persistence that you would think doesn't belong in the paragraph about backward-looking conditions. Similarly, I support the suggestion of President Williams. I think that "the current degree of monetary policy accommodation" is a latent variable—you know, I'm not against us using latent variables in our theoretical constructs in our conversation, but I think we ought to be really careful about foisting them on the public. I don't think there's any loss of clarity to adopt his suggestion and just be clear that we're going to keep the funds rate low and so on. I think downside risks have increased, but in my mind, that consists of a greater probability that growth is going to be around 3 or 2½ percent for the next couple of years, and I haven't heard a lot of compelling argumentation around the table that the risk of a downturn has increased a lot. Now, I recognize what these two-state models give you: The closer you slip down, the odds of a falldown are higher. But I think of most of the increase in downside risks as the risk that economic growth is going to be lower on a sustained basis. This is related to what President Kocherlakota was noting about potential. One thing that we didn't really talk about during the DSGE presentation yesterday was that all of those models have the property that potential is determined by stochastic trends. That's a technical term, but it means essentially that the trend rate of growth fluctuates over time, and so it can fall to 2 percent. It is inconsistent with what President Plosser said about the possibility of permanent downward shifts in potential. The idea that there is gigantic slack is based on essentially the statistical equivalent of this 3 percent line through 140 years of history. The DSGE models have been formulated to fit the data, and they've found that to fit the data, you need to allow the trend and the level of potential to move around in this way. For anyone who thinks slack is really large, it's important to be careful about why you believe that. Think carefully about the basis for that, against the

alternatives that seem to fit the data pretty well. That concludes my comments, and as I said, I support alternative B with those changes.

CHAIRMAN BERNANKE. President Lacker, I missed part of what you said. How would a stochastic trend with white-noise innovations be consistent with a constant—basically, 3 percent growth over 140 years? Wouldn't you expect to see extended periods of higher economic growth?

MR. LACKER. Well, if you look at the deviations from that trend in the postwar era, you see periods of 2, 3, or 4 percent that are away from trend for several years at a time. So, yes, 140 years is really impressive, but you can be below that for quite a while and still get back to it in time to make the next 140 years at 3 percent. That's the point.

CHAIRMAN BERNANKE. Sounds like it is co-integrated or something.

MR. LACKER. Yes.

CHAIRMAN BERNANKE. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I support alternative B. The description of the economy appropriately acknowledges the fact that incoming data have been weak, and the labor market appears to have lost momentum. My own view is that the risks to the outlook have now shifted to the downside as in alternative A, and I would be comfortable including the “downside risks” sentence from A in B as President Rosengren suggested, but I do not think it is absolutely necessary at this point to refer explicitly to downside risks in the statement. Given my forecast for very moderate output growth over the next few years, a higher path for the unemployment rate, a path for inflation that remains under 2 percent for the entire forecast horizon, and inflation risks that are balanced, I remain very comfortable with our current reinvestment policy and with the “extended period” language. Like the Tealbook and the

markets, I have pushed out my expectation about how long we're likely to keep our funds rate target near zero during this intermeeting period. I still think our next move will be toward less, rather than additional, monetary accommodation, but I agree with Presidents Rosengren, Williams, and Evans that we need to do contingency planning, including a consideration of further steps that we might take should the outlook deteriorate more substantially.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I support alternative B and am happy to wait and see how temporary the temporary factors end up being. I would also support the change in the language suggested by President Williams. I ran into the same conflict between the Tealbook box and this sentence. Thank you.

CHAIRMAN BERNANKE. You're referring to the "maintain the current degree of monetary policy accommodation"?

MS. DUKE. Yes.

CHAIRMAN BERNANKE. Okay. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. Like everyone else, I support alternative B. Again, I'm slightly uncomfortable with the language of B because it's a bit more optimistic than I would be. But as I reread it, there's no denotation with which I disagree; I think it's just some of the connotations. In the interest of trying to get to agreement here in a timely fashion, I don't think I'll suggest any language changes. I would be opposed to removing the reference to the labor market, although I'm sympathetic to the point that Jeff made, that it wasn't, strictly speaking, backward looking. I also support John's suggestion to remove "maintain the current degree of monetary policy accommodation." I wasn't going to say anything about inflation targeting, but I think I am now. When I came here, I was quite open minded on the subject of

inflation targeting, but I have to say, the more I listen to some of you, the more I'm afraid I read this proposal as an effort to rewrite the Federal Reserve Act and to remove part of the dual mandate. I guess I should say, for the record now, that I'm now drifting toward opposition to any inflation target. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. I support the outlook described in alternative B out of an abundance of hope that the serious downside risks to economic growth do not materialize. I also support the policy prescription in alternative B.

However the economic books and posterity judge the effects of this Committee's historic purchases of \$600 billion of Treasury securities, one legacy of the large-scale asset program that both the advocates and the critics agree on is that this program took place against a backdrop of weak macroeconomic data in the United States; suboptimal fiscal policy; modest, at best, growth in gross domestic product; high joblessness; and a flat housing market. Part of the rationale for the LSAP was that it would stimulate, or at least counteract, slow economic growth through the transmission effects of low interest rates. However, when the LSAP began last November, there followed a rigorous bout of Treasury selling, sending yields sharply higher. Predictably, rates then moved down, after peaking at 3.77 percent in February. Rates on benchmark 10-year notes are now back below 3 percent, compared with 2.48 percent before the start of purchases. Where rates would have been in the absence of the LSAP is questionable. But regardless of whether, in the absence of LSAP, rates would have been higher and deflationary pressures would have taken hold, we do know that lower interest rates have not translated into vastly accelerated business investment or momentous consumption. From this perspective, the argument for more QE of a similar size and composition is questionable. Some argue that the LSAP was too modest, but

even if it was right-sized for the economy as we saw it then, it seems to me that identical monetary policy accommodation that would be aimed directly at interest rates on Treasuries and mortgage rates may not be the prescription for today's problems. Instead, I think a different response should now be considered that addresses with precision the portions of the economy that are clogged.

What does such a response look like? I'm not sure I know, but am heartened by some of the ideas put forward by many here today and yesterday. I can think of a couple of guideposts, though, that could help steer us. First, I think we need a hypothesis that identifies where the congestion is occurring. My present view is that we have low interest rates, which should be capable of spurring economic growth, but that something else is gumming up the transmission. That something may be an econometric view of consumer confidence that is weighted too much toward the wealth effects of shareholder equity and too little toward the wealth effects of home values. That something may be the absence of value-maximizing behavior in the behavior of servicers and investors. That something may be decisionmaking by the conservator of Fannie Mae and Freddie Mac that is not leading to sustainable loan modifications. We may determine, ultimately, that the only congestion is one of a rational lag in recovery, or we may determine that there is congestion and decide there is nothing that is within the realm of the Federal Reserve to be done about it. But we certainly can't come to any conclusion until we try to reach a consensus about what is gumming up the system.

Second, we need to understand that while it may not be our responsibility or congressionally-given right to act out of the box, it is our responsibility to think out of the box. We need to be actively involved in fertilizing the ideas that our staffs bring forward.

Third, we need to think about temporal interconnections between trends. We've talked a lot about them in the last day. For example, if unemployment stays high for an extended period of time, or, in other words, if the number of long-term unemployed increases or the average amount of time a person is out of a job increases, does this affect consumer confidence? Does this increase the number of homes put into foreclosure? Or if interest rates are low for an extended period of time, what yield-chasing activities are resulting in a more destabilized financial system? And when do we move beyond monitoring and become regulatorily concerned and poised to act? These are but some questions and guideposts that could keep us on the forefront of making sure that we continue to generate cutting-edge ideas about what our economy is experiencing, with potential applications to what we are choosing to do about it. It seems to me that the considerable expertise around this table is needed more than ever to press us forward in a joint exploration of what ails this economy and whether we're going to think about doing something within our power about it. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you. I support alternative B. I think the economy is very likely to do somewhat better in the third quarter, as some of these transitory factors depressing activity fade. I also think it's not time to change policy, given that, it's fair to say, the pass-through of the commodity price pressures into generalized prices of goods and services has been a little bit higher than what we were anticipating. That said, just like we spent a lot of time doing contingency planning on what we'd do on the exit side, I think we need to do contingency planning on what we'd do should economic growth disappoint and inflation begin to decline again as some of these commodity price pressures fade. Alternative A presents one option in terms of changing the communication by committing the "extended period" language to a

particular length of time and adding a commitment to the balance sheet through the middle of 2012. But I think there are a lot of other options that we need to consider, and I would strongly encourage taking that up.

Second, I think in general the statement is a considerable improvement. I still don't think it's quite where I'd like it to be, and I don't want to make changes at this meeting, but I do think that it needs to evolve a little bit further over time. Because what we want is paragraph 1 to be a report on what we're seeing, it needs to be a statement of objective measures of what the data are. This allows us, then, over time, to call it as we see it without a lot of consequences in terms of what this implies about what we are actually going to do. And paragraph 2, then, would be about how the Committee views the outlook in light of this objective information. We're getting there, but we are not quite there yet. And I think a number of other people have cited this "loss of momentum" as more of a subjective evaluation of the data rather than a statement of what the data are, and I have some sympathy with that. Paragraph 2 also has a number of things that you might think should be in paragraph 1: "The unemployment rate remains elevated" and "Inflation has moved up recently." Those are statements of facts, so you could argue that those really belong more in paragraph 1 than paragraph 2. I wouldn't suggest making any of these changes at this particular meeting. Taking out "The unemployment rate remains elevated" at a time that the unemployment rate has been moving higher would be very odd, and the market would have trouble interpreting it. But I think over time it would be really good to have paragraph 1 be the objective statement of facts and paragraph 2 be our interpretation of it. I think we need to continue to work in that direction.

Finally, let me just make a couple of comments about what other people have raised. I certainly agree with President Rosengren today that, in your press conference, it is very

important that the discussion about the exit strategy is stated in a way that does not imply an early exit. I know you'll do that fine. It is really important that people don't think that spending so much time on this contingency plan means that exit necessarily lies close at hand.

With President Williams, I am sympathetic with his point about what the current degree of monetary policy accommodation means; that was consistent with some of the comments that I was making yesterday. I don't feel strongly about it, but if the group would want to remove that reference, I would be happy to take his amendment.

CHAIRMAN BERNANKE. Okay. Thank you very much. I think there's obviously a broad consensus on alternative B. There were some interesting language suggestions, and I'd like to take up a couple of them. First, there seemed to be a lot of support for President Williams's suggestion to omit part of the first sentence in paragraph 3 and say, "To promote the ongoing economic recovery and to help ensure that inflation, over time, is at levels consistent with its mandate," cut the end of the sentence and go to, "The Committee will keep the target range for the federal funds rate." I think that's fine. It's not important, but I think you should be aware that in the April statement, we used that same phraseology to introduce the securities purchases. So it is a little bit of a swap-around, but I don't really have any real problem with that. Is there anyone who has concerns about dropping that language?

MR. WILLIAMS. I intended for it to be "The Committee decided today to keep."

CHAIRMAN BERNANKE. All right. "Decided today to" and then restart with the word "keep" in the next part of the sentence.

Next, there was the issue that President Plosser and a number of others have raised about the "momentum" sentence in the first paragraph. Charlie, could you give us again your proposed language?

MR. PLOSSER. Let me get the right piece of paper here. I suggested we could simply say, “Recent labor market indicators have been somewhat weaker than anticipated.” And that follows from the previous sentence that says that the economy has been a little weaker than we anticipated.

CHAIRMAN BERNANKE. “Recent labor market indicators have been weaker than anticipated.”

MR. PLOSSER. I think that’s in keeping with President Dudley’s suggestion. We should just state what the facts are.

CHAIRMAN BERNANKE. Yes, it does keep with that. Let me raise one concern. I am not opposed to this, but I just want to point out that what we’re making a backward-looking statement that both economic growth and labor market have been weaker than expected, and we then go on to say that the slower pace of recovery reflects in part, importantly, factors that are likely to be temporary. And then we use language that we have used previously. So I think your suggestion might be okay, but one thing I am a little bit concerned about is that the statement will be read as saying, “Fed Thinks Slowdown Temporary.” That’s the headline. That seems a little more optimistic than some of us were. “Loss of momentum,” as you said, suggests a somewhat longer-lasting problem.

MR. TARULLO. Mr. Chairman, that goes, though, to what’s in paragraph 2, which is where the expectation is stated. I didn’t note this a moment ago, but, I have to say, I was struck by the fact that the “expectation” sentence was identical in alternatives A, B, and C. That is, “expects the pace of recovery to pick up over coming quarters and the unemployment rate to resume its gradual decline.” I guess what I’m saying is that I understand what you were saying a

moment ago, but isn't it, in fact, what the Committee expects? That is, when you said you think it's going to be temporary, that's what the statement in paragraph 2 is basically saying.

CHAIRMAN BERNANKE. Actually, one possibility is to use language similar to what I had in my speech in Atlanta where I said, "pick up somewhat." Maybe that would be—can we do that? I'm trying to avoid giving the sense that we think this is entirely temporary. Yet another approach is President Rosengren's suggestion about adding a sentence in paragraph 2 saying that the Committee perceives that downside risks to economic growth have increased. I would note that adding that would be a very significant change, because would we then also have an inflation risk component? We haven't been using the "risk" language. I'm not saying we shouldn't do it, but I'm a little afraid of doing it on the fly. President Plosser.

MR. PLOSSER. Well, I was just going to comment, because in the last two meetings, we have talked about exactly this. When the balance of risk actually rose for both inflation and output at the last meeting, we resisted reporting that in the statement. I am all in favor of talking about whether there is a way to systematically communicate this, either through the SEP or what we publish, but like you, I would be reluctant to do it on the fly here.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I think risk is a complicated concept. I think it is a good idea to include language about it, but I think we should do it contemporaneously with actually releasing our projections about risk— something down the road.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. Yes. I'm less concerned about alternative B creating the wrong impression because you are going to give a press conference, and you are going to have the projections. And the projections, I think, in some ways will speak for themselves.

CHAIRMAN BERNANKE. I think that is an important point. President Fisher.

MR. FISHER. I do want to keep "employment" in there. I mean, after all, we have a dual mandate. I do also agree we should get rid of "loss of momentum." Maybe you could use Charlie's alternative language or you could just say that "The economic recovery and employment are continuing at a moderate pace, though somewhat more slowly than we had expected," so you could work the word "employment" in there. I don't want to eliminate it entirely in the first paragraph. It's improving much more slowly than we had expected, but it's still continuing.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. You brought up risks, and I agree with President Kocherlakota. I think introducing downside risk is going to be taken as a bigger worry than I think we collectively have about the possibility of a contraction in economic activity.

CHAIRMAN BERNANKE. Okay. I guess my proposal would be to replace the "momentum" sentence with Charlie's language: "Also, recent labor market indicators have been weaker than anticipated." I also think that the Vice Chairman's point is important, that news coverage will also have to include coverage of the changes in the projections, which will make very explicit the fact that we expect economic growth to be slower going forward. I didn't hear a lot of support for "pick up somewhat," unless I'm mistaken. Let's see. Charlie also wanted to say that "Inflation expectations have remained close to historical norms." I think we've said

they've been stable for a really long time, and I don't know how people would interpret that change.

MR. PLOSSER. One of the things that we want to think about is, when we talk about expectations, it is fairly vague. It's not well defined in some sense, and different people look at different things. Going forward, we might think about how to structure that with a little more precision, if we can, about what it is we are actually referring to. That's just a suggestion to think about improving that language.

CHAIRMAN BERNANKE. It is a latent variable that we're referring to. But there are a number of those measures that we use.

MR. PLOSSER. And they do behave differently sometimes.

CHAIRMAN BERNANKE. They do. I think the volatility around where we want it to be has been limited. And the important fact about the intermeeting period, in fact, is that things seemed to have generally moved in the right direction in terms of inflation expectations. All right. If everybody agrees, what we're proposing is to replace the sentence about the loss of momentum with the Plosser proposal: "Also, recent labor market indicators have been weaker than anticipated," and then to drop the part of the first sentence in 3. Any other comments? [No response] Debbie, are you ready to read the statement?

MS. DANKER. Yes. Okay. Are we ready to vote?

CHAIRMAN BERNANKE. I think we are.

MS. DANKER. Okay. We'll be voting on alternative B that's in the handout and the directive for alternative B that's in the handout. The statement has the following two amendments. I'll read the first two sentences of paragraph 1 and the first sentence of paragraph 3, as amended. "Information received since the Federal Open Market Committee met in April

indicates that the economic recovery is continuing at a moderate pace, though somewhat more slowly than the Committee had expected. Also, recent labor market indicators have been weaker than anticipated.” Paragraph 3 says “To promote the ongoing economic recovery and to help ensure that inflation, over time, is at levels consistent with its mandate, the Committee decided today to keep the target range for the federal funds rate at 0 to ¼ percent. The Committee continues to anticipate that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant exceptionally low levels for the federal funds rate for an extended period.”

CHAIRMAN BERNANKE. Good. All right.

MS. DANKER.

Chairman Bernanke	Yes
Vice Chairman Dudley	Yes
Governor Duke	Yes
President Evans	Yes
President Fisher	Yes
President Kocherlakota	Yes
President Plosser	Yes
Governor Raskin	Yes
Governor Tarullo	Yes
Governor Yellen	Yes

CHAIRMAN BERNANKE. Okay. Thank you. I assume coffee is ready?

MS. DANKER. Yes.

CHAIRMAN BERNANKE. Why don't we take a coffee break and return at 11:15?

Thank you.

[Coffee break]

CHAIRMAN BERNANKE. Okay. Item 6 on the agenda is a discussion and approval of proposed policies on external communications. Governor Yellen's subcommittee has been

working hard and consulting with you, and I want to thank her and the members of her subcommittee for their hard work. Let me turn now to Janet for a discussion.

MS. YELLEN.⁷ Thank you, Mr. Chairman. And I, too, want to start by expressing my gratitude to Governor Duke and to Presidents Fisher and Rosengren for all of their contributions over the past several months in the work of our subcommittee. Today we'd like to present for the Committee's consideration a pair of policies concerning the external communications of Committee participants and Federal Reserve System staff, respectively. In drafting these policies, we benefited enormously from the Committee's extended discussion of communications issues last January and from many helpful comments and suggestions we received after we circulated initial drafts of these policies to the Committee in mid-May. We've made a number of revisions in response to your input.

Before moving these policies for adoption, however, I'd like to make a couple of comments about their overarching purpose. First, each policy is framed as a set of general principles, not a detailed rule book. The policies include some examples to illustrate the application of these principles, but each policy concludes by noting that those examples are not intended to serve as an exhaustive list, and hence that good judgment will be essential in applying the principles. As an analogy, one might think of these principles as corresponding to the Ten Commandments, while the list of examples is akin to Talmudic commentary. [Laughter]

Second, these policies are intended to represent the broad consensus of the Committee regarding the principles that should apply to our external communications. Indeed, I hope that virtually anyone who looks at the policies would see these principles as essentially unobjectionable and consistent with common sense. One important consequence is that the

⁷The materials for the discussion of policies on external communications are appended to this transcript (appendix 7).

policies do not extend to some aspects of our external communications on which there is no clear consensus. An example would be the extent to which participants should avoid staking out positions in advance of FOMC meetings.

Third, these policies are intended to reinforce the public's confidence in the transparency and integrity of our monetary policy process. If the Committee proceeds to adopt the policies, that decision will be reported in the minutes of this meeting, and I wanted to note that our plan is to post the policies on our public website. But we don't anticipate doing so with trumpets and fanfare surrounding their publication. Rather, I think it's reasonable to view the adoption of these policies as essentially clarifying and formalizing the set of principles that we have been previously following, but on an informal basis. To introduce another analogy, we could view this step as roughly equivalent to moving from a common law system to a written constitution, although I will defer to the lawyers on our Committee if they disagree with that analogy.

Fourth, these policies are intended to complement the ethics principles in the *Federal Reserve Administrative Manual* (FRAM) and other codes of ethical conduct for Federal Reserve officials and staff. However, those ethics codes are mainly oriented toward avoiding conflicts of interest in financial transactions, whereas these policies are focused on external communications. It's also worth noting that the guidelines in FRAM, which were adopted in 1970, are labeled as voluntary. That suggests that a senior Federal Reserve official could simply opt out of the policy at any time. If our goal is to reinforce the public's confidence in the integrity of our contacts with outside individuals and organizations, I think it's essential to establish a binding set of principles to govern our external communications. In particular, these policies indicate that the FOMC itself will be responsible for ensuring that all Committee participants abide by these

principles while each Bank president will be responsible for overseeing the conduct of that Bank's staff, and the Chairman will maintain that responsibility for Board staff.

Finally, I want to emphasize that, in contrast to the Ten Commandments, the specific language of these policies is not written in stone. I would instead hope that these principles will be living and breathing documents that the Committee will reaffirm at our organizational meeting each January, and that they can evolve over time as appropriate. For example, we have to ensure that the policy pertaining to staff doesn't inadvertently hamper their research activities, since that research plays such a key role in advancing our understanding of monetary policy. Therefore, over the coming months, I think it would be very helpful if the research directors were to take a very close look at the practical implications of the staff policy and to report back to us about any fine-tuning adjustments that they think would be helpful or necessary.

So let me stop there. I'd like to move adoption of these policies by the Committee, and I'd be happy to address any specific questions. Dan.

MR. TARULLO. Thank you, Janet. I think that you and the subcommittee have done a terrific job of walking down the middle, as Richard might have said, between excessive generalities and excessive specificity. I do have one question, which relates to a change that you made in response to a legitimate concern that somebody had, and the question is on paragraph 7 of the participants' policy. This pertains to the last sentence of paragraph 7. The original language, I believe, read, "During each blackout period, participants refrain from communicating with members of the public about macroeconomic developments or monetary policy issues." I believe that the legitimate concern that was raised was that it sounded as though you couldn't ask somebody else what they thought was going on in the macroeconomy, which didn't seem part of what we had in mind. The way it's been rephrased, though, now says, "participants refrain from

expressing their views ... in meetings or conversations with members of the public,” and there’s at least a little bit of ambiguity there, I think, suggesting that it is the forum which is dispositive as opposed to the act of communicating the views to the public. I wonder if you’d clarify that a bit.

MS. YELLEN. Thanks for the question. I’d be happy to clarify and welcome other members of the subcommittee to weigh in on this. There was no intention in this revision to delineate anything about acceptable or unacceptable forums or forms of communication. So we used the phrase “meetings or conversations” as a synonym for the word “contacts,” which appears in a number of other places in the policy, and so I translate “meetings or conversations” as simply broadly referring to all contacts. We use the term “members of the public.” And that’s a phrase that appears repeatedly in the policy and is meant to refer to all members of the public and, for example, would include the press.

MR. FISHER. Does that answer your question?

MR. TARULLO. I think so. In essence, the subcommittee’s intention is that this means participants refrain from, if I can put it this way, communicating their views about macroeconomic developments or monetary policy issues to members of the public.

MS. YELLEN. Correct. Jim.

MR. BULLARD. I also appreciate the work of the subcommittee on what I think is a very difficult topic. I have some concerns that I’ve discussed previously with Governor Yellen and President Fisher. I think there are a lot of gray areas here, and I think this cannot really be helped when you write down a document like this, but it does set up some problems of interpretation, in my view, especially for our staff. I’m concerned that this document could be over-interpreted far beyond what is intended by this communications subcommittee, and that this

could inhibit what we now consider normal staff activities. This type of over-interpretation, just based on a reading of a vague document, can often happen in a large bureaucracy like the Fed.

I'll give you one example. The New York Fed has recently put out an innovative approach to communication, the *Liberty Street Blog*. A very good researcher in the System, Gauti Eggertsson, put something on the blog based on his research in which he argues that the current FOMC will not repeat the mistake of 1937 for reasons that he expounds on the blog. I would consider something like this a very normal staff activity. In fact, I would consider robust and active debate of this type as an important contribution to high-quality monetary policy. But when I read the document here, it says, "Staff should refrain from publicly expressing their own personal views regarding prospective monetary policy decisions," which could put an end to that kind of a blog. So a literal reading of the staff portion of the memo might circumscribe Gauti's behavior.

MR. TARULLO. Jim, could I ask you to clarify? You said the blog said that we will not make that mistake?

MR. BULLARD. He thinks we won't because he thinks we'll look through commodity prices and we won't make that mistake.

If this interpretation takes hold, I would view that as a very negative development in the Federal Reserve System. It would be the opposite of the open debate that I think is most appropriate and helpful for monetary policy. Unless you think that it can't happen here, I will remind you that there was a time in the Federal Reserve System when staff behavior was tightly circumscribed and people were, in fact, fired inside the System for their views, and it was a serious situation. That has a chilling effect on the staff. The staff does not want to work on pressing issues that face this Committee for fear of running afoul of vague rules. They can

decide to do other activities, work on something else, and not address the key concerns of the Committee. So my suggestion would be to reconsider the staff portion of this memo. I appreciate that Governor Yellen has suggested that we ask the research directors to look at it and see what they think, but I want it to be on the record here that if that's the direction the interpretation goes, I would be very much opposed to that.

My second concern is that the off-the-record interview is not addressed in this document. To the extent that we have noncollegial behavior on this Committee—and I don't think that we really do to a large extent, but to the extent that we do—it comes through the off-the-record interview. And what are the rules about those interviews? Do all of these rules apply to those situations?

My third concern, which is far more minor, is that the idea of a blackout only applies to speeches or appearances that concern monetary policy or macroeconomic developments. But the current blackout, the one that we're in right now, if I count it correctly, had four appearances, one op-ed, and three appearances by FOMC members. All of them were excellent. They were not policy related, but I think it's a very slippery slope to start having lots of presentations, especially when you have any kind of Q&A or anything during a blackout period. Even if you say, "I'm not going to talk about policy issues," it can be, "Okay, I'm not talking directly about monetary policy, but I'm going to go to a conference on commodity prices, and I'm going to characterize my views about commodity prices." And then you say, "Well, that was not a monetary policy discussion. It was a commodity prices discussion," but yes, it impinges on what our views on policy would be. So I think it's a very slippery slope to get into the business of doing a lot of presentations and appearances during a blackout in which you're going to define what macroeconomics is and what macroeconomics is not. The system could break down if we

allowed too much of that to go on. But that's more of a minor concern. I think most of the things that we do are very reasonable on the blackout. For all of us, it gives us something of a respite—that is, a reason that you can turn down invitations because you're going to go on a blackout. I think it generally works pretty well, but I think that part is a slippery slope.

My main concern, then, is the impact of the vague document on the staff and the possible chilling effect of open discussion within the Federal Reserve System. Second, I do have concerns about the off-the-record interview because it is not addressed in this document. And third, the application of the blackout. Thank you.

MS. YELLEN. Maybe I'll just respond briefly on the first two. With respect to the potential chilling effect on staff research, that's certainly something that the subcommittee has absolutely no intention of having occur, and because we all realize that these are principles, we've only given a few examples of how these principles would apply in areas that are either clearly black or clearly white, and we recognize that there are gray areas. I think those types of examples would be very helpful, especially for staff. That's why I particularly would urge the research directors to sit down and to discuss concrete examples. I don't know the Eggertsson paper, so I can't weigh in on the particulars there, but we have thought about whether or not this principle applying to staff would restrict legitimate and valuable research, and as we've thought about it, I don't see that it will. What the principle is saying is that the official staff—that is, officers—should not express normative views about forthcoming policy decisions. That doesn't mean you can't do a research paper and say a particular consideration, like the impact of energy prices on future core inflation, would suggest a particular policy approach. What's to be avoided is saying, "In my personal view, I believe that in an upcoming meeting, the right thing for the FOMC to do is X." There could be a consideration you've discussed in a research paper that

points in a particular direction. You articulate that, but as long as you recognize that, for example, when the FOMC makes decisions, there are a lot of different things on the table at the same time. That might be one thing that would be an important consideration, but this Committee might consider other things at the same time. So it's to say, at the next meeting or in forthcoming meetings, official staff shouldn't be saying, "The right thing for the FOMC to do at the next meeting is X," and the other thing that official staff should not do is speculate, "I think the Committee at the next meeting will do X." It's intended to be rather limited, and I think it's very important for the research directors to consider concrete examples of the kinds of things staff really do face, and to think things through. And if the way this policy is worded is inadvertently restrictive of legitimate research activities and presentations, please come back and we will reconsider the language.

On the off-the-record interviews, our subcommittee discussed this issue. We recognized there were strong feelings around the table, and I think it fell in an area where we cannot get agreement, and we simply omitted it.

MR. WILLIAMS. I want to add my thanks to the members of the subcommittee for their work on external communications. I agree they managed to strike a reasonable balance between the various aims of our external communication. These are difficult issues. I'm going to pick up on the staff issue, and I appreciate, Governor Yellen, this idea of getting feedback and seeing how this actually works. I'm going to mention one potential challenge and, I hope, a constructive idea about how research can be done within the confines of this rule. The guidelines—and this is a separate issue than President Bullard mentioned—restrict staff economists from communicating with outside researchers, including academics, about any analysis, methods, or models currently in use but not available to the public. Now, having been a

staff economist in the Fed System for 16 years, I can personally attest to the value of such consultations with outside scholars. Outside experts challenge our assumptions, they challenge our methods, and they provide a check on group-think. To take one example, the FRB/US model, which I worked on for many years, benefited from the critical scrutiny and suggestions that we received from outside experts. Even models regularly in use need further, even continual refinement, and the same applies to models used for forecasting and the DSGE models we talked about yesterday.

I understand the concerns that led to the new restrictions on the staff interactions with outside experts, but given that these interactions improve the quality of staff analysis and, importantly, ultimately improve our policy decisions, we need to ensure that the staff continues to receive ongoing feedback from outside experts within the confines of the new rules. Indeed, staff may need more public outlets for current analysis, such as economic letters and blogs, so that they are free to discuss their methods with outside experts. These public outlets and the dialogue with outside experts that they foster contribute to greater transparency and accountability for staff research and analysis. I'm speaking from our experience in San Francisco with our *Economic Letters*, and our *FedViews*—but many of the Federal Reserve Banks have done the same thing. Putting our current analysis and our policy-oriented or current research out publicly frees you up to talk to any outside experts about the models you're using and the results you've got, and it allows you to have those very fruitful conversations. But if you don't have those outlets available—and I'm not thinking about academic research right now—then you couldn't talk to the outside experts about what you are using in your policy analysis. Thank you.

MR. ROSENGREN. This is meant to be a guideline, and it's not a substitute for common sense, so I think we have to remember that common sense needs to play a significant role in how we apply this. The goal is not to stifle research, but if the policy conclusion from research is, "At the next meeting, they should raise rates," well, that probably is going to be a problem. But if instead they say, "The path implied by the model is this," that probably is not going to be a problem. I think the research directors can spend some time thinking about some examples that apply common sense in a reasonable way, but I think part of it is tied to the specificity. There is a risk to the organization if anyone in the organization, at least from the perception of the press, can speak broadly for the organization. There is reputational risk that this is partly trying to address. The San Francisco commentary series is a great place to put comments on how we're thinking about models. But if instead of putting it on the commentary series, one person who sells his own forecast to hedge funds gets the idea that "This is the way the San Francisco Fed and the Fed in general is thinking about things," and it's not common knowledge, and he goes and sells that knowledge to a hedge fund, that is a reputational risk to the organization. The solution to that is having satisfactory outlets so that the public at large can see these types of things rather than giving commercial advantage to any one person or organization. Again, I think we can come up with some commonsense solutions that reduce our risk as an organization that we look like we're giving preferential treatment at times to individuals or organizations. That's more what it's designed to do than in any way stifle the ability of the research community to do good research and to publicly explain it.

MR. WILLIAMS. We are in complete agreement. My point was, to the extent that parts of the Federal Reserve System don't have outlets for your thinking on current analysis, modeling, and research, then it is going to be a clampdown on the ability to talk to outside

experts. In some sense, I think we should have more transparency about what we're doing, and we should make it publicly available like we've done in San Francisco and like many other Banks have done for a long time. That way I can go talk, for example, to Jim Stock about the inflation model that I've been working on because my model is out there in the public and widely available. I think we're agreeing, but I don't think the Board, for example, just to be specific, has an economic letter or something like that.

MR. FISHER. If I can add to Janet's and Eric's point—and Eric nailed it, saying it's an appeal to common sense—what we don't want is for people to speculate or telescope policy decisions either publicly or, very importantly, in a way that someone can profit. That's really what this comes down to. We're not trying to suppress thought or research that informs us. It's really a matter of—particularly on the staff level but also among principals—telescoping or speculating about where we're likely to end up after a meeting, as we approach that meeting, or what the next steps may be or the intention of the Committee is in terms of the next steps it's going to take. I come back to Eric's key point and Janet's, these are commonsense guidelines, and I think that's the spirit in which we crafted them, and it's the spirit with which they should be observed.

MS. YELLEN. Jeff.

MR. LACKER. I second the motion on the floor.

MS. DUKE. I would like to go back to the comment on the staff policy and say that I think there was one line that we meant to draw, and that was having a Fed official speculate publicly about what this Committee might do, might not do, should do, should not do—whether it's in a paper, it's in a speech, it's in a blog, wherever it is, I think that's a problem.

MR. BULLARD. Okay. You write a paper, and the paper says what the Committee should do is switch to monetary targeting. You're saying, "I did some research, and my research says you should switch to monetary targeting."

MR. KOCHERLAKOTA. I think that it's different if you say, "The implications of the analysis in this paper are that the Committee should—"

MR. EVANS. It's a framework, not an action.

MR. BULLARD. It's vague.

MS. YELLEN. Well, the research directors can try to take an example like that and indicate what they think is appropriate, and I think they're going to decide that that's perfectly fine.

MR. BULLARD. Okay. I guess I think we all basically have an understanding of what we have in mind here, and I do think there's a bit of a risk of over-interpretation in the future, you could say. And then you're working as a staff person, and you're not sure how the rules are going to come down. All of a sudden somebody is really mad at you because you did something, and you thought that this was okay. That's the danger of having a vague set of rules at the top.

MR. TARULLO. Except, Jim, they have the opportunity to show it to their research director before they publish it and to get a sense if there's a problem with it, and then that can be worked out.

MR. BULLARD. Indeed they do, and there was a time when all papers in the System were vetted through channels, and we spent a lot of time reading each other's papers and vetting them and circling sentences that we thought were referring to the dollar and all kinds of stuff like that. And we got rid of that because it was unproductive, it was useless, and it didn't promote the open discussion that I think we've achieved. My only point is that I'd be loath to turn that

tide back and go in a different direction. And I appreciate what's being done here. I think there is understanding around the table. I wanted to have this discussion so that we don't go in the wrong direction.

MR. TARULLO. Let me draw a distinction, if I could, between, on the one hand, having to submit something for prior restraint, and, on the other hand, allowing a staff person to, on his or her own initiative if he or she is worried about potential consequences, show it to a research director. I think there's a rather fundamental difference between those two.

MR. HOENIG. Just a point of clarification based on this conversation. These are identified as "policies," and, Eric, you said "guidelines," and, Richard, you said "guidelines." It's subtle, but are these guidelines, or is this a policy?

MS. YELLEN. It's a formal policy, and we have moved it for adoption. I'm going to ask for the Committee's approval of this.

MR. HOENIG. Right. And just to clarify it, "policy" is a stronger statement than "guidelines."

MS. YELLEN. It's not informal. It's not voluntary.

CHAIRMAN BERNANKE. Could I comment on this debate? The Atlanta blog, I think, is a really good example of policy-relevant, topical commentary, which does a really nice job of avoiding the problem. The way I would express the problem would be that we don't want a situation in which staff are saying things that move markets or confuse the public about what the current near-term policies are likely to be. Even with the Eggertsson paper, I think the research is very interesting and very relevant. I'm not sure that I like very much the statement that we will not do this, because it does have implications. I have had some conversations recently in other contexts about policies toward research publications, and my very strong view is that it's

best to have a policy that Fed staffers are allowed to do research on whatever topic they'd like, and it doesn't represent an official position of the Board. Once you censor one paper and then you don't censor another, people are going to assume that there's some implicit imprimatur being given to the paper that is not censored. I don't think this policy is a restriction that will stifle serious research. I would add also, finally, that these policies are supposed to be implemented at the Reserve Banks by the president of each Reserve Bank. So each of you will have opportunities to make these judgments and make sure that within your Bank the appropriate lines are drawn.

We have a motion, and we have a second. We're going to take one vote on these two policies. My understanding is, as a procedural matter, that this is a vote of the Committee—that is, the same people who vote on the current action and the statement. That being said, I think it would be very interesting and useful to know what everybody around the table thinks, so I'm going to ask for a vote of all 17 folks around the table. We will probably report, I assume, the FOMC's official vote but also indicate in the minutes the views of the broader group, if that's okay. We have a motion, and it is has been seconded. How many are in favor, please? I think we have a unanimous vote. Thank you. And thank you, Janet.

We have a couple of minutes, so maybe we could take a quick look at that updated version of the exit strategy that we sent out yesterday.⁸ And I don't intend to get into any extended discussion here. This is the same as what you got yesterday, so let me go through this quickly. The changes that have been made—first, in paragraph 3, instead of saying “relatively soon thereafter,” we say “sometime thereafter,” to loosen the temporal connection between ceasing reinvesting and modifying the policy guidance. Similarly, in paragraph 5, we have struck the phrase “probably within a few months.” And, again, the purpose of this is to give us

⁸ The revised materials for the discussion of exit strategy principles are appended to this transcript (appendix 8).

some flexibility in terms of the speed at which the sequence is executed, because, arguably, it could depend on economic conditions. We added the phrase “up or down,” suggested by President Plosser. We made the change suggested by the Vice Chairman about reducing the portfolio to “the smallest levels that would be consistent with the efficient implementation of monetary policy.”

Now, the one place where I thought there was not necessarily a clear preference in terms of giving times had to do with the horizon over which we eliminate our holdings of agency securities. And, indeed, we have, I think, put in the minutes that the majority of the Committee participants were in favor of something approximating five years. Let me try to get your sense of this. First of all, we’ve added the option of selling agency securities over three to five years as opposed to four to five. One of the memos we circulated made the point that if we sell agency securities more quickly it doesn’t have that much effect on the overall size of the portfolio. So even if we sell the agency securities in three years, it would still take two to three years to normalize the size of the overall portfolio. If we sell them in five years, it only adds about six months, or something on that order, to the time needed to get to the \$25 billion of excess reserves associated with our pre-crisis policies. This is just for straw vote purposes—do we want to ask the question about three to five years versus four to five? Then I’d be interested to get a sense of the Committee’s preference about simply leaving out the time frame. I gather that was something about which there were some strong objections. Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a very quick question of what we mean. When we say that “The pace of sales is expected to be aimed at eliminating our holdings ... over a period of three to five years,” do we mean from today, or from when the sales start?

CHAIRMAN BERNANKE. When we start sales.

VICE CHAIRMAN DUDLEY. So do we need to clarify that? Because one could read that either way.

CHAIRMAN BERNANKE. I see. Why don't we say, "Once sales begin," something like that, "the pace of sales is expected"—

VICE CHAIRMAN DUDLEY. Yes. I think you need to clarify it, so people don't misinterpret that.

MR. LACKER. Wait. That means the clock starts, and it could take five years after that?

VICE CHAIRMAN DUDLEY. That's why we're including "three," because if you start later you'll have a smaller portfolio, so you'd want to start faster. I wanted to clarify that, so that there is no ambiguity.

CHAIRMAN BERNANKE. You can't make assumptions today about when we'll be initiating sales. So why don't we say something like "Once sales begin, the pace of sales."

Does anybody want to speak on the issue of "three to five" versus "four to five"? Let's do it sequentially. Once we have a determination on that, I will open the floor for those who might want to just not use numbers there at all. Vice Chairman.

VICE CHAIRMAN DUDLEY. The whole issue of "three to five" is that you just don't know when you're going to start. And since you don't know when you're going to start, you don't know how big the agency MBS portfolio is going to be at the starting point. You can imagine a situation where we start very late, and we don't have a very big agency MBS portfolio, so we want to make it a short period of time of sales. Or we start very early and we have a much bigger portfolio—that's the logic of having a little bit more range there.

CHAIRMAN BERNANKE. Even though we have a reinvestment policy, we're reinvesting in Treasuries, and the MBS are running off.

VICE CHAIRMAN DUDLEY. And they're running off at what rate, roughly, Brian?

MR. SACK. Over the next several years, probably about \$100 billion a year. My concern about saying "three to five" is that while you may be interpreting "three" as the outcome if the sales begin late, the market wouldn't know that from this. So the market could make the inference that the Committee would consider selling at a pace of \$300 billion a year. We currently have \$950 billion or so of agency MBS. By saying "three to five," it at least opens the door for interpretation that the sales would actually be at a faster pace than suggested by previous communications.

VICE CHAIRMAN DUDLEY. Okay. That's a good point.

CHAIRMAN BERNANKE. I think we should give at least some consideration to the other memo that Brian and colleagues circulated that suggested that the net supply of MBS to the market was actually going to be pretty high over the next few years because of the portfolio of the GSEs being run down, because of Treasury sales, and some other factors. That would argue for the "four to five," I think. President Fisher.

MR. FISHER. I don't want to jump ahead here, but this is why I'm chary about putting specific time references in here. The point is, I can see both sides of the argument. We're going to do it in a way that is designed to minimize the extent to which we might affect the allocation of credit across sectors of the economy. The reason we put a time frame in there—and, I would argue, one of the arguments for that—would be just to make sure it's clear this isn't going to go on forever. Forgive me, Mr. Hoenig, but I have a feeling that's your driving impetus here. But, you know, this is a debate—"four to five," "three to five." First, we don't know when the sales are going to start. And, second, we are going to do it in a way that minimizes its impact. That's what our expectations are. So I could argue both sides. I agree with Tom's concern, I don't

want this to be pushed off indefinitely. But I think we are boxing ourselves in again by having a specific time frame here. I don't think we need to do that right now.

CHAIRMAN BERNANKE. Do you have a language suggestion?

MR. FISHER. My preference, trusting that this thing will not go on forever and that the Manager will not allow it to exist forever, would simply be to say that, "Once sales begin, the pace of sales are expected to be aimed at eliminating our holdings of agency securities over a period designed to minimize the extent to which the SOMA portfolio might affect the allocation of credit across sectors of the economy." We could break it up like we did that last sentence, but the point is to take out the specific time reference of three or four to five years.

MR. TARULLO. So what happens in the next sentence, Richard?

MR. FISHER. I would do the same. The problem is putting a specific time frame in there. We can argue how many angels dance on the head of a pin. Is it "two to three" or "three to five"? But I'm also sympathetic to Tom's argument here, in that we want to at least have an outer limit.

MR. PLOSSER. Just a suggestion. I haven't got the right wording here, but we could say, "We will eliminate our holdings of agency securities as promptly as possible while minimizing the effect on"—saying we want to get these off our portfolio. We don't want to disrupt the market, but we are going to do it as promptly as we can without disrupting the market, some phrase like that.

VICE CHAIRMAN DUDLEY. We have to get the market disruption idea in there.

MR. PLOSSER. Right. So it's done quickly, but it's conditional on—

MR. FISHER. The one thing we agree on is, we don't want to disrupt the marketplace. What we don't agree on is the time frame.

CHAIRMAN BERNANKE. That's true. There would also be some consideration, obviously, of principle number one, that we have to do it consistent with our policy objectives as well. Let me take a few more. I have a feeling we're not going to resolve this today. President Hoenig.

MR. HOENIG. Just quickly, I put time frames in there because everyone knows we're going to do this in some systematic fashion. We don't even have to talk about that. We don't even have to put this thing out. This gives them a concept of what we are thinking about. And paragraph 7 says, "Of course, we'll make adjustments if we need to, but here's what you can look to." And it gives them I think more information rather than less. Keeping it too general is just too general. It doesn't provide anything useful. So that's why I like "three to five," and "two to three." Let people know, and then we'll see what happens, obviously.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. The purpose of the clause in the first sentence of paragraph 6—about minimizing the extent to which the SOMA portfolio might affect the allocation of credit across sectors—is to announce our purpose for getting out of agencies, right? It's not about this disruption.

CHAIRMAN BERNANKE. Right.

MR. LACKER. Now, you all know I have asked our Manager many times over many meetings about this notion of disrupting the market. I agree with President Hoenig, it's unlikely that market participants are going to view us as slacking from our solicitousness about disruption to the market. It's kind of a squishy topic, though, and I've never really gotten a lot of specifics about what those disruptions mean. And I was kind of confused by the memo we got about this, because it sounded a lot like the flow effect, which I thought we had cast aside over the course of

the first purchase program in preparation for the second. So I'm still confused about what these disruptions mean. We've done a lot of analysis. We've seen a lot of scenarios. And in almost all of them, we do it in something like this time period of three to five years. The staff very kindly threw in some more-rapid scenarios to make me feel good. I wasn't able to persuade the rest of you that that was the best policy, so let's put down what we know. There are all sorts of things where you could preserve some optionality and degrees of freedom by holding back information. But this is about clarity. It's about helping the markets have some degree of predictability about what we do. And I'd say, go ahead and put the number in.

CHAIRMAN BERNANKE. For what it's worth, both of our previous communications and most of our scenario analysis is four to five years. We haven't worked with a three-year variant very often. So if you are willing to accept that, I think that was the original version.

MR. LACKER. Either one would be fine with me. I think President Dudley is persuasive.

VICE CHAIRMAN DUDLEY. I can live with four to five years. I just wanted to point out that if we did exit late, we might decide to go faster. But there's enough wiggle room here that I don't think that people are going to produce this five years from now and say, "Well, you said."

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. "Three to five" encompasses "four to five," so, therefore, I would vote for "three to five." [Laughter]

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Well, because everyone is converging, I was going to suggest saying “within five years.” But if everyone is happy with where they are, then I’m happy with that, too.

CHAIRMAN BERNANKE. Governor Duke.

MS. DUKE. I would say, I prefer to have no numbers, but if it meant I didn’t have to discuss this again, I would take anything. [Laughter]

MR. KOCHERLAKOTA. That shows a distressing lack of stamina. [Laughter]

CHAIRMAN BERNANKE. This is how labor negotiations always go—wear them down. [Laughter] Okay. So let’s just get a sense here. First of all, put aside completely for a moment the issue of three to five or four to five years—is everybody okay with the other changes that were made? Is there anyone who has strong objections to any of the other changes? Governor Raskin.

MS. RASKIN. Just on the “up or down.” I don’t think it’s hugely problematic, but anytime we talk about adjustments, we don’t say “up or down.” Just here we talk about adjustments “up or down.” So the question is: When we are silent as to “up or down,” does it suggest only one way? Are we leaning a certain way on this particular adjustment in number 5 because we’ve indicated “up or down,” whereas in number 4, we have referred to adjustments without saying “up or down”?

CHAIRMAN BERNANKE. I think in this case you could imagine circumstances in which it could go either way. In other cases, we’ve been leaning more in one direction than the other. I don’t think this is a critical issue, but I take your point. Anyone else? [No response] All right. I’m going to ask, how many prefer “three to five,” how many prefer “four to five,” and

how many prefer no numbers? And then, based on that, we're going to come back to you to try to develop some kind of consensus based on some more staff work, if that's okay.

VICE CHAIRMAN DUDLEY. Is the idea to include it in the minutes, if we can get to closure?

CHAIRMAN BERNANKE. Well, if we can get to closure. Yes. Even if we can get to closure after the meeting, that would be good.

MR. TARULLO. Mr. Chairman, can I ask a question, though? Picking up on Betsy's theme, to the degree that the inclusion of a number is very important to a couple of people and others of us are somewhat indifferent, or at least don't feel strongly about it, it would be important to know whether people might vote "no" if there were no number in there.

CHAIRMAN BERNANKE. All right. Is there anyone who strongly objects to the inclusion of any numbers? President Fisher, I think you have noted your concerns. Okay, good. Now, there is a legitimate question of "three to five" and "four to five." How many are in favor of "three to five"? Don't raise your hand too high, Jeff. [Laughter] [Show of hands] Let's see—three to five" it is. So we have a document that everybody is at least willing to buy into. Is everybody okay with posting this in the minutes?

MR. PLOSSER. Mr. Chairman, what about the other—is it "two to three" or "about three"?

CHAIRMAN BERNANKE. That follows from the "three to five." "Three to five" implies "two to three."

VICE CHAIRMAN DUDLEY. And we're putting in "once sales begin."

CHAIRMAN BERNANKE. "Once sales begin," yes. Okay. Any objection to putting this in the minutes? President Bullard.

MR. BULLARD. I am opposed.

CHAIRMAN BERNANKE. Okay. Thank you. The next meeting is August 9. I hope everybody has a good summer.

A couple of points. As you know, the press conference is at 2:15. There is a screen over here in the Special Library for anyone who wants to take advantage of that. Like last time, I'm going to be mostly focused on reviewing the projections, including the interpretation of the longer-term projections for unemployment and inflation and a link to today's policy decision. I will follow closely the language of the statement and the material in the projections.

For your information, we're trying to provide the opportunity for media coverage to actually present in real time the projection table and chart. We're now going to release those materials at 2:00, rather than 2:15, to give the TV people and so on a few minutes to be prepared to present the materials simultaneously with the press conference. The table is the one we normally release and the chart is the one you saw yesterday with more of a fan chart look that shows the range and the central tendency.

And, separately, as we mentioned yesterday, the minutes release will be moved up one day, because otherwise it would come in the middle of my monetary policy testimony.

Is lunch ready?

MS. DANKER. Yes.

CHAIRMAN BERNANKE. What I would recommend, for those who are able to stay, is to get yourself some lunch, and around 12:30, Linda Robertson will give you a congressional update. Thank you. The meeting is adjourned.

END OF MEETING