

**Meeting of the Federal Open Market Committee on  
January 24–25, 2012**

A meeting of the Federal Open Market Committee was held in the offices of the Board of Governors in Washington, D.C., on Tuesday, January 24, 2012, at 10:00 a.m., and continued on Wednesday, January 25, 2012, at 8:30 a.m. Those present were the following:

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

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

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

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

David Altig, Thomas A. Connors, Michael P. Leahy, William Nelson, Simon Potter,  
David Reifschneider, Glenn D. Rudebusch, and William Wascher, Associate Economists

Brian Sack, Manager, System Open Market Account

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

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

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

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

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

Daniel E. Sichel, Senior Associate Director, Division of Research and Statistics, Board of Governors

Ellen E. Meade, Stephen A. Meyer, and Joyce K. Zickler, Senior Advisers, Division of Monetary Affairs, Board of Governors; Lawrence Slifman, Senior Adviser, Division of Research and Statistics, Board of Governors

Eric M. Engen<sup>1</sup> and Daniel M. Covitz, Associate Directors, Division of Research and Statistics, Board of Governors; Trevor A. Reeve, Associate Director, Division of International Finance, Board of Governors

Joshua Gallin,<sup>1</sup> Deputy Associate Director, Division of Research and Statistics, Board of Governors

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

Chiara Scotti, Senior Economist, Division of International Finance, Board of Governors; Louise Sheiner, Senior Economist, Division of Research and Statistics, Board of Governors

Lyle Kumasaka, Senior Financial Analyst, Division of Monetary Affairs, Board of Governors

Kurt F. Lewis, Economist, Division of Monetary Affairs, Board of Governors

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

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

Jeff Fuhrer, Loretta J. Mester, Harvey Rosenblum, and Daniel G. Sullivan, Executive Vice Presidents, Federal Reserve Banks of Boston, Philadelphia, Dallas, and Chicago, respectively

Craig S. Hakkio, Mark E. Schweitzer, Christopher J. Waller, and Kei-Mu Yi, Senior Vice Presidents, Federal Reserve Banks of Kansas City, Cleveland, St. Louis, and Minneapolis, respectively

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<sup>1</sup> Attended Tuesday's session only.

John Duca<sup>2</sup> and Andrew Haughwout,<sup>2</sup> Vice Presidents, Federal Reserve Banks of Dallas and New York, respectively

Julie Ann Remache, Assistant Vice President, Federal Reserve Bank of New York

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

Daniel Cooper,<sup>2</sup> Economist, Federal Reserve Bank of Boston

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<sup>2</sup> Attended the discussion of the role of financial conditions in economic recovery.

**Transcript of the Federal Open Market Committee Meeting on  
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**January 24 Session**

CHAIRMAN BERNANKE. Good morning, everybody. I'd like to start by recognizing our colleague, Larry Slifman, who is at his last meeting before his planned retirement. Larry is still fairly junior, having been on the Board staff almost 42 years. [Laughter] He has attended 183 FOMC meetings over 30 years. At one day per meeting, that's almost exactly six months of FOMC meetings. [Laughter] Larry has shown great economic insight but has also excelled in mentoring others in the art of presenting complex material to the Board in the clearest and most logical manner. Larry, those of us around the table and many predecessors have benefited greatly from your dedicated service. Congratulations and best wishes for the next phase. Thank you very much. [Applause]

CHAIRMAN BERNANKE. I'd like to welcome, of course, President Lacker, President Lockhart, President Pianalto, and President Williams to the FOMC. We will have a formal organizational part of the meeting a little bit later this morning, but I thought it would be useful first to begin with our special topic, which we're looking forward to. The topic is the role of financial conditions in economic recovery: lending and leverage. This was a highly favored pick of FOMC participants when we polled you last year about what you would like to talk about. I particularly want to thank Glenn Rudebusch in San Francisco for organizing this session and acknowledge the presenters, John Duca from Dallas, Andrew Haughwout from New York, and Daniel Cooper from Boston. Let me call on John.

MR. DUCA.<sup>1</sup> Thank you, Mr. Chairman. I will be referring to the handout on lending and leverage. This presentation, coauthored with Anthony Murphy, links the sluggish recovery in personal consumption expenditures (PCE) to financial factors and then shows how movements in consumption reflect long- and short-run shifts in

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<sup>1</sup> The materials used by Mr. Duca, Mr. Haughwout, and Mr. Cooper are appended to this transcript (appendix 1).

wealth and the availability of consumer and mortgage credit. We end by discussing how recent consumer spending has been bolstered by some stabilization of household balance sheets, coupled with an upturn in the supply of consumer credit.

To provide a benchmark, exhibit 1 plots real per capita consumption normalized around the prior five major business cycle peaks. Consumer spending barely fell during these recessions—whether in terms of the average of those cycles (the black line) or their range (the shaded gray area). In the current cycle (the red line), consumer spending declined by nearly 5 percentage points before hitting bottom. Moreover, in the earlier episodes, consumption recovered rapidly. By comparison, per capita consumer spending has rebounded slowly so far in the current cycle—not even retracing its decline since late 2007.

As implied by exhibit 2, weak consumption reflects not only weak income, but also a higher personal saving rate (the red line), which jumped about 4 percentage points during the Great Recession, not noticeably declining until recently. This contrasts with earlier major cycles (the black line) when the saving rate changed little.

Turning to exhibit 3, the unusual rise in the saving rate coincides with a large decline in credit availability, as tracked by our credit conditions index (described later). On average, consumer credit conditions (the black line) turned up about a year after a business cycle peak. However, in the current cycle, consumer credit conditions have been noticeably weaker (the red line), taking 10 quarters after the peak to start increasing. The rise in the index in the past four quarters coincides with the recent upturn in nonrevolving consumer credit.

Turning to exhibit 4, it is helpful to understand recent developments by reviewing longer-term movements in the personal saving rate. The saving rate (the black line) fluctuated between 8 and 10 percent until the mid-1970s. Apart from some temporary upticks during recessions, the saving rate trended down until 2008:Q1.

In the standard lifecycle/permanent income framework, consumption depends on permanent income and on wealth. This implies that the saving rate (the black line) and the ratio of wealth-to-income (the blue line) should generally move in opposite directions, as they do. Nevertheless, the current saving rate is considerably lower than in the 1970s, despite similar wealth-to-income ratios in the two periods. This anomaly does not go away if wealth is disaggregated into different components to reflect their different influences on consumption. Some additional factor is affecting the saving rate.

Most of the nonstock wealth-induced movements in the saving rate since the mid-1970s stem from shifts in the availability of consumer and home equity credit and changes in mortgage credit standards that affected house prices. Our model of consumption, which disaggregates wealth and controls for standard factors—such as income, unemployment, and interest rates—incorporates two important, novel features. First, we estimate shifts in the sensitivity of consumption to housing wealth stemming from regulatory changes and mortgage innovations. This affects the impact

of housing wealth on consumption, the so-called marginal propensity to consume out of housing wealth. Second, we track exogenous shifts in the supply of consumer credit using a consumer credit conditions index. Before using our model to understand the recent behavior of consumption and saving, it is initially helpful to look at changes in the main components of household balance sheets and to review the more novel features of our model.

Exhibit 5 illustrates the division of household wealth in our model into net liquid assets, illiquid financial assets, and gross housing assets, shown as shares of disposable income. Net liquid assets (the red line) are the sum of deposits and cash-like instruments minus consumer and mortgage debt. The downturn in this ratio since the early 1990s mainly reflects increased mortgage borrowing. Illiquid financial assets (the green line) aggregate stock, bond, pension, and other illiquid financial assets, with a twin peak pattern reflecting large swings in stock prices. In the mid-2000s, the ratios of illiquid financial assets to income and of gross housing assets to income (the blue line) rose and fell by similar amounts.

As reported in exhibit 6, the estimated effect of net liquid assets on consumption exceeds that of illiquid financial assets. Our model estimates indicate that a \$100 rise in net liquid assets raises annual consumption by over \$13, compared with a \$2 impact from the same increase in illiquid financial assets. One reason for the difference is that households have more time and discretion to adjust their spending in response to stock price movements, whereas they incur penalties for missing debt payments. In addition, illiquid financial asset holdings are concentrated among wealthy households, whereas debt is less unevenly distributed.

There is less agreement in the economics profession about whether, and by how much, housing wealth influences consumption. In a realistic setting, where some households are credit constrained and consumer credit is more expensive than mortgage debt, increased housing wealth can boost consumer spending. Because homeowners' ability to borrow against housing equity has changed over time—as a result of tax changes and financial innovations—the impact on consumption of swings in housing wealth is time-varying.

Exhibit 7 illustrates how the estimated impact of housing wealth on consumption has evolved over time. In response to a \$100 increase in gross housing assets, annual consumption rose from as little as 50 cents in the 1970s and early 1980s, to a high of about \$3.50 by 2005. This effect fell sharply to about \$2.25 cents by early 2011. The timing of the movements in the estimated liquidity of housing wealth coincides with tax, regulatory, and financial innovations that plausibly affected homeowners' ability to tap housing equity. Our estimates of consumption's sensitivity (or marginal propensity to consume) to housing wealth are smaller than those from conventional models because we also control for changes in two commonly omitted variables, permanent income and consumer credit availability.

Exhibit 8 plots the second of these, our measure of consumer credit conditions. This is derived from a diffusion index based on the question in the Senior Loan

Officer Opinion Survey on Bank Lending Practices on changes in banks' willingness to make consumer installment loans. We first adjust the underlying diffusion index for the endogenous response of banks to changes in the real federal funds rate, the macroeconomic outlook, and loan quality. We then convert it into the levels index in exhibit 8.

The consumer credit conditions index reflects the long-term effects of financial innovations and regulatory changes, punctuated by occasional declines during several credit crunches. The innovations include the spread of installment credit and credit cards in the 1970s and the deregulation of bank deposits in the 1980s. As circled in red, consumer credit conditions also rose during the mid-2000s, but these gains were subsequently wiped out by the index's largest fall, before recovering recently.

As shown in exhibit 9, our results imply that movements in consumption relative to income mainly reflect shifts in consumer credit availability, the composition of wealth, and the liquidity of housing wealth. The saving rate (the green line) and the ratio of consumption to nonproperty income (that is, non-asset income, the black line) move synchronously, though in opposite directions. The actual consumption-to-income ratio lines up well with the combined estimated equilibrium effects (the dashed blue line) of changes in consumer credit conditions, the composition of the household balance sheet, and the evolving liquidity of housing wealth.

Exhibit 10 decomposes the main factors driving consumption since 1995:Q1. The first column reports the actual changes in the consumption-to-income ratio. The second column shows the combined estimated equilibrium effects of wealth and credit. The other columns show the separate contributions of changes in consumer credit, illiquid financial assets, net housing assets, and liquid assets.

The first row spans the stock and house price bubbles of the late-1990s and mid-2000s. In this period, the large 5.5 percentage point jump in the consumption-to-income ratio was due to three factors, circled in red. The main factor was increased illiquid financial wealth arising from higher stock prices. There were also positive net contributions from consumer credit and housing, after accounting for the drag from higher consumer and mortgage debt.

In the second row, the rise in consumption relative to income was more than reversed during the housing and financial crisis period, 2006:Q3 to 2009:Q2 (the peak and trough of the consumption-to-income ratio). Most of the 6.3 percentage point decline in the consumption ratio is attributable to the negative net housing wealth effect of 5.2 percent, the result of falling house prices, the declining liquidity of housing wealth, and the drag from the prior run-up in mortgage debt.

In the third row, from 2009:Q2 to 2010:Q4 (the end of our estimation period), the consumption-to-income ratio edged up, consistent with a slight decline in the saving rate. Here, small positive contributions from higher illiquid wealth, net housing assets, and consumer credit conditions combined to boost consumption a little.

In the final row, we extend our model forward to 2011:Q3, the most recent quarter for which we have almost complete data. The estimates imply that the recent 1.2 percentage point rise in the consumption-to-income ratio—and dip in the saving rate—since 2010 were mainly the product of notable upturns in illiquid wealth and consumer credit conditions that outweighed minor drags from housing and liquid asset effects.

When assessing the near-term outlook, it is helpful to consider recent trends in the ratios of consumer and mortgage debt to income shown in exhibit 11. Mortgage deleveraging, tracked by the ratio of mortgage debt to income (the red line), has continued, albeit at a slower rate recently. In contrast, the deleveraging process for consumer credit may have ended, since the ratio of consumer debt to income (the blue line) appears to have stabilized. Looking ahead, mortgage debt is likely to decline further, reflecting persistent problems with troubled mortgages, while consumer debt is likely to continue rising moderately, reflecting improving economic and consumer credit conditions.

Barring a major negative shock, there are signs that the correction in house prices may be nearing an end, consistent with our house price model and the recent Tealbook forecast. Reflecting the lagged effects of stock price declines in the summer and fall of 2011, the saving rate may have risen a little late last year. Under a subdued scenario of modest stock price gains, unchanged consumer credit conditions, and a dip in house prices, consumption seems likely to keep pace with income, implying little change in the saving rate by the end of 2013.

A second scenario assumes a modest increase in consumer credit conditions and stock price gains roughly in line with the December Tealbook's baseline assumption. Under this "modest recovery" scenario, consumption rises faster than income, and the saving rate is lower by about 1 percentage point at the end of 2013. Aside from income shocks, possible reductions in credit availability and stock prices pose the main downside risks to consumer spending, as shown by the crisis of 2008 to 2009.

Thank you. That concludes my prepared remarks, and I will turn the presentation over to Andrew Haughwout.

MR. HAUGHWOUT. Thanks, John. I will describe trends in household debt and borrowing behavior, giving particular attention to the sources of the decline in debt in recent years. In exhibit 1, the red line shows the evolution of household debt balances according to the flow of funds accounts. In 2008, aggregate household debt reversed its upward path and began its only sustained decline since the flow of funds accounts were first produced in 1952. The FRBNY Consumer Credit Panel, or CCP, an alternate data set represented by the blue line, exhibits the same pattern over its shorter time series. The CCP is based on a large representative sample of household debt information. While it contains some information analogous to that found in the flow of funds accounts, it is derived from consumer credit reports and provides additional information that I will utilize later in the presentation. The CCP figures

shown here are lower than flow of funds numbers since they exclude both the debts of nonprofit entities and education debt.

As can be seen in the bottom panel, which uses just the CCP data, housing-related debt—closed-end mortgages and home equity lines of credit (HELOCs)—is the dominant household liability, comprising about three-fourths of all household debt. Housing debt was also the driving force behind the recent run-up in household debt. Housing debt increased by \$6.7 trillion between 1999 and the third quarter of 2008, when it peaked at close to \$10 trillion. Since the peak, housing-related debt has fallen by nearly \$1 trillion.

Since housing assets and liabilities dominate homeowner balance sheets, the large decline in house prices since 2006 has taken a substantial toll on the wealth of most U.S. homeowners. Exhibit 2 shows the flow of funds data on the market value of household real estate (the green line), outstanding mortgage debt (the red line), and owner's equity as a share of household real estate value (the blue line). The stability of the aggregate equity share during the housing boom of the 2000s indicates that, as home prices rose, households took on additional mortgage debt at a rate that reflected the increase in house values. After house values peaked (in 2006, around the time of the peak in the green line), households subsequently responded by shedding mortgage debt. However, in contrast to developments during the run-up in home prices, reductions in debt were insufficiently fast to keep up with declining house prices, so the equity share fell sharply and now remains well below previous levels. Consequently, while households have been reducing their debts, aggregate mortgage debt as a share of the value of the relevant asset—in this case, their homes—has increased substantially since 2006.

While these aggregate losses in wealth are important, there are also significant issues relating to their distribution across households. The top panel of exhibit 3 presents, as of the third quarter of 2011, the share of mortgaged homes for which outstanding mortgage balances exceed the estimated value of the property, or nearly exceed it—that is, the equity position is less than 5 percent. Given the transactions costs involved in selling a house, these “near-negative equity” borrowers would likely have difficulty satisfying their mortgage contract solely from the funds they could raise by selling their homes.

While combined negative and near-negative equity rates are highest in Nevada (58 percent), Arizona (47 percent), and Florida (44 percent), the map indicates that pockets of significant negative equity and near-negative equity appear throughout the country, including in places like Atlanta, Chicago, Denver, Memphis, Tacoma, and Washington, D.C.

As the bottom panel shows, aggregate levels of negative equity remain stubbornly high. CoreLogic estimates that as of the third quarter of 2011, 10.7 million homes were in negative equity, and another 2.4 million had less than 5 percent equity. The negative equity share and the dollar amount of mortgage balances below this threshold have fallen slowly over the past several quarters, as borrowers have paid

down their mortgages or had them discharged through foreclosure. Exactly how this process has occurred and how much of it reflects deleveraging—households actively reducing their debts in an attempt to reduce the ratio of debt to assets—is an important topic to which I now turn.

Some recent analyses of household debt have argued that virtually all of the reductions we have observed are attributable to borrower default. These analyses, however, are based on aggregate data in the flow of funds accounts and other publicly available data sets that do not allow us to identify the source of the debt reductions. By contrast, the CCP allows us to look carefully at how both paydowns and credit report charge-offs have contributed to reductions in outstanding balances. To be clear, I will refer to the extinguishment of debt from a consumer's credit report following a default as a charge-off.

At the completion of the foreclosure process, debt is charged off, but an asset—the house—is repossessed and can be resold and remortgaged. This fact complicates the interpretation of comparisons between foreclosures and aggregate balance reductions. In order to focus on the active borrowing and repayment behavior of mortgagors, we can use the unique information available in the CCP data to break down the change in mortgage balances into three categories, each of which is tracked in the top panel of exhibit 4. The first two categories reflect the buying and selling of houses and foreclosures, while the last measures the behavior of consumers outside of these transactions. The blue line tracks changes in mortgage debt related to housing transactions other than the reduction in debt attributable to charge-offs. As expected, this series fell sharply between 2007 and 2009 as the value of home sales plummeted. The red line shows the gross value of mortgage debt charge-offs, which ballooned with the rise in foreclosures and totaled approximately \$1.3 trillion between 2007 and 2011. Again, charge-offs here are the gross reductions in household debt that result from borrower default.

Finally, the green line shows the combined impact on debt of the regular amortization of first-lien balances, cash-out refinances of first liens, and changes in junior-lien balances, including HELOCs. We interpret this series as indicative of household attempts at managing their leverage through means other than default. Between 2000 and 2007, consumers extracted equity from their homes at an average rate of \$135 billion per year. In 2008, this series turned negative. Excluding the effects of default, consumers paid down \$135 billion in mortgage debt in 2009 and \$214 billion in 2010. The chart displays the data through the second quarter of 2011, annualized, and indicates that paydowns continued apace in the first half of last year.

For nonmortgage debt, we can simply look at how aggregate balances have changed, and again use the additional information available in the CCP to remove the effects of charge-offs. We combine this calculation with the green series shown in the top panel to produce the bottom panel of exhibit 4: the net cash flow effects of changes in all forms of household debt.

Three conclusions emerge from exhibit 4. First and least surprising, charge-offs of mortgage debt have been an important source of the reduction of debts on consumers' balance sheets since house prices began falling. Second, consumers acting to pay down their outstanding balances have also been important, especially from 2009 through the first half of 2011. Finally, while borrowers had increased their debts by about \$335 billion per year from 2000 to 2007, they were paying off that debt at about \$150 billion annually by 2009. In 2010 and 2011, households have continued to pay down their mortgage debts, while nonmortgage borrowing has increased somewhat.

Determining the exact source of these changes—credit demand or credit supply—is difficult. At the same time as households faced increased incentives to reduce debt, banks tightened lending standards, as reflected in the Senior Loan Officer Opinion Survey on Bank Lending Practices. While the tightening of residential mortgage standards seems to have ended, there is little evidence that standards have become significantly looser than they were during the credit crunch of the 2008–10 period. Credit limits on revolving accounts—likely controlled primarily by lenders—have declined by more than \$1 trillion since their peak in 2008, but have shown recent signs of stabilizing, as the top panel of exhibit 5 suggests. The bottom panel of exhibit 5 shows account openings and closings, along with credit report inquiries, which are generated when consumers apply for new credit. Account closings clearly increased sharply during the financial crisis, but have returned to their earlier levels. Openings and inquiries—the latter primarily reflecting credit demand—fell but have also stabilized more recently, remaining below their earlier levels. We conclude that both the supply of and the demand for credit decreased during the 2008–10 period, but that both show recent signs of stabilization below their pre-crisis levels.

Unlike most other data sets, the CCP allows us to explore some of the aggregate trends in more detail. Overall declines in debt have slowed in the past year, so it is instructive to see who is applying for credit and increasing their debt balances. We do so by dividing consumers into groups based on their credit scores, their ages, and where they live. We also proxy for consumers' exposure to house price declines by whether they had housing debt as of the end of the third quarter of 2010. The bars in exhibit 6 show, for the past year, percentage changes in balances on three types of accounts for these groups; note that in the top-left panel credit scores are increasing as you move from left to right. Mortgage and HELOC balances are shown in blue, auto loan debt in red, and credit card balances in green. We display the percentage change in inquiries—applications for new credit accounts—as dots.

Over the past year, balance increases among borrowers with better credit scores, older borrowers, and those outside the boom–bust states have roughly offset continued declines among younger, low-credit-score borrowers and those in the states most affected by the house price cycle. While credit card debts continue to fall for borrowers other than those in the top 40 percent of the credit score distribution, increases in auto loan balances have recently become more widespread. Demand for credit, as evidenced by inquiries, is increasing as well—particularly among older

borrowers and those in lower credit score quintiles. However, increases in both auto loan balances and inquiries remain muted among those with housing debt.

In sum, the unprecedented downturn in household debt balances since the third quarter of 2008 resulted from the fact that both the supply of and demand for credit shrank significantly. The data show evidence of substantial attempts by households to deleverage, with large effects on consumer cash flows, especially in 2008 and 2009. Over the past year, both demand and supply have stabilized, but weakness in the housing market continues to be reflected in weak demand for credit among those in the boom–bust states and those with housing debt.

This concludes my prepared remarks, and I'll now ask Daniel Cooper to make his presentation.

MR. COOPER. Thank you, Andrew. For this talk, I will examine evidence of household deleveraging during and following the Great Recession, using aggregate and household-level data.

Household deleveraging has been discussed frequently of late, given the sizable decline in household debt holdings since the beginning of the Great Recession. There are several possible definitions of deleveraging. The top panel of exhibit 1 outlines the definition of household deleveraging used in this memo. Household deleveraging is a household balance sheet debt adjustment that lowers consumption beyond what would be predicted on the basis of information embedded in current and past changes in income and asset valuations. This phenomenon could, for example, be a reaction to a previous phase of leveraging where households increased consumption by accumulating debt. In the current context, households before 2007 may have increased their leverage based on optimistic expectations about future house price appreciation. Here too, “leveraging” would be defined as consumption growth beyond what would have been otherwise predicted by ongoing developments in income and net worth. Then, as house prices started to drop in mid-to-late 2006, highly levered households decided that their debt burdens were inconsistent with their downwardly revised house price expectations and acted to adjust their leverage accordingly. If true, the borrowing-fueled consumption not explained by the normal link between consumption, income, and household net worth before the recession would result in a decline in consumption relative to the levels predicted by income and net worth during and after the recession.

Consistent with the definition of deleveraging used in this memo, deleveraging does not include debt charge-offs due to foreclosure, which have accounted for at least 60 to 70 percent of the recent decline in mortgage debt. Deleveraging also does not include debt restructuring to take advantage of lower interest rates, principal repayment, or both as part of the mortgage amortization process. These debt paydowns are the result of normal household balance sheet transactions. In addition, deleveraging does not include the decline in debt that has occurred due to mortgages being paid off by older households at the same time as household formation and home purchases have been limited among young households.

Analyzing this memo's measure of household deleveraging is relevant for policymaking because it quantifies the extent to which a factor beyond observable developments in income and net worth impacted consumption and hence economic growth since the onset of the Great Recession. Indeed, many economists and policymakers have attributed weak consumption growth during the current recovery to deleveraging. My results, however, show little evidence that household deleveraging or any other non-fundamental factor has had a sizable impact on consumption so far. Consumption dynamics during and after the Great Recession, at least on a first-order basis, are primarily dependent on changes in employment, income, and net worth.

The blue bars in the upper panel of exhibit 2, show that households' aggregate debt grew rapidly during the early-to-mid-2000s—averaging 8.5 percent real growth per year between 2003 and 2006. In contrast, households' average real consumption growth (the red bars) and average real disposable income growth (the black bars) were very similar to each other over this period, growing by about 3.2 percent per year. If households had borrowed substantially against their homes during this period in order to consume in excess of their available cash flows, then consumption should have risen noticeably faster than income.

With the onset of the Great Recession, households' debt relative to disposable income—the black line in the bottom panel of exhibit 2—has declined noticeably. This decrease in household liabilities, however, does not appear to have acted as a major drag on consumption. The top panel of exhibit 3 compares the paths of consumption, income, and net worth during the most recent recession and recovery with the average path for the prior five major recessions—excluding the short-lived 1980 recession. While the recovery in consumption has been sluggish compared with previous economic downturns, income growth has also been very slow to rebound.

In addition, consumption has remained slightly below income throughout the recovery. Based on this fact, one could perhaps argue that deleveraging has been restraining consumption growth relative to income growth. The obvious first-order reason for this shortfall in consumption relative to income, however, is extremely weak net worth readings during the recession and recovery as depicted by the solid blue line. In addition, there is little evidence of a departure from historical patterns in the relationship between consumption to income and net worth to income, as shown in the bottom panel of exhibit 3.

The remainder of my talk will focus on household-level data from the Panel Study of Income Dynamics (PSID). Even though the aggregate consumption data do not show much *prima facie* evidence of deleveraging, it is worthwhile to examine the individual-level data for several reasons. First, these data provide sufficient cross-sectional variation to determine whether household consumption behavior changed during the recession—something that is not possible with a limited number of aggregate data points. This analysis is important to the extent that deleveraging was a one-time departure from the historical trends captured by the aggregate time-series data. Second, examining differences in consumption behavior across household

groups, such as those with high versus low debt, could mitigate the simultaneity issue between consumption and income that plagues macro-level consumption analysis. In particular, a finding that spending behavior differs across household groups sidesteps the simultaneity issue, since simultaneity should apply fairly uniformly to all households. Third, the microdata provide additional identification power by exploiting idiosyncratic income and net worth shocks, both of which are arguably exogenous.

I describe the PSID data at the top of exhibit 4. The most recently available data are for 2009. The bottom panel of exhibit 4 summarizes total household debt and net worth changes in the PSID both before and during the Great Recession. Total debt is mortgage debt inclusive of second liens (if any) for homeowners and noncollateralized debt for all households. The table shows that net worth fell 15 percent, on average, during the 2007 to 2009 period for households who reported a net worth decline. This drop in net worth was 4 to 5 percentage points greater than in prior years, but it was not accompanied by a dramatic change in households' debt repayment. In particular, the fraction of households reporting that they reduced debt during the recession was only a touch higher than in previous years, and the dollar decline in debt of these households was only slightly elevated relative to the 2001 to 2007 period.

The top panel of exhibit 5 reports the average change in households' consumption-to-income and debt-to-income ratios between 2007 and 2009, holding income fixed at its 2007 level. Households are divided into groups based on whether their percentage run-up in total debt between 2001 and 2005 was in the top half of the debt increase distribution, and whether or not the head of the household was displaced from his or her job between 2007 and 2009. Displaced workers with high debt had the largest decline in spending between 2007 and 2009; however, displaced workers with low debt also exhibited a sizable consumption decrease. In addition, the consumption of nondisplaced households edged down, even though their total debt rose. Overall, changes in households' consumption between 2007 and 2009 appear more related to income dynamics than to debt repayment.

Lastly, I consider whether the sensitivity of consumption to income, net worth, or both changed during the Great Recession, based on estimates of equation (1)—shown at the bottom of exhibit 5. In particular, real consumption growth is assumed to be a function of income growth and net worth growth, along with household demographics, as in standard consumption models. The growth variables are measured between PSID waves, while the demographic variables are measured as of the current wave (period  $t$ ). Household deleveraging, to the extent it occurred and was not independent of ongoing developments affecting income and net worth, should have altered the sensitivity of consumption to those two fundamentals across certain types of households. For instance, high-debt households, homeowners, or both should have adjusted their spending more drastically to pay off debt than less levered households or renters.

Exhibit 6 shows the impact of income growth and net worth growth on consumption. The top panel of exhibit 6 reports baseline estimates of equation (1). Overall, the consumption sensitivity results in both periods are consistent with previous household-level estimates in the literature. The sensitivity of households' consumption growth to income growth and net worth growth was a tad higher during the recession period (2007 to 2009) than during the pre-recession period (2001 to 2007). These small differences over time, however, are not statistically distinguishable, suggesting there is little evidence that deleveraging caused a major shift in households' spending behavior.

The two lower panels of exhibit 6 report consumption growth estimates across different household groups. The middle panel shows that the spending behavior of homeowners was nearly the same prior to and during the Great Recession. In contrast, the sensitivity of renters' consumption growth to changes in net worth increased somewhat during the recession, although the differences between periods are not statistically significant.

The bottom panel of exhibit 6 reports estimates of consumption growth for high-debt households (those with above-median debt) versus low-debt households (those with median debt or below). The results show that the sensitivity of consumption growth to income growth declined a touch for high-debt households during the Great Recession, while the sensitivity to changes in net worth increased a bit. In comparison, the sensitivity of consumption growth to income growth and net worth growth rose somewhat over time for low-debt households. These differences within groups across time, however, are small and statistically insignificant.

The absence of major differences in behavior between high-debt and low-debt households argues against the possibility that a factor beyond developments in income and net worth impacted households' consumption. In addition, the observed shifts in the sensitivity of consumption of high-debt households to income and net worth that did occur had a very small effect on overall PSID consumption—less than 0.1 percent (not shown)—according to the data. This finding does not rule out deleveraging, but suggests that any deleveraging by highly levered households, in response to falling house prices, did not have a first-order effect on consumption.

I also consider whether the Great Recession represented an anomalous period in the sense that household spending responded to debt directly, rather than indirectly through net worth. Indeed, as shown in the top panel of exhibit 7, household liabilities have been very elevated relative to net worth since the beginning of the Great Recession, especially compared with historical patterns. The estimates of equation (1) in the bottom panel of exhibit 7 control for households who reported a debt decline and test whether such households exhibited consumption growth that was particularly sensitive to changes in income and net worth.

The results show that, on average, the consumption growth of households who reduced their debt between waves of the PSID was lower than the consumption growth of other households. In addition, the consumption behavior of debt-reducing

households did not change markedly during the Great Recession, and the share of consumption growth explained by the debt-decline variable is stable over time. That is, households reporting a debt decline account for 24 percent of predicted consumption growth prior to the recession and 26 percent during the recession (not shown). The sensitivity of debt-reducing households' consumption growth to changes in the growth of income, net worth, or both was also no greater than the sensitivity of other households. It does not appear, therefore, that a substantial shift occurred recently—at least through 2009—in determining household consumption behavior.

In summary, I find little empirical evidence during or following the Great Recession that factors other than ongoing developments in income and net worth had an impact on consumption. The PSID data go only through 2009, so it is possible that a more recent shift in households' spending behavior has occurred. My estimates and the aggregate data suggest, though, that deleveraging does not have a first-order effect on consumption. As a result, even if pent-up demand for deleveraging exists, the risks to consumption growth would be limited. The standard relationship linking consumption to income and net worth should continue to be a reasonable predictor of household spending. This concludes my prepared remarks.

CHAIRMAN BERNANKE. Thank you all very much for a very interesting presentation. The floor is open for questions, comments, or reactions. Would anyone like to begin? Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. I think each of these presentations was really very interesting and timely, and there's a lot to think about here, particularly in the fact that they're not all consistent with each other. Interestingly enough, in John's presentation, he points us to the possibility that tax, financial, and regulatory changes would be affecting the sensitivity of consumption to household wealth, and we see something that looks significant in that story in exhibit 7 of his presentation. I have to say that as I looked at this, it sounded rather plausible, in fact, because we are having some difficulties explaining consumption growth recently when some of the underlying fundamentals like household wealth and real disposable income aren't supporting what we see. The notion that there are these underlying regulatory issues going on sounded as if it was on the right path, and I was even tempted to add that there could be something else going on having to do with the general convenience factor in terms of

refinancing. It was the case that in the upturn, it was very easy to do a refi. You could meet your mortgage broker on a Saturday in a parking lot and get it done within hours, and now there seem to be these inordinate obstacles. While John's story sounded quite plausible, we then get to the Boston presentation where we're told that the data showed that the standard relationship linking consumption to income and net worth stays as it has stayed historically, and that we're not seeing real statistically significant differences between owners and renters or between levered and nonlevered households. Is there a way to reconcile these stories?

MR. DUCA. That's an excellent question. If the ratios of consumption to income and wealth to income were stable, then one could estimate an equation like Daniel's over a period where the relationship held in first differences. The problem is that that relationship is not stable if one uses a definition of income that excludes the income from assets. Personal disposable income includes capital gains on stocks and housing, as well as income from dividends and interest, and as a result, in consumption equations and consumption functions, if one includes a measure of income with property income and puts in wealth, one in a sense is double-counting wealth. If one takes out property income, you see a big change, bigger swings in consumption to income. For example, the blue line shows what happens if you include property income—not much movement. The red line shows bigger swings, and because the relationships are not stable, if one properly measures income, in our opinion, then one needs a more detailed approach. That's why we break out income into the different components, and that's why we test for these other factors. I would like to add that a lot of people have found that it is important to disaggregate wealth. For example, Rick Mishkin's paper with J. R. Kearl demonstrated a long time ago that debt has a bigger effect on consumption per dollar than does, let's say, a rise in stock wealth, and there are a lot of other models out there that do that. We look at things a little

bit differently. We estimate over a long period because there are several things going on. We want to sort out what's the effect of swings in credit availability, stock wealth, and housing wealth. If you look at a narrow time frame, there are too many things moving together, so it's hard to disentangle that. I'm sorry for the long answer.

MR. COOPER. Basically, the point of what we're doing is, we're trying to address whether the consumption forecast has been and is too optimistic based on some unknown factor, and the conclusion is that unknown factor doesn't really seem to be there. We're not really trying to get into a debate about whether there's a credit crunch or not, although one of the advantages of looking at the microdata is that, to the extent something is going on and you believe that there is some credit channel, you really should see it when you're breaking out the households into high-debt or low-debt households or homeowners versus renters; we just don't see that there. The other thing I'd add—and I don't really want to get into a debate about the data—is that a lot of the aggregate analysis I present holds up with alternative definitions of income. If you use labor income in the regressions that I have with the microdata, the results are very similar.

CHAIRMAN BERNANKE. President Rosengren.

MR. ROSENGREN. I want to follow up on Governor Raskin's question. First, Dan used a definition of deleveraging. I'm just curious whether the definition that he used would be one that you would use, because the term is used differently in the literature. I think, actually, in this case it does matter because some people use deleveraging to mean that it is policy-invariant—that is, that we just have to wait for the passage of time for people to pay down the debt. Using that definition, Dan draws the policy implication that it's not just a case of waiting for time to go on, but actually there may be things that policy could do to affect some of the

fundamentals. Second, he drew a little bit more of a policy context than the other presentations. Would you agree that if a lot of it is explained by some of the fundamentals—either disaggregated or not disaggregated—that is something policy can do something about, or would you be more comfortable thinking of it as policy-invariant?

MR. DUCA. One of the things that we have found is that debt has a large effect on consumption. The estimated effects really haven't changed much if you estimate through, let's say, 2007 versus, let's say, 2010 or 2011. In that sense, the effects may not be all that different, but they're large. And the disaggregated approach has the advantage of taking into account that a debt overhang can have a damping effect on consumption that lasts for a long time. That's why we prefer that. With respect to write-offs and looking into this whole issue of write-downs of underwater mortgages, I haven't done enough on that to really hazard a guess.

MR. HAUGHWOUT. I would say that I have a slightly different definition of deleveraging than the one that Daniel uses, and essentially what I said in the presentation is that when household asset values change or net worth changes, that could induce households to change their repayment behavior through means other than foreclosure. They may choose to accelerate payments on their mortgage or choose to pay down their credit card balances as a reaction to a change in asset values. Now, I believe that Daniel would not consider that deleveraging because asset values are a fundamental, but in my presentation I referred to that as deleveraging. That's a slight difference in the definition, which might bring a little more consistency between our two presentations. That said, looking forward, in both our views I would believe, the path of asset values and net worth of households is going to be important in determining how much future debt paydown we see. I'm not sure whether it has direct policy

relevance right now, but it may be a cautionary note in thinking about how consumption and saving are going to evolve in the future.

MR. COOPER. I don't really have a whole lot to add to that other than to say that Andy's and my definitions are somewhat similar to the extent we're looking for people who are actively deleveraging or actively choosing to pay down debt beyond what's going on with foreclosures and default and other things. One point, though, is that you can actually get shifts in the debt-to-asset ratio without any effect on consumption. For example, someone with sufficient assets could choose to use some of their assets to pay down their debt just through a balance sheet reshuffling without having any particular change in the consumption. I would not consider that deleveraging.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a couple of broad questions for you to react to. First, assuming that you save to achieve wealth rather than saving for its own sake, the level of interest rates might affect what you see as your appropriate level of savings. Obviously, if real rates are low, you need to save more to achieve your net worth objectives. How do you think the low level of real interest rates should affect the outlook given your work in this subject? That's my question number one. The second question is income distribution has changed pretty dramatically over the last couple of decades, and you could imagine a situation in which the individuals who are accruing income could be behaving very differently than those who are actually getting squeezed in terms of income growth. When I looked at what you presented, that was all mushed together, and there was no income distribution channel. I'd like to get your thoughts on that. And then finally, I want to amplify what President Rosengren asked. Daniel's comments that there was no independent deleveraging effect seemed to have a pretty strong

implication for the outlook. But John and Andrew, I didn't really get that same sense of what the outlook implications of your findings were. If you could just expand on that, that would be helpful.

MR. DUCA. If one estimates these sorts of models using levels and some details, one typically finds that housing wealth has had a bigger effect on consumption as one moves forward in time. You can see this in the aggregate data. You can even see it in some disaggregated studies. Even Daniel's 2009 study showed that when you estimate a framework that I would find a little more amenable to something in levels, you do see this. Wealth effects are usually drawn out. They're not a one-time thing, and using first differences really obscures how wealth can affect things. In terms of real rates, the effects tend to be pretty limited. We do find that changes in car loan rates have big, short-term effects, and we do try to control for that. We don't include any data on income distribution. It's hard to do that with aggregate data. Some other people have been looking into that, but it's a little difficult because of our federal data system. We haven't had consistent data on consumption and consumer spending at the state level over long periods of time, but it is something that my coauthors, Muellbauer and Murphy, and I are thinking about and looking into.

MR. HAUGHWOUT. Maybe I'll chime in with a couple of observations. First of all, on the question about saving, one important thing to keep in mind is that for many households the way they save is by paying down debt, and so the notion that the real rate has a relatively simple effect on the way people think about saving is a little bit misleading, as you're well aware. We do observe some changes in that saving behavior in the form of debt paydown over this time period. Second, the consumer credit panel data that we're using don't have any information on consumer income, and so I'm not able to say anything direct about that. However, some of the

charts in exhibit 6 give some indication of the differences across different groups in the economy. For instance, younger households seem to be behaving quite differently from older households; they are continuing to pay down debt, whereas older households are increasing their balances. It will be nice to have some better income data at the individual level and a big sample to be able to get at some of these questions a little more closely. Finally, on the outlook, what I would take away as the bottom line from my presentation is that the outlook for asset prices and net worth of households is going to be very important in determining the path of borrowing and likely consumption going forward. That's a hard thing to get a handle on—what's going to happen to house prices in the next five years—but I think it's very important. We have a large pool of underwater borrowers and large flows into and out of unemployment—these are situations that may have big effects, in my view, on the outlook for consumption.

MR. COOPER. I'm going to go in reverse order because I want to agree with what Andrew just said. As I said in my talk, the outlook for net worth and income really is what's going to drive what's going on. To the extent that falling asset prices are going to have an effect, it could be a place that policy could intervene in terms of trying to help people, if that's what you're looking to do. The other thing I wanted to comment on is a lot of people save not only by paying down debt, but also by building equity in their house. I don't have the exact statistics here, but for the vast majority of the people who are in the lower part of the wealth distribution, their wealth is all in housing. To the extent that even with low interest rates people can't get into new housing because of credit problems or something else, there's a market failure that potentially has to be addressed to get housing demand back up. Another channel through which consumption has been bolstered a bit in the past through low interest rates is refinancing. If people are underwater—as Andrew pointed out—and now don't have the income or whatever to

get approved for refinancing, that may be restraining a bit people's freeing up cash flow for other spending purposes. Finally, in terms of the income distribution, I touched on that a little bit in terms of the amount of housing wealth they have. I've done a little bit of related work while doing this analysis, and basically if you look across the income distribution, you also don't really see major effects. But again, the PSID doesn't have the really high end of the income distribution. It's a representative sample, but it's not like the SCF. The PSID doesn't oversample the wealthy. It has a poverty sample, but those households tend not to have much housing wealth. The income distribution is important, but one of the reasons it's important is because a lot of those people usually save in terms of housing and through potentially paying down debt or building equity in their house.

CHAIRMAN BERNANKE. President Williams.

MR. WILLIAMS. I found all three presentations very useful, and I like the fact that you used different data and different methods of looking at the same set of issues. That was very informative.

I have a couple questions. The first one—for all three of you—is how do you see your work fitting in with other research that argues that leverage was an important reason both for the severity of the Great Recession and for the sluggishness of the recovery? I'm thinking particularly of the work by Mian, Rao, and Sufi. They take county-level data and assess the importance of leverage on consumption, and they find that consumption has been much weaker in counties that had many high-leverage households, using the cross-section across counties. This effect causes a significant reduction in aggregate demand the past few years. Again, the question is: How do you see your research or your work relating to that kind of research?

My second question—and this may be more for Dave Reifschneider, so wake up, Dave [laughter]—I was really struck by one of the summary statements in Daniel’s presentation that the standard relationship linking consumption, income, and net worth should continue to be a reasonable predictor of household spending, and that there’s little evidence that this didn’t hold. And I was just curious from the point of view of FRB/US—which I see as having these standard relationships between consumption, income, and net worth—whether the model predictions for consumption over the past few years track actual consumption reasonably well or whether there were big residuals. I’m using FRB/US as a typical model of consumption. Those are my questions.

MR. HAUGHWOUT. Maybe I’ll start by speaking a little bit to the previous literature and Mian, Rao, and Sufi, in particular. I take that paper to be quite consistent in several ways with my presentation. First of all, as you point out, they find significant evidence of household paydown of debt outside of the foreclosure process. They have a similar data set to the one that we’re using. It’s not quite as good—only 80 percent as good, which is good—and so they’re able to take out the effects of foreclosures on debt declines and get a sense of how much debt payoff there has been. They find a significant amount, which, again, is consistent with my notion of deleveraging, although slightly different from Daniel’s. They also find a relatively large effect of debt overhang, if you will, on consumption during the Great Recession and through 2009. I find the analysis broadly convincing, although they use an instrumental variables approach and I’m not 100 percent convinced about the instrument—but I say that about every instrument, I think. It’s fair to say that their analysis is quite consistent with our results, and I would agree generally speaking with their approach to the question.

MR. COOPER. I don't really agree that the Mian and Sufi work is consistent with what we do. Their main thesis is that consumption drops the most in the counties that had the greatest run-up in debt between 2002 and 2006, and they attribute this to deleveraging. Some of it is a definitional difference, that there's a run-up and a rundown on debt, and that's it. But the biggest difference is that they don't have individual-level data. They don't know anything about the individual's net worth or income or anything else. As a result, they can't really distinguish between changes in consumption due to debt and changes in consumption due to net worth. My interpretation of their results is that a lot of what's going on is changes in net worth. Also—and I've done this with the consumer credit panel—they find a correlation basically between changes in debt and big drops in employment and big drops subsequently in consumption. It turns out that places that have big run-ups in debt also had incredibly big drops in residential investment. To the extent that you believe that there is a multiplier effect, construction workers who get laid off can't go to the local Applebee's to buy dinner as frequently, and that in turn cuts down on the income of the waitresses, and it becomes circular. There's a potential for a lot of that to be going on, and that's not something that they can address. Also, I would agree with Andrew that I find the instrument a bit suspect.

MR. DUCA. I would like to comment on the breakdown in wealth. FRB/US breaks wealth down into stock wealth and other wealth. The other wealth basically includes other assets and then takes into account debt. Part of the reason for that is that there is a difference in the effects. Stock wealth has less effect than the other components in FRB/US. Our findings use a three-way breakdown. It's a little different, but it's consistent with the idea that we do see in the data—and a lot of people have found this when you look through the history—that there is a difference in the sensitivities of consumption to the different components of wealth. Our results

are generally consistent with that notion. Mian and Sufi's results seem reasonable for autos, but I get a little suspicious about using credit card data to track non-auto retail sales because, as we all know, the payment system and payment media have shifted. I wonder to what extent the increased use of debit cards and electronic payments has perhaps caused their estimates of the fall in retail sales to be a little low. Nevertheless, their results are consistent with a long history of work showing that debt does have a more potent effect on consumption than asset holdings.

MR. HAUGHWOUT. Maybe I could chime in on one more thing. One of the benefits and one of the things I liked about the Mian, Rao, and Sufi paper is just what John pointed to as a weakness, that is, the MasterCard data. What I like is that those data exclude mortgage payments, which are probably 30 to 40 percent of homeowners' income. If you're not defaulting, then that payment is going to be roughly stable. You probably have a fixed-rate mortgage, and your payment is the same every month. They're able to take that out of, if you will, the voluntary consumption bundle and look at things like groceries and restaurant meals—somewhat more discretionary expenditure. I thought that that was a value, and I do believe that those data incorporate debit card transactions on MasterCard debit cards.

MR. DUCA. Then I stand corrected.

MR. HAUGHWOUT. Well, I'm not sure about that.

MR. REIFSCHEIDER. On the question about FRB/US, let me answer with FRB/US, EDO, and a number of other staff models because they all tell similar sorts of stories. FRB/US has an aggregate relationship. Consumption is related to an estimate of permanent income, which is disaggregated. It's also related to wealth, which used to be disaggregated, but these days we just use total household net worth because we haven't been able to reliably estimate a difference between the two components. And then there are other cyclical factors that come in.

That equation went way off during the recession, in 2009 and 2010, but since then it has come back on track in the sense that according to the model, there are no longer negative shocks—it's still tracking back to what would be its longer-run level. EDO saw a similar pattern. However, when EDO looks at the unusual weakness in consumption, it parses the data and looks at the pattern of investment and things like that, and it says, "Oh, there was a big adverse shock to risk premiums that hit the economy, and that explains it." That shock has faded away some. Then if you look at a simpler reduced-form consumption forecast equation—for example, one that the staff uses to prepare the judgmental forecast—it was also off a lot during 2009–10, and it's now coming back on track.

One way of looking at all of those models is to conclude that something funny seemed to happen during the middle of the recession, but now the equations are looking okay. So, whatever happened, it was transitory. That may be the right conclusion, but I'd throw out a couple of caveats to that. First, if you're using aggregate data, the aggregate data are still, in real time, subject to major measurement changes. Income, consumption, and wealth could all be revised a whole lot, which means that the statement "they're all back on track now" is still open to question. Three or four years from now, we'll be able to say that with more confidence, once the tax data are folded in. The second point is that—again, just focusing on aggregate data—if you did rolling estimates of the coefficients in the models, then you'd say, "Well, they're not shifting around too much, those look pretty stable." But rolling estimates of those coefficients can nonetheless send out-of-sample forecasts really whipping up and down in a way that would be very material for the forecast. There's a tremendous amount of uncertainty about what that aggregate relationship actually is, even using revised data.

And the third point I'd make is that when we talk about these fundamentals, we need to keep in mind how they may be affected by things such as financial innovations and changes in credit availability. When we take housing wealth—a fundamental—and condition on it, we also have to keep in mind that housing prices went way up, and ask what role did financial innovations have to do with that? What role did tightening down on credit and the demise of subprime lending have to do with bringing house prices down? Finally, when you are working with aggregate data, there is a tremendous simultaneity problem. Income really isn't in some sense a fundamental, and wealth in the aggregate isn't a fundamental. It's all part of a system that's very complicated, and teasing out leverage and credit effects is very difficult. That's not a critique on what anybody did. It's just a problem.

MR. DUCA. I'd like to add something to what Dave just said. In some of our work we've actually tried to track the downpayment constraints facing first-time homeowners, and it appears that credit standards were, in fact, weakened quite a bit during the subprime boom, and then they got tightened. So in a certain sense, we may have had a failed financial innovation. These are time-series data going back to the late 1970s through 2009. That just supports Dave's point that when we look at these balance sheet effects, they're really tracking, to some extent, the structural transmission mechanism of all the things that are hitting the economy.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. First, I would like to ask a couple of definitional questions that I am sure the economists around the table know but I don't. The first question relates to the broader concept of saving and whether pensions are factored into the saving rate for society—not the personal saving rate but the broader saving rate. Then, how does

the anticipation of pension income or recent fears about Social Security being there or not being there factor into a consumer's thought process about wealth and net worth? Any answer?

MR. DUCA. Well, the anticipation of changes in Social Security is a real tough one because obviously, the issue of how to deal with the funding of these liabilities hasn't been addressed. That is a very important question, and I think we will have to monitor the spending behavior of the elderly and of their children. Corporate contributions to defined benefit plans are incorporated into the saving data, but it is imperfect. We have a lot of shifts in the form of pensions as well, and there is also a lot of uncertainty, depending on whether or not your company is declaring bankruptcy, like the airline I am going to be flying back home on. It is a thorny issue. Perhaps Dave may have something to add.

MR. PLOSSER. Using up a lifeline, is that what we're doing here? [Laughter]

MR. COOPER. I don't know enough about the NIPA definition. For what I was doing, wealth in the PSID doesn't include any defined benefit plan anticipation. But theories based on consumers being forward-looking in their consumption decisions should be based on their anticipations of pensions, and if they don't think their retirement is going to be there, perhaps they are going to be ratcheting back their consumption and saving more now.

MR. LOCKHART. The simpler question, then, is do you define stocks and bonds as illiquid because they are in accounts that cannot be easily tapped? Because the reality of most stock and bond holdings is they are practically as liquid as pulling down a cash balance.

MR. DUCA. My coauthor from Great Britain uses that term to basically mean assets that are subject to capital gains and capital losses.

MR. LOCKHART. One more question, if I may, and it's related maybe a little bit to Vice Chairman Dudley's question on income distribution. In a recent reading—I don't know if

it's true or not—I read that 40 percent of aggregate consumption is attributable to the top 10 percent of income. That would suggest to me, if that is true, that the growth in consumption is largely going to be driven by the behavior of the relative few in society. And, therefore, we ought to be focusing on how that top 10 percent or top 20 percent thinks about wealth, future income prospects, and so forth. Now, first, is the assertion correct? And then, how do you factor that into your thinking about the broad question of the growth in consumption?

MR. HAUGHWOUT. I can't speak to whether the assertion is correct, although I am certain that some qualitative fact like that is true—that a large proportion of consumption comes from a relatively small proportion of high-income earners. One thing I would point out is that the biggest declines in asset values over the past several years have been in housing, and homeownership is, of course, quite concentrated at the very top of the income distribution. In other words, at the top of the income distribution people are very likely to own homes. And, thus, these high-income individuals are likely to have sustained significant reductions in their housing wealth in the past five years. They are probably less likely, though, to have mortgage debt, or substantial amounts of mortgage debt, against that housing, so that there may not be such a debt overhang. It is more of a pure wealth effect possibly, and that would potentially affect their consumption going forward.

MR. WILCOX. On the issue of pension funds, the pension fund itself is attributed to the household sector, so a contribution from an employer into the pension fund is treated as part of personal income. For reasons that are going to seem very confusing, but it makes sense once you have been thinking about it for a long time [laughter], because pension funds are already in the personal sector when the pension fund pays out a benefit, it is a payment within the personal sector, so that is not treated as part of personal income. The income, as far as the national

income accounts are concerned, took place when the employer made the contribution into the fund. That got it into the personal sector. Thereafter, it stays in the personal sector. Interest and dividend income is attributed to the household sector, so that counts as part of personal income. I think the comment earlier was right on, which is that theory tells us that households ought to be taking a long-horizon look at the assets that will be provided out of those pension funds in terms of determining their permanent income prospects and, hence, the level of consumption that is appropriate.

MR. REIFSCHNEIDER. Continuing on the NIPA Jeopardy questions, as we often say internally [laughter], your conjecture that upper-income households account for a disproportionate share of total consumption is correct. Whether it is exactly the number you just cited, I'm not sure, but that number sounded reasonable to me. The other thing I would point out is that part of the reason why the SCF oversamples the rich is because they account for a disproportionate share of the total wealth in the economy, a disproportionate share of consumption, and so forth. It is important to get good information on that, so we try to do that. Second, in thinking about what that means, we also have to keep in mind that—and this was alluded to a second ago—those upper-income people are the least likely to be affected by any kind of credit constraint or things like that. They are the ones most likely to be financial planners, so their behavior is likely to be more like a classic optimizing household than, say, someone in the bottom 20 percent of the distribution who is more likely to be liquidity constrained.

MR. LOCKHART. Thank you.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I have a comment and a question. The comment I would make is on exhibit 11 on page 7 of John's presentation. John, you expressed some confidence that these ratios were starting to stabilize, especially the consumer debt-to-income ratio was starting to stabilize. Looking at the time-series plots, I'm not sure where I should draw that confidence. It looks like, for example, the mortgage debt-to-income ratio is still quite elevated compared with where it was in 1996 or so when housing prices started to rise very rapidly. The consumer debt-to-income ratio also seems maybe not as elevated but relatively elevated. I looked at these pictures, and I was more concerned than comforted by them. That is my comment.

The question, I guess, is for Daniel. You made the statement that the linkage between fundamentals and consumption looks the same post-2007 as pre-2007. The one fundamental that is missing from the regressions—and this is something that Vice Chairman Dudley emphasized in his comments, too—is the real interest rate. The literature I have seen on household consumption typically includes the real interest rate as an explanatory variable. This is not just an academic comment in the sense that what we are trying to do is push down on that real interest rate, and we have been somewhat successful on that. The real interest rates are much lower now than they were in 2007. But that doesn't seem to have materialized, and your own results seem to show this: It doesn't seem to have shown up in the kind of faster consumption growth we would like to see because otherwise you would have picked that up as, "Hey, my regressions are different in 2007 than they were before that." One question is why you didn't include the real interest rate as an explanatory variable. And then, couldn't we see something about leverage as being a reason why consumption doesn't seem to be as responsive to the real interest rate?

MR. DUCA. Why don't I address the first question? I distinguish between the two—and perhaps you may have misheard me, or maybe I misspoke. I said mortgage debt is likely to decline further, reflecting persistent problems. I noted that the rate of decline seemed to have been a little slower of late, and I think we all know that, to some extent, that is the end of the robo-signing. But when we look at consumer debt to income, we have seen the nonrevolving component of consumer installment credit rising for quite some time. Consistent with the loan officer surveys, we are seeing an upturn in willingness to lend—a continuing easing of credit standards for consumer loans. We are also seeing consumer loan delinquency rates falling to very low levels. And if we look at the financial obligations ratio material that the Board staff put together, we see that the financial obligations have really fallen as a share of income to levels that are more sustainable, shall we say. I couch these things with “likely.” “Likely,” in my mind, doesn't mean I am all that confident.

MR. COOPER. To address your question on the interest rates, the regressions include year fixed effects, so that is going to absorb any of that. Typically, in the consumption models, we only use the real risk-free rate or something that is going to pick up all the variation in that. It probably would be interesting to the extent you had data on the interest rate faced by the individual consumer in terms of their ability to borrow or lend, and that might get some interesting cross-sectional variation there. I will say that the year fixed effects are very constant over time if you just plot them. As to why there isn't more of a consumption jump from low interest rates, I don't want to hypothesize too much on that. One thing that people have suggested is that perhaps some of the people on the margin where it really matters are the ones who are constrained, and they can't refinance their house to take advantage of the cash flow. But

just averaging across all households, you are really not seeing much of an effect, whereas I think that it may be there for some people, for sure.

CHAIRMAN BERNANKE. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I have a question about the implications of the findings on the saving rate. John, at the end of your presentation you gave us two scenarios affecting the saving rate, and the Tealbook forecasts that the saving rate will increase to around 5 percent and then decline to the current rate of about 4 percent. Are the saving rates that are forecast in the Tealbook consistent with the findings of all three of these studies?

MR. DUCA. I would say our work is consistent with the Tealbook insofar as we are not seeing all that much movement. However, a lot depends on what is going to happen with consumer credit availability and how well we can track that, as well as what is going on with mortgages. The other thing I would mention—and I agree completely with what Dave said before—there is a lot of measurement error. The saving rate is a reflection of income, which is measured with error, as well as spending, which is measured with error, and sometimes they compound each other. I think it is broadly consistent. A lot depends on what happens with lending conditions, to some extent, and what happens with the housing market, and those are pretty unknown.

MR. HAUGHWOUT. I will briefly say it is broadly consistent with the view that emerges from my presentation, in the sense that we expect that household paydowns of mortgage debt are going to continue. They have been quite substantial over the past several years, likely to continue, and that is going to show up as saving. But, again, much depends, as John said, on the outlook for house prices. A big jump in house prices could change consumers' calculus on those

issues. But assuming a relatively slow change in either direction in house prices, we would expect to see more mortgage paydowns as households try to rebalance their balance sheets.

MR. COOPER. I don't really have a whole lot to add to that. I think that the saving rate is based on the past. If there are no major fundamental factors impacting consumption, based on my analysis, the saving rate is going to continue on a similar trend to where it is now.

MS. PIANALTO. Thank you.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. First of all, let me just say I love this work, and it gave me a lot of perspective on these issues. I just have one question. We have been talking about definitions of deleveraging and, I want to talk about default for a second. The general story I have in my mind—and it could be wrong—would be that households are very optimistic about the future, and because of that, they took on a lot of debt because they are trying to smooth consumption between today and tomorrow. That is why you get the run-up in debt. Then, tomorrow comes, and income and wealth aren't as high as they thought, so you've got debt overhang. One reaction to that is to say, "I'm going to reduce my consumption today and pay off this debt." Another reaction to it is to say, "I'm going to consume what I want today, and I'm not going to pay back my debt." I don't see why default can't be considered one part of the deleveraging story. You guys, as I interpret it—and maybe I have it wrong—did not want to go in that direction.

MR. DUCA. Let me touch on the issue of permanent income. We actually do try to control for permanent income and use forecasts of income, and the like, to try to control for swings there. We don't see quite that much going on there. In most of our work we find that for

house prices, for example, that in controlling for expectations of future house prices that the main driver seems to be credit standards that, in turn, fuel price expectations.

MR. HAUGHWOUT. I don't have any objection to thinking about defaulting on debts as a form of deleveraging. It is clearly a way that households can get debt off of their credit reports and off of their balance sheets. But it does come at a price, just as the other form of deleveraging—actively paying down debt—comes at the price probably of sacrificing consumption today. It is quite likely that a default on a debt today will come at the price of access to credit in the future. Research at the Board indicates that that future could be quite a while before your credit score recovers to the extent that you will be able to get credit.

MR. BULLARD. The household would make a decision about how badly they need access to credit markets in the future against the benefits of just defaulting today.

MR. HAUGHWOUT. Exactly. There is one other dimension and that is that in many states, particularly judicial states, the process for foreclosure is quite long and lengthening. Therefore, the amount of time between the last payment I make on my mortgage and the time when I actually have to move is extending. It is kind of rent-free.

MR. BULLARD. That is changing the calculus to some degree?

MR. HAUGHWOUT. It changes the calculus to some extent. But I would still say that there is still a substantial cost embedded in default, and that is reduced access to credit.

MR. BULLARD. Okay. Do I have it right in my head that this is a big issue because the default part of it is a big chunk of the mortgage debt coming down?

MR. HAUGHWOUT. That's right. There is no question that defaults have been very important in removing debts from household liabilities over the past three to five years.

MR. COOPER. Default could be part of the story, if you wanted to think about it that way. I agree with a lot of what Andrew is saying. But the story you describe, if you want to abstract a bit from potential future hits on your credit, is not really going to impact your consumption today. If you are just wiping away your debt, your point is you are just going to go on consuming as you are. That shouldn't really have an impact on consumption. And, really, what I was trying to get at is a definition of deleveraging where you are trying to find something abnormal that is impacting consumption beyond the normal net worth and income channels. Again, if you wipe away debt, that is going to show up through a change in your net worth. I don't really think that the story you're telling has much of an effect on consumption. And, yes, I agree, it also comes at a price.

CHAIRMAN BERNANKE. I would like to ask a quick methodological question, probably more to Dave and David. The way that Mr. Cooper approached the question was to say, "We have a null hypothesis, which is the standard model, and we are going to test whether these bells and whistles are statistically significant in a classical hypothesis testing sense." Obviously, that is the way we usually do inference. But suppose your objective is to minimize the mean squared error of your forecast, which is a little bit different. Wouldn't the right approach be—and I am asking this in terms of how you think about this—to look at, on the one hand, the improvement in the in-sample forecast brought about by a more complex model penalized by the number of extra parameters and some information criteria? And isn't that the way you should think about it? Or do you instead use some kind of Occam's razor and stick with the smallest statistically valid model?

MR. REIFSCHNEIDER. We had a debate recently on consumption and leverage, part of which, I think, involved exactly the question you are raising. I would say you never know what

the true model is. Occam's razor is good, but it is a complicated world—you know lots of things matter. So it is really good to look at a variety of models with a variety of channels and ask yourself, what am I learning from this? Probably never put zero weight on any of those models, although some of them might get a pretty low weight. Another methodological thing when you think about a model—if you are doing things right—is, if you have tuned it to in-sample data, then you really should penalize it for that sort of overfitting. Maybe a good way to do that is to try to evaluate these things as close as you can get to an out-of-sample, real-time forecasting environment. Try not to cheat by looking at the results and then going back. That is very hard to do, but we aspire to doing that, taking that kind of a Bayesian broad approach. We don't always get there.

CHAIRMAN BERNANKE. Thank you very much, presenters and organizers, for a very useful discussion. Thank you for the comments from folks around the table. While we are playing musical chairs, let's move on to the organizational items for our January meeting. Item 2 is the election of Committee officers. Let me turn to Governor Yellen for a nomination for the Chairman.

MS. YELLEN. I would like to move the nomination of Ben Bernanke as Chairman.

CHAIRMAN BERNANKE. Second. Other nominations? Any objections? [No response] Thank you, once again. Avoiding primaries, I'm glad to say. [Laughter] Vice Chairman?

MS. YELLEN. I would like to move the nomination of Bill Dudley as Vice Chairman.

CHAIRMAN BERNANKE. Second. Thank you. Any further nominations? Objections? [No response] Thank you. We have a list of nominated staff officers. Debbie Danker will read the list.

MS. DANKER. Bill English, Secretary and Economist; Debbie Danker, Deputy Secretary; Matt Luecke, Dave Skidmore, and Michelle Smith, Assistant Secretaries; Scott Alvarez, General Counsel; Tom Baxter, Deputy General Counsel; Rich Ashton, Assistant General Counsel; Steve Kamin and David Wilcox, Economists; Tom Connors, Mike Leahy, Bill Nelson, Dave Reifschneider, and Bill Wascher, Associate Economists from the Board; David Altig, Simon Potter, Glenn Rudebusch, Mark Sniderman, and John Weinberg, Associate Economists from the Banks.

CHAIRMAN BERNANKE. Okay. I believe this was circulated?

MS. DANKER. These were requested.

CHAIRMAN BERNANKE. Okay. Any comments, questions, concerns? [No response] All right. Without objection, then. Thank you. We turn to item 3. We need to select a Federal Reserve Bank to execute transactions for the System Open Market Account. New York is once again willing to serve. Are there any objections? [No response] Thank you. Item 4, selection of a Manager for the System Open Market Account. Brian Sack is the incumbent and is willing to serve. Are there any objections? [No response] Thank you. Now, item 5, we are going to turn to authorizations for Desk operations, and I want to call on Brian to briefly describe what we are voting on here.

MR. SACK. Thank you, Mr. Chairman. At its first meeting each year, the Committee reviews the Authorization for Domestic Open Market Operations and the set of guidelines that govern foreign currency transactions.

With regards to domestic open market operations, I recommend that the authorization be renewed with one change. Specifically, the authorization currently allows the New York Fed to undertake securities loans on an overnight basis. This restriction causes difficulties when there are differences in the holiday calendars of the Federal Reserve and the markets in which the New York Fed operates. This discrepancy can create operational challenges for our counterparties and reduced participation in our operations around these dates. To address this issue, I am requesting that the authorization be altered to allow the New York Fed to lend securities on an overnight basis as determined by the trading conventions of the

market in which it is operating. The specific change requested was described in the memo sent to the Committee ahead of this meeting.

In addition to this change, I would also like to update the Committee on several items related to the domestic authorization.

First, the Guidelines for the Conduct of System Operations in Federal Agency Issues remains suspended. The System Open Market Account still contains significant holdings of agency debt and agency MBS, and the Desk continues to conduct transactions in agency MBS as part of the reinvestment strategy decided by the Committee.

Second, the current authorization allows the Desk to transact in agency MBS for the SOMA through agents such as asset managers and custodian banks. The Desk has expanded the range of activities it is able to conduct in agency MBS, and it currently does not use outside agents for any trading activity. Nevertheless, some external services are still needed for a variety of clearing, settlement, custodial, and analytical activities.

Third, the resolution authorizing the New York Fed to conduct small-scale reverse repurchase agreement operations remains active. The Desk continues to conduct such operations for testing purposes, which is useful in part because the counterparty list continues to expand. It is likely that the Desk will want to engage in small-scale testing for other types of operations, such as MBS sales, as they approach, which would require the FOMC to approve additional resolutions.

Lastly, I would like to note an item that will likely come before the Committee for authorization at an upcoming meeting. Last January, I mentioned that the New York Fed at some point would seek authorization on a proposed policy to address the occurrence of daylight overdrafts in foreign central bank accounts by providing intraday liquidity through daylight repurchase agreements. We continue to work out specific details around the proposed procedures. Once those details are settled, I will review this proposal with the Committee and ask for a change to the Authorization for Domestic Open Market Operations that would allow these transactions with our foreign central bank customers.

Let me now turn to foreign currency operations. For those operations, the Desk operates under the Authorization for Foreign Currency Operations, the Foreign Currency Directive, and the Procedural Instructions with Respect to Foreign Currency Operations. I recommend all three of these be renewed without amendment. Please note that the vote to reaffirm these documents will include approval of the System's warehousing agreement with the Treasury.

CHAIRMAN BERNANKE. Thank you. Are there questions for Brian? [No response]

All right. Well, we have two votes. The first is to approve the Authorization for Domestic Open Market Operations with the amendment that Brian described. Are there any objections? [No response] Seeing none. The second vote is to approve, without amendment, the Authorization for Foreign Currency Operations, the Foreign Currency Directive, and the Procedural Instructions with Respect to Foreign Currency Operations. Are there objections? President Lacker.

MR. LACKER. Thank you, Mr. Chairman. I respectfully would like to oppose the Authorization for Foreign Currency Operations and the Foreign Currency Directive. This is the position I and my immediate predecessor have taken every three years since 1997.

These are the foundations for foreign exchange operations. Foreign exchange operations—interventions by central banks—have become exceedingly rare in recent years, and for good reason, largely reflecting a sense of futility. If these operations are sterilized but not followed by supporting policy actions, then they are likely to fail to the detriment of the credibility of the central bank. If they are sterilized but followed by supporting operations, they are essentially compromising the independence of the central bank that has had to cooperate with the Treasury and its lead in these operations. If they are not sterilized, we obviously could have bought U.S. Treasury securities instead, the difference being we are taking on foreign exchange risk to the detriment of the U.S. taxpayer.

I believe that, given the history of the past decade or two with foreign exchange operations, we should consider approaching the Administration and seeking to take steps to wind down and dismantle this infrastructure and back away from this central banking practice. In the meantime, I would like very respectfully use this triennial opportunity to register my hope for

better policy by voting against the Foreign Exchange Authorization and Foreign Currency Directive.

CHAIRMAN BERNANKE. Thank you, President Lacker. You are opposing the first two and not the third? Is that correct?

MR. LACKER. Yes.

CHAIRMAN BERNANKE. Okay. Are there other objections? [No response] Seeing none, the authorizations are approved. Item 6 is the Program for the Security of FOMC Information. This was circulated with the agenda for the meeting. We are not proposing any changes to the program. We are simply voting to reaffirm the existing program. Are there any objections to doing so? [No response] All right. Thank you.

I would like to begin item 7, which is the possible adoption of a statement of longer-run goals and policy strategy, and we will see how long it takes to go through it. I am going to turn to Governor Yellen in just a couple of minutes in her role as the head of the subcommittee to make some introductory remarks, but I would like to make a few of my own quickly.

First, we all owe a great deal of thanks to Janet's subcommittee, including President Evans, President Plosser, and Governor Raskin, for all of their efforts, as well as the whole Committee for their willingness to work in a collaborative way to develop this principle. I personally think the document is a good one. At least at a high level, it identifies the elements of FOMC policy that have been implicit for a long time, and now will be made, I hope, more explicit. At the same time, it is a sufficiently flexible document to allow for innovation as we move forward. It is, of course, also a product of a very long effort, and I would cite FOMC debates. In a way, this vote is a response to Governor Duke who wanted never to discuss these issues again, [laughter] and we hope maybe to accommodate her. The FOMC has been

discussing these issues for at least 15 years or more, and many of us around the table have worked on the academic research and the central banking analysis that has contributed to this, including me, of course.

It is important to be clear about what this is. In my view, this statement does not reflect, and should not be represented as, a change in the underlying policy approach of the FOMC. Our approach has stabilized into one in which we provide a firm anchor for inflation and inflation expectations in the longer term, which in turn gives us flexibility to offset short-term economic shocks. Because stable inflation and inflation expectations both support a healthy economy in the longer term and improve our ability to respond to short-run shocks, we can say that the two sides of the dual mandate are generally complementary. At the same time, this document is explicit in saying that in the short run, the inflation and employment objectives can conflict, which is evidenced by our many recent debates around the table about whether further actions to promote employment create risks of higher inflation. In those situations, as the document says, we take a balanced approach that is informed by our knowledge of the economy's dynamics, the outlook, and the size and expected persistence of the deviations of our objectives from their desired levels. Again, I do not want to interpret this statement as a change in the underlying policy approach, and I hope that people will not interpret it as such in their public comments.

What this is trying to do is increase our transparency and our accountability by making our communication clearer to the public. There is a lot of evidence that communication and transparency are valuable to monetary policy in the long term. In that respect, I don't think of this as simply a short-term document or an opportunistic document. But of course this is a particularly important time for us to focus on communication. Our normal policy instrument—the target for the federal funds rate—is not available, at least for the easing direction. We are

using new and unfamiliar policy tools, and in this environment it is particularly important that we explain what we are doing and help shape expectations for future policy. I think this statement is not to be taken in isolation. Instead, it is part of a broad range of enhancements to our communication, including the press conferences, the projections, and other steps that may yet come. I recognize that releasing this statement is not without risks, market and political probably, but I do believe that once the markets and the public adjust and understand what we are trying to achieve here that we will be able to make policy more effective and more transparent as well. Let me turn now to Governor Yellen, the chair of the subcommittee, who I will ask to make a couple of introductory remarks of her own, and then to move the document. Thank you.

MS. YELLEN.<sup>2</sup> Thank you, Mr. Chairman. At the November FOMC meeting, you encouraged the subcommittee on communications to formulate a consensus statement regarding the Committee's longer-run goals and policy strategy. Over subsequent weeks, our subcommittee prepared an initial draft, engaged in informal consultations, presented a revised draft for discussion at the December FOMC meeting, and then made further editing adjustments over the past few weeks. I am deeply grateful to the members of the subcommittee—namely, Governor Raskin, President Evans, and President Plosser—for their remarkable perseverance and collegiality throughout these consultations and revisions. I am very pleased that our subcommittee is now able to present a draft statement that succeeds in specifying a numerical inflation goal in a context that firmly underscores the Committee's commitment to fostering both parts of the dual mandate.

As the Chairman noted, the FOMC has had a sequence of many discussions over the past two decades about potential approaches for clarifying its longer-run goals and strategy. Thus, I

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<sup>2</sup> The materials used by Ms. Yellen are appended to this transcript (appendix 2).

believe that our formal consideration of this statement today marks a truly momentous occasion in the history of the FOMC. The issuance of such a statement by the central bank of the world's largest economy is a notable step in the history of central banking. I would like, therefore, to make a few remarks about the significance of the consensus statement before proposing it for adoption.

First, I want to emphasize my agreement with the Chairman that this statement does not represent a change in how we conduct monetary policy. Rather, its purpose is to enhance the clarity and transparency of the rationale for our policy decisions. In fact, as Governor Raskin noted at our December meeting, a key element of the statement itself is the expression of the Committee's commitment to strive to explain our policy decisions as clearly as possible. In doing so, we recognize that clear and transparent central bank communications facilitate well-informed decisionmaking by households and businesses, reduce economic and financial uncertainty, increase the effectiveness of monetary policy, and enhance our accountability to the public.

Second, this statement has been designed as an overarching set of principles that is intended to withstand the test of time. For that reason, our subcommittee has engaged in intensive editing sessions and extensive consultations to identify how these principles can be expressed in a way that garners the broadest possible support from Committee participants. Of course, the composition of the Committee itself will slowly evolve over time, but we certainly hope that over the years and even decades to come, future Committee participants will also find these principles to be very reasonable and appropriate.

Moreover, the breadth of the Committee's support will be very important in the process of disseminating these principles to the public. After all, the diversity of this Committee is one

of its fundamental strengths, and in light of that diversity, the public can be assured that these principles are grounded in careful consideration and broad consensus among a group of Committee participants who have a wide range of backgrounds and areas of expertise, as well as markedly distinct views about the structural characteristics of the economy and the transmission mechanisms of monetary policy.

Of course, reaching a broad consensus means that the final statement will never match exactly the ideal wording that any single one of us might have chosen. Moreover, as Governor Tarullo noted at the December meeting, any single page of text, no matter how carefully crafted, necessarily involves some subtleties and nuances that will remain open to interpretation, and there won't be any Supreme Court to adjudicate differences that could arise about how to apply these principles in the context of any given monetary policy decision. Nonetheless, even recognizing those inherent limitations of a consensus statement, our subcommittee believes that this initiative will be very helpful for the Committee's decisionmaking as well as for our communication to the public. In effect, the Committee will need to continue to engage in essentially the same consensus-building process that we always follow. But at least all of us will have the same 2 percent inflation goal in mind when we have those discussions around the FOMC table, and on occasions where inflation deviates from that goal, the public will clearly understand our intention to bring inflation back to that goal over time, rather than wondering whether the Committee might allow inflation to drive upward indefinitely, as occurred in the 1970s, or engage in opportunistic disinflation.

Moreover, as with any set of principles, the interpretation of a given phrase becomes increasingly settled over time in light of the actual policy decisions that the Committee makes under various circumstances. I'm not a constitutional lawyer, but my impression is that past

precedents have a very similar role in the decisionmaking processes of the U.S. Supreme Court. For example, I believe that our decisions over the past few years have clearly demonstrated the Committee's commitment to follow a balanced approach in promoting both aspects of our dual mandate, and our decisions going forward will provide further insights to the public and to future Committee participants about the meaning of the phrase "balanced approach" in our consensus statement. Indeed, this is one of several senses in which the consensus statement needs to be a living and breathing document. The statement itself indicates that the Committee intends to reaffirm these principles at each organizational meeting, but we will need to go well beyond that to ensure that this document isn't effectively dropped into the file cabinet and quickly forgotten. For example, we should ensure that the staff throughout the Federal Reserve System becomes familiar with these principles, and we will need to use a wide array of communications tools to highlight and explain these principles to the general public, not just an initial publicity blitz, but through ongoing efforts in speeches, media interviews, academic conferences, and other initiatives.

The statement also indicates that the Committee will make adjustments to these principles as appropriate. In our discussion at the December meeting, we all agreed that there should be a high bar for such adjustments, again, roughly similar to making an amendment to a constitution. However, I'm certainly envisioning that over time, we should plan to engage in further discussions and consensus-building regarding the contours of the Committee's policy strategy, and it might well be the case that we can identify further principles that garner a very broad consensus of the Committee. President Kocherlakota raised this idea in November when he referred to certain compelling features of the Committee's loss functions, as I recall, symmetry and quasi-concavity. But there may be other complementary approaches to consensus building,

such as considering the use of simple rules as policy benchmarks or even considering the principles that the Committee follows in responding to certain types of shocks, such as a transitory spike in oil prices. At any rate, this is another sense in which the consensus statement can and should be a living and breathing document rather than just being tucked away in our file cabinets. I would now like to move the consensus statement for adoption.

VICE CHAIRMAN DUDLEY. Second.

CHAIRMAN BERNANKE. Thank you. I'm now going to open the floor for comments, discussion, or questions. I don't think we need a full go-round because we've discussed these issues at great length, but I don't want to inhibit anybody who would like to make a comment or raise an issue. In particular, the floor is also open for proposed amendments, whether substantive or purely editorial. Let me be clear that, given the nature of this document, it needs to have very broad-based support to be effective. For that reason I think both substantive changes to the document or the ultimate adoption require a very high supermajority—essentially a very broad consensus. Let me now open the floor. Is there anyone who'd like to raise a question or propose an amendment? Governor Tarullo.

MR. TARULLO. I'm having difficulty putting together your characterization of the statement, Mr. Chairman, with Governor Yellen's characterization of the statement. You seem to indicate that it was basically setting down as best we could what we think we currently do within this Committee. I think Governor Yellen used the term "momentous" and indicated a broad agenda that would follow from this statement, and I'm wondering if you could comment in a little more detail on how you see the significance of this statement.

CHAIRMAN BERNANKE. Sure. I view this basically as a communication device. That being said, while not representing a change in our policy, it will be a vehicle by which we

can continue the conversation and make sure we clarify among ourselves what we agree on and what we don't agree on. Governor Yellen can speak for herself, but this certainly does not represent a change in the weights on our objectives. It does not represent a change in the basic approach to our policy. It will be a vehicle for discussions in the future about how best to conduct policy. Of course, we'll have those anyway, but I view this—and I would like it to be represented by everyone as much as possible—as primarily a communications device and not some break in our approach to policy. Governor Yellen, would you like to comment?

MS. YELLEN. I certainly agree with what you said and didn't intend to convey a different view.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Mr. Chairman, I just want to go on the record as saying I very much support this statement. I think it's the culmination of a lot of long discussions around this table for many years, and in my view, this is not very different from what I would think of as a textbook statement on what flexible inflation targeting is. I do not see it as an appreciable change in how the Committee actually behaves going forward. We'll still have many debates and many arguments about when to tighten and when not to tighten, when to ease and when not to ease. I do think it helps the Fed catch up to other central banks, which have run ahead of the Fed on this issue for quite a long time now, and I very much support the statement. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. I certainly support the consensus statement. The point I want to make, though, for this to be most effective, it's really important that we're all very parsimonious and prudent about how we talk about this consensus statement so that we don't create confusion. As you said, the goal was clarity, transparency, and

accountability. The best way to achieve that is to let you be pretty much center stage in talking about this. If there are 17 different interpretations of what this consensus statement means, that's very much going to undercut the value of it. So in my view, you should have the center stage on this one. The rest of us should serve as the Greek chorus supporting you as our main protagonist.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. I wanted to register my support for this. Any one of us could write far more than this about monetary policy. The resulting 17 documents might not overlap in their entirety, but this is, in my mind, a superb encapsulation of a set of consensus views—where we do overlap, where we do agree—and I see it bringing us together in our discussions going forward. I very much support it.

CHAIRMAN BERNANKE. Thank you. Other comments? Governor.

MR. TARULLO. I should state for the record why I can't support the document, and because it comes down to the same thing I've said before, I won't say it at great length. I think the document has made vagueness a virtue to an excessive degree, and there's a nontrivial risk that what comes out of this will actually be more of a cacophony than a clarification. I hope that doesn't happen, and it may not happen, but when I compare it with what I think the benefits of the statement will be, I don't think that a case has been made.

CHAIRMAN BERNANKE. Thank you. Other comments? [No response] All right. If there are no other comments, I propose to ask for a show of hands. Let me explain that the records of the FOMC in the minutes will note both the outcome of the broad straw poll and the vote as the FOMC. Because it is an official action, we should have an FOMC vote as a subset of the vote of participants. And, again, we are looking here not for a simple majority, but for very broad-based support. Let me ask: Of all participants, who supports the statement as it stands?

[Show of hands] Opposed? [No response] Abstention? [Show of hands] We have 16 in favor, and we have one abstention. Thank you all. Thank you to the subcommittee. This is a very important step. Again, we should all be cautious in not over-interpreting this document, and we want to give some time to the public to absorb the consequences. But I do believe this will be an important step for the FOMC and will help us improve our communication and our accountability going forward. Thank you for that.

Shall we have lunch? Lunch is available now. Why don't we take 30 minutes for lunch, and let's recommence at 12:45. Thank you all.

[Lunch recess]

CHAIRMAN BERNANKE. Okay. Why don't we recommence? We're now up to item 8 on the agenda, financial developments and open market operations. Let me ask Brian Sack to make the presentation. Thank you.

MR. SACK.<sup>3</sup> Sentiment in financial markets improved notably over the intermeeting period in response to liquidity operations by the European Central Bank and U.S. economic data that was generally seen as favorable. However, we continue to see the risks associated with the fiscal and banking problems in Europe as quite high.

The most notable recent development in global financial markets has been the ECB's efforts to provide additional liquidity to the European banking sector. The ECB conducted the first of its scheduled three-year long-term refinancing operations in late December. This operation was met with strong demand, boosting the amount of aggregate liquidity in the European banking system, as shown in the upper-left panel of your first exhibit. Many market participants expect a further increase in ECB funding from the next three-year LTRO, which is scheduled for late February. The capacity of banks to borrow in these and other ECB operations has been enhanced by the expansion of the set of collateral that is eligible for ECB operations.

The substantial liquidity provided by the ECB has been seen as reducing the risk that European financial institutions may not be able to meet their upcoming funding needs. As shown in the upper-right panel, the amount of longer-term bank debt coming due for European banks over the next year is sizable. However, with the backstop of greater liquidity from the ECB, the markets appear more assured that

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

banks will not run into difficulty replacing those funds. Reflecting this improved sentiment, the three-month EURIBOR rate has fallen more than 20 basis points. In addition, longer-term debt issuance by European banks has picked up so far in January, although issuance has been mainly restricted to banks domiciled in stronger countries.

European banks have also seen some moderate easing of short-term funding conditions in dollars. As shown in the middle-left panel, the spread of three-month LIBOR to OIS rates (the light blue line) has leveled out, and a forward measure (the red line) now suggests that the LIBOR spread is expected to decline. Moreover, the dollar funding rate implied by FX swaps (the dark blue line), which had been very elevated, has narrowed significantly. These improvements likely reflect the increased comfort of investors with the liquidity positions of European banks, as well as the ongoing presence of the dollar liquidity lines with foreign central banks. However, despite the recent improvements, access to dollar funding remains very restricted for most European banks.

In addition to its effects on bank funding conditions, some observers have suggested that the three-year LTRO can serve as a backstop to European sovereign debt markets. This outcome would occur if the LTRO were used by banks to fund additional purchases of European sovereign debt. In part reflecting this activity, sovereign debt spreads in Spain and Italy have come down, particularly at shorter maturities, as shown to the middle right. This improvement has allowed the ECB to maintain a relatively slow pace of sovereign debt purchases in recent weeks, as shown in the bottom-left panel.

However, it is not clear that the LTRO will serve as an effective backstop for sovereign debt, as this function would require a willingness of European banks to increase their exposures to sovereign debt at a time when other factors are pressuring them to shed risk on their balance sheets. Moreover, yield spreads on longer-term sovereign debt have not narrowed to the same degree as those on shorter-term securities. Thus, it seems quite possible that the ECB may again have to step up with more aggressive securities purchases should sovereign debt markets come under additional pressure.

A number of factors could lead to such pressure. Although the recent decision by S&P to downgrade the long-term credit ratings of nine European countries had limited impact, the market could have to digest additional credit rating actions. Moreover, the upcoming sovereign funding needs of euro-area countries are heavy, particularly over the first four months of the year. Another notable risk is the restructuring of Greek debt. The negotiations around a voluntary restructuring of the debt continue, but such an agreement needs to come together relatively quickly. If the voluntary restructuring fails, Greece could impose an involuntary debt restructuring or default, which some fear would create broader pressure on European markets and institutions. As shown in the bottom-right panel, Greek debt is currently trading at around 30 cents on the dollar.

Your second exhibit focuses on U.S. financial markets. The more positive sentiment surrounding recent European developments, combined with favorable U.S. economic data, gave a substantial boost to U.S. equity prices, as shown in the upper-left panel. On balance, the S&P 500 index gained more than 6 percent over the intermeeting period. The financial sector sub-index was one of the best performing components of the broader index, rising about 11 percent over the period, despite fairly mixed results reported for fourth-quarter earnings.

One factor pushing markets higher is a perception among investors that the risks of a very negative outcome from the European situation have diminished. Consistent with that view, the VIX index declined notably over the intermeeting period, with much of that decline coming from a fall in the perceived odds of a large decline in equity prices. However, as noted to the upper right, the correlation between equity prices and the euro-dollar exchange rate is still quite high, suggesting that developments in Europe will continue to be an important driver of U.S. asset prices.

Other U.S. risk assets improved alongside the gains in equities. As shown in the middle-left panel, yield spreads on corporate bonds have turned down following their notable rise in the second half of last year. The amount of debt financing by nonfinancial corporations remains solid, including strong corporate bond issuance and a further expansion of C&I lending. In addition, the yield spreads on some types of asset-backed securities narrowed over the intermeeting period.

Even as investors became increasingly willing to shift into risky assets, U.S. Treasury yields remained at very low levels. As shown in the middle-right panel, yields were about unchanged on balance over the intermeeting period, with the 10-year yield hovering around 2 percent.

These yields have been anchored in large part by the accommodative stance of Federal Reserve policy. As shown in the bottom-left panel, the expected path of the federal funds rate embedded in futures prices remains roughly flat through 2013 and only begins to turn gradually higher in 2014. In addition, markets seem to have become increasingly confident of this policy outlook, as the implied volatility of interest rates two or three years ahead moved down to record low levels.

In addition, the balance sheet policies of the FOMC also appear to be exerting downward pressure on longer-term yields. As shown in the bottom-right panel, Board staff now estimates that the Federal Reserve's asset holdings are keeping the term premium embedded in the 10-year Treasury yield about 65 basis points lower than it would be if the balance sheet were of normal size and composition.

Your final exhibit explores market participants' views on the prospect for additional policy actions and summarizes recent Desk operations. Following its standard form, the Desk survey of primary dealers asked about the perceived likelihood of additional policy steps to ease financial conditions. A summary of the responses is provided in the upper-left panel.

Of the choices offered, dealers place the highest odds on a change to the federal funds rate guidance, with about a 70 percent probability assigned to a change at this meeting. Many of the respondents see such a change as connected to the Committee's decision to reveal members' views on the appropriate path of the federal funds rate in the Summary of Economic Projections. Market participants have not reached a strong consensus about the likely changes to the federal funds rate guidance in the statement, although many believe that the mid-2013 date will be adjusted to be consistent with the projections that will be presented in the SEP, which they expect will show a later lift-off date.

The Tealbook contained a discussion of the market effects that could be generated from changes to the federal funds rate guidance based on the staff's reading of the expected policy path priced into markets. The Desk's survey of primary dealers provides another source of information that might be useful for this assessment, as we asked about the probability of the timing of the first increase in the federal funds target rate. To get a more complete picture of the distribution, we extended the range of responses through 2016, instead of ending them in mid-2014 as in the previous survey.

As can be seen by the results shown in the upper-right panel, market participants place sizable odds on policy remaining on hold for a long period, with a 95 percent probability that the liftoff will take place after mid-2013. About 60 percent of the distribution falls between mid-2013 and the end of 2014. This reading suggests that policy guidance indicating that the federal funds rate is likely to stay at its current level though late 2014 would exert some downward pressure on market interest rates, as argued in the Tealbook.

Returning to the upper-left panel, the survey respondents also place relatively high odds on the possibility that the FOMC will further increase the size of the SOMA portfolio over the next year. However, in contrast to their views on federal funds rate guidance, market participants see low odds of such a change taking place at the current meeting. Instead, they appear to see this outcome as a likely policy response if the economy continues to show a disappointing pace of growth or if inflation were to surprise to the downside.

This view is reflected in the expected path of the SOMA balance sheet from the survey. As shown in the middle-left panel, the median respondent expects the balance sheet to increase to just over \$3 trillion and to remain at high levels for longer than in the November survey, which is the last time we asked for the balance sheet path. More specifically, 12 of the 21 dealers include an asset purchase program in their baseline forecast. Of those dealers, roughly half believe that the program will include only MBS, and the rest expect the program to be split between MBS and Treasury securities. These dealers generally expect the size of the program to be between \$400 and \$750 billion.

The relatively high expectations for an asset purchase program may be putting some downward pressure on the MBS basis. As shown in the middle-right panel, the

option-adjusted MBS spread has moved down from its levels late last year. A variety of factors may be contributing to this movement, including the improved risk sentiment among investors and the pending implementation of an MBS fails charge, but the discussion of a potential Federal Reserve purchase program is likely playing a role as well. The staff estimates that a \$500 billion program in MBS would keep the spread 10 to 15 basis points narrower than it would otherwise be.

Although not an objective of policy, the elevated size of the SOMA portfolio continues to produce a substantial financial return. As you are aware, the preliminary financial results that were released earlier this month indicated that the Federal Reserve's remittance to the Treasury for 2011 would be about \$77 billion. As shown in the bottom-left panel, we expect the strong pace of remittances to continue for several years under the path of interest rates and the policy strategy assumed in the Tealbook. Of course, the realized path of remittances will depend crucially on the course of interest rates, and an unexpected increase in rates could push down remittances meaningfully relative to our projection.

Let me close with a few notes about Desk operations. As summarized in the bottom-right panel, since the September FOMC meeting, the Desk has completed \$162 billion of purchases of Treasury securities for the maturity extension program and \$170 billion of sales, bringing us nearly to the halfway point for the program. These activities have involved a total of 48 purchase operations and 23 sales operations. The operations have generally been met with strong participation by dealers, although there has been some inconsistency in participation in our bond purchases that bears watching.

Over the same period, the Desk has conducted 635 transactions in the secondary market to purchase MBS securities as part of the reinvestment program, with total purchases of \$98 billion to date. MBS market liquidity has been decent, and we have not had any significant difficulties executing our transactions. Going forward, we expect the flow of MBS purchases from the reinvestment program to run at roughly \$30 to \$35 billion per month over the first half of the year and to cumulate to a total of about \$325 billion over the year as a whole.

CHAIRMAN BERNANKE. Thank you very much. Questions for Brian? Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. Brian, with respect to panel 4 on page 2, I want to make sure I'm correctly drawing two inferences. One, which I think you came close to saying, is that the ECB's new facility for the banks has, in all likelihood, facilitated purchases by the banks of sovereigns from their or the euro zone countries.

MR. SACK. I think that's correct or, alternatively, has prevented them from selling securities at the pace they may have. We do think that the LTRO is a large part of the explanation for the performance of the sovereign debt shown in the panel 4.

MR. TARULLO. Right, and the second, which is a negative inference, is that the fact that these are two-year rates suggests that anything beyond the LTRO period has not fundamentally been affected over the course of the past couple of months.

MR. SACK. That's right. You've not seen the narrowing of yield spreads in, say, 10-year securities or essentially any securities beyond the horizon of the LTRO to the extent that we've seen it at the short end of the curve.

MR. TARULLO. Putting those two inferences together, improvement, such as it is, is near-term and probably substantially if not totally because of the LTRO?

MR. SACK. We do think that the improvement at the short end of the sovereign debt markets has been largely attributable to the LTRO, and that it hasn't backstopped the entire yield curve as effectively. You can actually raise questions about whether it will continue to backstop the short end of the curve as effectively as it has so far, given the reasons I cited in the briefing.

MR. TARULLO. Thank you.

MR. KAMIN. Governor Tarullo, if I can just add onto that. I broadly agree with everything Brian said. I think that, less for Italy than for other countries, there have been some much more muted downward movements in 10-year spreads for other sovereign areas, a little bit for Italy and a little bit more for Spain and some others. So it's possible that the effects of the LTRO in providing more liquidity, and in some sense improving the broader tone of investor sentiment, may have had some knock-on effects to longer maturities as well, not working mechanically through the wherewithal to purchase, but just through broader sentiment. But the

issue really is the durability of that sentiment. If some future shocks develop, the demand for the longer-term securities might just as easily turn south again.

MR. TARULLO. But I guess, Steve, the implicit question behind the questions I was asking Brian is: Has investor sentiment with respect to the probability of repayment of a bond by Italy or Spain 5 to 10 years hence changed at all?

MR. KAMIN. Well, by that metric it's minutely smaller, but I think in broad terms, most people recognize that nothing fundamental has changed, consistent with Brian's statement.

MR. SACK. Yes. To the extent there is some improvement farther out the curve, my point was just that it's an order of magnitude different. Ten-year Spanish yield spreads to German debt have narrowed 30 basis points since the previous FOMC, whereas you can see the short end has actually narrowed several hundred basis points.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I wanted to ask about the same chart that Governor Tarullo was talking about. I guess I don't understand the mechanism involved. If I'm a Spanish bank, I'm now able to borrow more cheaply at a three-year horizon from the ECB. Why does that make me more willing to buy Spanish debt?

MR. SACK. The story as told by market participants is now you're assured that you will have that funding for three years. It allows you to buy the debt, hold it to maturity, and if there's no default, of course, earn the carry. You could ask why that is so powerful when the ECB was doing one-year LTROs and presumably would maintain these fixed-rate full-allotment offerings as long as there were liquidity strains in the market. That's one reason why we're somewhat surprised by just how powerful the three-year LTROs seem to be. But that's the story of market participants—the assurance that the funding will be there over the term of the sovereign debt.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. If I could just interject, part of this is that from the banks' perspective, they're already dead if their sovereign goes down the tubes. If they buy that debt and earn a positive spread, their chances of survival increase. It's sort of a doubling down.

MR. TARULLO. It's still providing zero capital.

MR. KOCHERLAKOTA. I see. Okay. Thank you.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. Brian, I'm just wondering, as we go forward, about the informational value of the dealers' opinion of our policy actions. I'm not surprised to see your first four slides in exhibit 3. They reflect largely the Fed-speak of particular principals at this table uttered shortly before the dealer survey. This is maybe not a statement but more of a question. As we move forward with our own projections and the SEP exercise, I'm just wondering whether or not—expecting that the dealer surveys will probably reflect more what they've gleaned, which is the purpose of the exercise on the SEP—they are actually imparting useful information. That's a question maybe not to be answered now, but just something to observe as we go forward. The correlation here between reflecting what's been said by speakers that have a vote in this go-round and others and what we see in these four charts is not the least bit surprising.

MR. SACK. I would completely agree that FOMC communications are a very important factor shaping the market's expectations. I think that's to be expected.

MR. FISHER. It's more confirmation than imparting new information.

MR. SACK. Right, and of course, this survey doesn't at all get into how they arrive at these expectations, what pieces of information they're using, and what they're ignoring. Obviously the information that has been provided to market participants is changing with the

decisions that you're making. That will all be reflected in this. I'm working under the assumption that it's still useful for policymakers to understand at the policy meeting exactly what is priced in the markets and what the market participants' views are. That's our intention.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. President Williams.

MR. WILLIAMS. I have a question about figure 12, Estimated Effect of SOMA Balance Sheet on Term Premium. As the footnote says, the effect comes from the way we model it. As I understand how that model works, the effect on the term premium is declining in the forecast period because, as we're getting closer and closer to exit, the markets are looking forward at the expected size of our balance sheet in the future. My question is: Do you have an idea of market participants' views on what this chart would look like in terms of the effects of our balance sheet policies both currently and going forward over the next couple of years?

MR. SACK. We've used the dealer survey on occasion to ask about the effects of different balance sheet programs. I think collectively those responses indicate that the market believes the balance sheet programs have sizable effects. Generally speaking, the calibration has probably been close to but a bit larger than what we've typically found in internal work. But we have not asked about the persistence or the dynamics of how they unwind over time. We don't know that part.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. I have three questions for Brian. First, just as a mechanical matter—looking at table 18, exhibit 3—you have 635 MBS transactions to get to \$98 billion. Tell me a little bit about the mechanics. Obviously they're small lots, but why does it work out that we have to do it in such small pieces? It seems a lot relative to other operations.

MR. SACK. Right. They're very different in nature. Remember, when we do Treasury operations, whether sales or purchases, we run them as discrete operations over FedTrade. We have all 21 dealers participating, and it has that structure of a very discrete, large operation. When we do MBS purchases, we transact differently. We transact over a private trading system called Tradeweb, and we're more of a participant trading in the market the way a number of other participants trade. Now, that process still involves a competitive process across dealers. We put out an interest in buying securities, we receive quotes from four dealers, and we choose the best one. It's still competitive, but it's done in a more continuous way, analogous to secondary market trading of other market participants.

MR. PLOSSER. Okay. The two more substantive questions relate to my understanding about the LTRO. This is partly related to President Kocherlakota's question. My understanding is we don't really know who bought these government securities. Is there evidence on the balance sheets of the Spanish banks or the other European banks that they've actually increased their holdings of the sovereign debt? Can we match it up in some way? Is there really data on that or not, or is this just speculation?

MR. SACK. We cannot, but the ECB included some charts and text in its monthly bulletin that showed that the participation of individual banks was actually correlated with the funding needs that they face over the next three years. They were arguing that they thought that this was evidence that the LTRO was being used, to some degree at least, as a pre-funding mechanism to address the rollover issue that I was highlighting in panel 2.

MR. PLOSSER. It's sort of indirect though, right?

MR. REEVE. It's very indirect on what the banks then did with those funds. We, in fact, do not really have any information on whether or not specific banks have increased their purchases, either of their own country's sovereign bonds or other euro-area bonds.

MR. PLOSSER. So it's still a bit speculative as to how tight this link is between the funding and what has happened to these spreads, right?

MR. SACK. Yes, absolutely. We should not underestimate the importance of the LTRO for the assurance on the bank funding side. I think taking that tail risk out of the market was extremely important. But I think the question is the extent to which it supports the sovereigns or will continue.

MR. PLOSSER. Right. That's really the link I was trying to get at. Going back to yields, I have one more question that I guess is related. I asked this question last time, and I just want to hear your view. One of the clear implications from the sovereign debt crisis and what's been going on in Europe over the past six months has been a degree to which there has been a flight to quality, to the U.S. dollar. Some of the reduction in yields on U.S. Treasuries, I suspect, has something to do with shifting risks and flights to safety. Do you have any sense about how to tease that out from other things that are going on in the shorter-term debt markets?

MR. SACK. It's certainly very difficult. Market participants certainly talk about a flight-to-quality effect. We think it's there, but it's hard to calibrate. It's not showing up in some of the measures we looked at in the past—like the on-the-run premium or swap spreads. It's not a flight to absolute liquidity or the most liquid assets, but it could still be a flight into the safest assets—Treasury securities. Maybe the most relevant information are measures of the term premium. I think this flight to quality or this investor preference relative to risk would be reflected in the term premium—that is, how much expected return the investor is willing to give

up to hold a risk-free asset. And it is true the term premium has moved down a lot and is at extremely low levels. One measure of the Kim-Wright term premiums that the Board's staff uses is at minus 50 basis points, so investors are actually giving up expected return to hold Treasury securities. It's not clear that the timing of that exactly corresponds with European stresses, but from a bigger picture it is consistent with the story that investors really are seeking the safety of Treasury securities.

MR. PLOSSER. Okay. Great. Thank you very much.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. On exhibit 1, I'm just trying to anticipate what could happen. Overall you seem to be painting an improved and relatively encouraging picture. The LTRO is at its limit, is it not, or close to its limit?

MR. SACK. No, it's not. As I mentioned in the briefing, they will conduct a second three-year LTRO in late February, and the amount of activity is expected to go up notably among market participants. And they're not at their limit because the banks have collateral that can be used to borrow from the ECB.

MR. LOCKHART. Then if you look at the maturities in exhibit 2, that looks relatively manageable it would seem to me with an LTRO backstop and markets getting more comfortable. Even if it's slightly front-loaded, it's still spread well, and it's pretty manageable.

MR. SACK. That's correct. That's the right interpretation, that the LTRO has been used heavily, could be used further given the availability of collateral, and in that regard can be used to offset these maturing debt payments and assure the banks that they have funding. Let me just mention quickly, as I noted in my briefing text, the expansion of the collateral that the ECB accepts. That was equally as important perhaps as extending the horizon of the LTRO from one

year to three years. That meaningfully increased the capacity of banks to borrow. And so in a jurisdiction where collateral is becoming a more binding constraint, this is a very important constraint to loosen.

MR. LOCKHART. Are there any rating events that are in the relative near term that could go badly in some way and throw this improving picture off?

MR. SACK. The market navigated through the S&P downgrades, which I think were the most meaningful ratings threat in the near term. Regarding sovereign debt, many of the countries are still on negative watch from S&P as well as from other agencies. So we certainly can't rule out additional ratings downgrades. Now, it might be useful to talk for a minute about what that means exactly. If there are ratings downgrades, we never know exactly how markets will react. We never know the extent to which there is mandate-driven selling by investors, and it is not easy to judge how much pressure it would put on markets broadly. What it probably won't do is significantly impair the ability of banks to use the ECB to help fund those securities. The ECB has loosened its ratings requirements, and it accepts sovereign debt down to a BBB-rating, which means that there is room for downgrades and this debt will still be eligible as collateral to the ECB. And the ECB has shown, in exceptional cases, it is willing to even suspend that requirement. I think the big picture here is we could see more ratings actions. It shouldn't affect the ability to use the ECB to help fund these securities, but it could have other market consequences that are hard to judge.

MR. LOCKHART. And one final question, if I may. How important in this is the negotiation over the haircuts of the Greek debt?

MR. SACK. I think it is a wildcard—a significant near-term risk event. The negotiations seemed to get far enough along that they were debating over a final few details. And one could

wonder if it would really be worth letting the whole thing unravel based on those details. I think there is still a good chance they will get to a PSI agreement and will proceed. If they do not get to a PSI agreement, though, it raises a lot of questions about what happens next. If collective action clauses are put into the securities and are used at the default event, it would trigger the CDS. And it is hard to predict just how damaging that would be to markets. It is certainly a risk that many market participants are worried about, but it is hard to anticipate exactly what would happen.

MR. REEVE. If I could just add on to that, President Lockhart. There is a very near-term risk that Greece could default as soon as March, if this deal doesn't go through and does not get near-universal participation on the part of the private creditors, which seems a rather high hurdle to achieve. But even if that PSI deal does go through, the prospects for Greece still are full of tremendous risk over the next couple of years because they require another very substantial financing package from the European Union and presumably the IMF as well. And yesterday the EU finance ministers said that they have no intention of increasing the size of that package that they had agreed on in October. By our reckoning, Greece just doesn't quite get there with that amount of funds. They are going to need more. It has got to come from somewhere. So we have both very acute near-term stresses related to the Greek deal, but also some longer-term ones. As a final point, there have been two exceptions to this improvement in market sentiment in Europe since December. One is Greece, of course, and the other is Portugal. And we have started to see some contagion from what is happening with the Greece PSI deal now starting to rattle investors who are holding Portuguese debt.

CHAIRMAN BERNANKE. Vice Chairman, did you have an intervention?

VICE CHAIRMAN DUDLEY. I agree with Brian. This has been a positive development. There are two negatives to note. One, more and more of the borrowing of these banks is being done on a collateralized basis rather than uncollateralized basis. There is a question of all of the collateral being encumbered. And, two, the banks are not dealing with one another; they are using the ECB as the intermediary. So the private-market functioning is definitely not working.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I wanted to talk a little bit about exhibit 3, chart 14: Probability Distribution of First Increase in Federal Funds Target Rate. I don't know about the rest of you; I found this a little bit disturbing. If I am interpreting this correctly, and maybe I'm not, this has the December survey showing no probability of the funds rate being raised after the first half of 2014, and then it shows all this probability spilling out in the January survey. I want an explanation of what the source of that is.

MR. SACK. Right. In the December survey, when we asked this question, we had 10 quarterly buckets, and the last bucket was Q2 of 2014. What happened was most of the mass was in that last bucket, so you should interpret that high bar as the cumulative probability of being either in the first half of 2014 or beyond, because our question didn't go out far enough. In this survey, we extended it to 2016.

MR. BULLARD. It is kind of hard to tell how much the probability has really changed.

MR. SACK. Right. You can only tell essentially by looking at the bars before then. Clearly, the probabilities assigned to 2013 came down, so the probability of being in 2014 or beyond went up, but we don't know exactly when. It's a problem when you don't actually have enough buckets.

MR. BULLARD. Maybe in the future we should have like a 10-year horizon. [Laughter] Between December and January, what do you think is the source of putting less probability sooner and more probability later?

MR. SACK. It is interesting that when you look at markets you have risk assets moving higher. We could question whether that optimism is warranted or not, but you have it showing up. But rates didn't move up, and we can see from panel 11 that policy expectations actually got nudged out some. I don't know exactly what the source is. I do think there has been increased discussion of both asset purchase programs and the use of rate guidance to push expectations out. Perhaps markets have been reading those signals as suggesting that the FOMC is going to be very patient, even though at the same time they are getting more optimistic in other ways.

MR. BULLARD. I thought maybe the Committee had stuck with the mid-2013 language and that was sort of holding market expectations in a little bit. There was maybe more discussion of adjusting it, but I'm not really sure that the discussion on that really changed, because the discussion by participants here seemed to be that we are going to have to do something sooner or later about the calendar date.

MR. SACK. Right. Well, I think there is a general sense in markets that the mid-2013 language will be adjusted and will be pushed out, and that the changes in the SEP make this meeting an opportune time to do that. And perhaps because the Committee has decided to communicate about the funds rate path and, as I said, because some members have been discussing asset purchase programs, expectations were nudged out. Of course, this is not a large revision to policy expectations; they were nudged out, but fairly modestly.

MR. BULLARD. Thank you.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Yes. I had a quick question, which I should have interjected as a two-hander. Brian, you mentioned that the term premium is down 50 basis points. That is, I assume, the nominal term premium. Do you have an estimate available for the real term premium?

MR. SACK. I don't have one on my fingertips, but I can venture a guess that a lot of the downward movement has been in the real term premium, because we know that real forward rates have fallen pretty meaningfully over this same period that the term premium measures have declined.

MS. LIANG. In the asset valuation package, there are estimates of the Treasury term premium, both nominal and real estimates. And we have three estimates—from the Board staff, New York, and San Francisco. The nominal term premium estimates run—if I look at the Board staff estimates—about 50 basis points, as Brian said, and the real is just a little bit negative. One of the models is a little more negative, but they are roughly similar. The nominal is where the big changes have been in the past year or so, reflecting in part safe-haven considerations and in part maybe SOMA.

CHAIRMAN BERNANKE. Thank you, Nellie. All right. If there are no other questions, we need to vote to ratify domestic open market operations from the December meeting. Any objections? [No response] Hearing no objections, we will move on now to item 9, economic and financial situation, and I will call on Eric Engen to introduce the staff presentation.

MR. ENGEN.<sup>4</sup> Mr. Chairman, thank you. Overall, the data that have become available since the December Tealbook suggest that the economy has been expanding at a somewhat more moderate pace than we had anticipated. The first exhibit highlights some of the recent information that has informed our view. To be sure, some of the recent economic indicators have improved. As shown in inset box in the

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<sup>4</sup> The materials used by Messrs. Engen, Reeve, and Gallin are appended to this transcript (appendix 4).

upper-left panel of your first exhibit, the unemployment rate has declined about  $\frac{1}{2}$  percentage point in recent months to 8.5 percent in December. Nevertheless, private-sector payroll gains averaged 155,000 per month in the fourth quarter, the same as in the preceding quarter. Moreover, other labor market indicators, such as initial claims and firms' hiring plans, point to continued modest gains in employment in coming months. With overall output projected to expand at only a moderate rate, we anticipate that average monthly job gains will be about 150,000 in the current quarter and that the unemployment rate will edge up to 8.7 percent.

As shown to the right, manufacturing production continued to expand at a solid pace last quarter, boosted in part by the ongoing recovery in the motor vehicle supply chain from the disruptions earlier last year. Near-term indicators of production—such as the new orders indexes from the regional and national manufacturing surveys—have improved some lately, but remain below their levels from a year ago, so we expect manufacturing output to increase at about the same rate in the current quarter as in the fourth quarter.

As shown in the middle-left panel, after folding in the most recent data on retail sales, motor vehicle purchases, and consumer prices, we estimate that real consumer expenditures are on a somewhat shallower trajectory than we previously anticipated. Moreover, because gains in income and wealth continue to look unimpressive, and sentiment remains subdued, we expect consumer spending to rise at only a modest pace in the current quarter.

Business spending for equipment and software has been a bright spot in the recovery, but these expenditures look to be slowing as we have anticipated. The middle-right panel shows orders and shipments of nondefense capital goods weighted by their relative importance in E&S expenditures. Both of these measures curled downward in November after flattening in the preceding months, and they are consistent with the noticeable deceleration in E&S spending that we expect to see for the fourth quarter and the modest gains anticipated this quarter.

The most significant downside news for the near-term forecast was in the federal government sector. As shown in the bottom-left panel, monthly data for defense spending suggest that real federal purchases declined significantly more in the fourth quarter than we had anticipated in the previous Tealbook. Defense expenditures fell short of our expectations through most of last year, and with recent information indicating that funding for overseas military operations next year will be much less than we had anticipated, we also have lowered our projection for the growth in federal purchases in the first quarter.

The bottom-right panel summarizes our near-term GDP projection. Folding in all of the incoming data, we now expect real GDP to rise at an annual rate of almost 3 percent in the fourth quarter, about  $\frac{1}{4}$  percentage point lower than in our previous forecast. In the current quarter, we now project real GDP to increase at an annual rate of about  $1\frac{1}{2}$  percent, nearly  $\frac{1}{2}$  percentage point below our previous forecast.

The next exhibit presents the medium-term outlook for real activity. I will discuss the gap between the June projection and the most recent one in a moment, but let me begin by noting that our current forecast for real GDP—shown by the black line in the upper-left panel—is just a shade weaker than in the previous Tealbook, not shown, mostly reflecting the higher exchange value of the dollar and higher oil prices in this forecast, along with our lower projected path for defense spending. Real GDP is expected to increase 2 percent in 2012 and 2½ percent in 2013, about the same pace as our assumed growth rate of potential output this year and a only a bit faster than potential growth next year. With only a slight pickup in real activity, the recovery in the labor market also looks to be painfully slow. As shown by the black line to the right, we project that the unemployment rate will edge down to only 8¼ percent by late 2013, with most of this reduction coming from the effects of the assumed expiration of emergency unemployment benefits at the end of this year.

As shown by the dotted red lines in the top two panels, our current forecast is considerably more pessimistic for both real GDP growth and the unemployment rate than the one that we provided to you last June. In large part, this downward revision reflects our assessment of the effects of the turmoil in Europe, but it also reflects our view that the rate of growth in potential output is lower than we thought last June.

As noted in the middle-left panel, although our assumptions have not changed since December, the fiscal and financial difficulties in Europe restrain U.S. economic activity by increasing the foreign exchange value of the dollar, reducing foreign demand for U.S. exports, increasing economic uncertainty, and boosting risk premiums. Although it is always difficult to predict how these types of events will evolve, we currently assume that Europe-related concerns will weigh significantly on the U.S. economy during the first half of this year and then fade gradually thereafter. Trevor will discuss recent developments in the European situation in more detail after my presentation, and Josh will then talk about some of the downside financial risks posed by these developments.

Even with the headwinds from Europe eventually easing, we forecast U.S. GDP growth to step up only gradually over the next two years as other factors that have been restraining the recovery—such as difficult access to credit and the depressed housing market—also are expected to improve only slowly. Reflecting the modest pace of overall economic activity and the current environment of heightened uncertainty, we expect the recovery in the labor market to continue to be slow. As part of the Beige Book process, we asked the staffs at the Reserve Banks to make inquiries on several questions related to firms' hiring plans. Some key results are summarized in the middle-right panel. As shown on the first line, 41 percent of respondents in this most recent inquiry indicated that they plan to increase employment over the next 12 months, roughly unchanged from the responses that were provided last June. Among all respondents—both those planning to hire and those not planning to hire—47 percent indicated that low expected sales growth was an important factor restraining their hiring.

As shown in the bottom-left panel, federal fiscal policy is expected to become substantially more restrictive over time as temporary stimulus policies enacted during the past several years fade and more-recent deficit reduction actions start to take effect. Indeed, we estimate federal fiscal policies will restrain the growth rate of real GDP by about 1 percentage point in 2013. Counteracting a small amount of this growing restraint from federal fiscal policy, as shown in the panel to the right, the drag from cutbacks in real purchases by state and local governments over the past few years is projected to ease as their tax revenues improve enough to partly offset the winding down of stimulus-related grants from the federal government.

The third exhibit shows two alternatives to the baseline projection using simulations of the staff's FRB/US model. As we noted in the Tealbook, in light of the slow pace of the recovery and the risks posed by a number of factors, especially from the situation in Europe, we think that the risks to our projection for economic activity are greater than usual and skewed to the downside. Indeed, even assuming that our outlook for Europe evolves as anticipated, we still see the possibility that the U.S. recovery could follow markedly different paths. As noted in the upper-left panel, in a scenario labeled "Faster Snapback," we assume that we have underestimated the extent of the balance sheet repair and improvement in credit availability that has occurred so far, implying a faster recovery of aggregate spending and production than in the baseline. Moreover, the apparent improvement in recent labor market and production indicators may signal that a more robust economic recovery is getting under way, and a greater release of pent-up demand for durable goods represents an upside risk to our outlook. In this scenario, these factors lead to a stronger pace of consumption and investment outlays. As shown by the green dashed line in the middle-left panel, real GDP rises a bit more than 3 percent, on average, in 2012 and 2013, bringing the unemployment rate—shown to the right—down to 7¼ percent by the end of 2013. Initially, the stronger pace of recovery has little effect on inflation, as shown in the bottom-left panel, in part because of greater capital investment and higher labor productivity. Over time, however, tighter labor and product markets cause inflation to move above baseline, and the federal funds rate—shown to the right—begins to rise at the end of next year, mostly in response to the stronger pace of real activity.

Returning to the top-right panel, in contrast, the second scenario examines a downside risk to activity—namely, that household and financial institution deleveraging and weak confidence will restrain the pace of economic recovery markedly for many years, resulting in a "lost decade." In this scenario, the persistently slow growth in spending and output has a corrosive effect on the supply side of the economy because, with unemployment remaining very high for many years, the skills and labor force attachment of unemployed workers erode more than in the baseline. In particular, the downward trend in labor force participation steepens relative to baseline, the NAIRU is a bit higher, and potential GDP expands a little more slowly. Under these conditions, as shown by the red dashed line in the middle-left panel, real GDP expands at only a 2 percent annual rate, on average, through the middle of the decade. With the expansion in aggregate demand so tepid as to only match the slower growth of potential output, the unemployment rate—

shown to the right—remains near recent levels through 2016. As a consequence, inflation—shown in the lower-left panel—eventually falls below 1¼ percent. Against this backdrop, the federal funds rate—shown to the right—remains at its effective lower bound beyond 2016.

The next exhibit reviews the staff’s outlook for inflation, which is little changed since the December Tealbook. As shown in the upper-left panel, core PCE price inflation has stepped down notably in recent months. After incorporating the latest reading on the consumer price index, we estimate—as indicated by the dashed red line—that the core PCE price index rose at an annual rate of just a little more than 1 percent over the three months ending in December, substantially lower than the increases seen earlier last year. This deceleration is consistent with our expectation that much of the earlier rise reflected transitory factors such as the pass-through of increases in commodity and import prices and that inflation would ease as those effects receded. Indeed, both consumer energy prices—shown in the upper-right panel—and core nonfuel import prices—shown in the middle left—have decelerated significantly since the first half of last year.

Moreover, readings on longer-run inflation expectations—shown in the middle-right panel—continue to be stable. The preliminary January reading of the median 5-to-10-year-ahead expected inflation rate from the Michigan survey remained at the lower end of the range that has prevailed in recent years. We expect that well-anchored long-run inflation expectations, along with the wide margin of slack in the labor market, will continue to restrain labor costs, shown in the bottom-left panel. Combined with the moderate rise in productivity that we project, these gains in compensation imply only a small increase in unit labor costs this year and next.

As shown in the table in the bottom right, with no material change to our forecast for core inflation, total PCE inflation, line 1, is also essentially unrevised and is expected to be a little below 1½ percent this year and next. Trevor will now continue our presentation.

MR. REEVE. After intensifying significantly in the second half of last year, the European debt crisis appeared to take a break for the holidays. Although it is difficult to be sure of exactly what underlies the recent calming of financial markets, an important factor, as Brian noted, appears to be the greater provision of liquidity by the ECB through its first offering of three-year funds and an expansion of eligible collateral. These actions have greatly diminished near-term funding stresses for European banks and, as shown by the red line in the first panel of exhibit 5, led overnight interest rates to drop below 40 basis points. As shown to the right, the cost of dollar funding through the FX swap market has eased as well, but remains high.

The improved sentiment and greater provision of liquidity also appeared to support shorter-term sovereign debt. As shown in the middle-left figure, spreads on two-year bonds have declined for Italy and Spain, but 10-year spreads, the next panel, remain elevated, likely reflecting that little has been done of late to fundamentally resolve Europe’s fiscal and financial problems.

In our view, a restoration of investor confidence will ultimately require larger backstops to credibly protect the financing of vulnerable countries while their governments develop a track record of successfully implementing fiscal and economic reforms. But as noted in the next panel, while talks among European authorities are proceeding, little concrete progress has been made on this front. European leaders are moving ahead with earlier plans to introduce the new, permanent facility—the ESM—in July, a year earlier than originally scheduled. But it is not clear if the ESM will add to total funds available, and it will take time to fully implement, as many steps must be taken before it becomes operational. In addition, efforts to expand the lending capacity of the EFSF through leverage have yet to get off the ground, and S&P’s recent downgrade of the EFSF may further limit its effectiveness.

Although it is possible that the recent calm in financial markets could signal a persistent change in market sentiment, we think that as long as firewalls remain insufficient, any number of adverse shocks may cause financial conditions in the euro area to deteriorate again. As just one example, on-going efforts to restructure Greek debt may not be sufficient to assure further official assistance for the country, raising the threat of a disorderly default. Other possible shocks include distress at a major financial institution, more slippage on fiscal goals, or the failure of governments to maintain the support of their populations for continued austerity.

With financial stresses likely to intensify again, we are anticipating a prolonged recession in the euro area, which I’ll discuss momentarily. But even without further deterioration, financial conditions are already severe enough to materially weigh on activity. As shown in the lower-left panel, even with their recent run-up, euro-area stock prices remain depressed, especially for banks. And, as shown to the right, nonfinancial corporate bond spreads remain high. These strains, along with further deleveraging by European banks, are likely to weigh on economic growth and further intensify fiscal pressures. Our outlook for the euro area and the other advanced foreign economies is featured in your next exhibit.

As shown on line 3 of the table, we estimate that euro-area GDP contracted in the fourth quarter of last year, and we project that it will continue to do so this year. The middle-left panel indicates that industrial production has turned down even in Germany, and it remains weak in Italy and Spain. And, as shown by the blue line to the right, euro-area consumer confidence has tumbled since the summer. One mitigating factor is the recent slide in the euro, the red line, which should provide some lift to euro-area exports. Even so, we continue to see the euro area suffering a moderate but fairly lengthy recession. Along with adverse financial conditions, considerable fiscal tightening is in train; as shown by the black bars in the lower-left panel, the euro-area structural budget balance is projected to swing from a deficit of 4 percent of GDP in 2010 to a modest surplus in 2013.

In the United Kingdom, activity is being restrained by headwinds from the euro area as well as its own fiscal consolidation, illustrated by the blue bars in the lower-left panel. As shown to the right, industrial production has weakened further in recent

months, suggesting a slight contraction in GDP for the fourth quarter (line 4 of the table). We now project that U.K. real GDP will rise only  $\frac{1}{2}$  percent in 2012 before picking up further in 2013.

In Japan, industrial production has dropped off following its rebound from last spring's earthquake. Weaker external demand and supply disruptions from the floods in Thailand explain some of this weakness. As shown on line 5 of the table, we expect Japanese GDP growth to rebound to  $2\frac{3}{4}$  percent in the current quarter as the supply disruptions ease, but to fall back thereafter.

In aggregate, our outlook for the advanced foreign economies, line 1 of the table, remains dismal. We estimate that GDP rose at only a  $\frac{1}{2}$  percent pace in the fourth quarter and foresee a similar performance in the first half of this year. Thereafter, as European authorities take more aggressive policy actions and as investor confidence is gradually restored, growth in the advanced economies strengthens to  $1\frac{1}{2}$  percent by next year. Even with this improvement, however, resource slack is projected to rise over the projection period.

Your next exhibit turns to the emerging market economies. As shown on line 1 of the table, we estimate that GDP growth in the EMEs dipped to  $3\frac{1}{2}$  percent in the fourth quarter. Part of this step-down reflects the effects of Thailand's floods on activity in Thailand and some of its trading partners. Additionally, economic growth slowed to a more sustainable pace in China (line 3) and Mexico (line 5). The deceleration in Chinese GDP, to  $8\frac{1}{4}$  percent, was in line with our expectations. As shown in the middle-left panel, China's industrial production and retail sales have slowed from early last year and even more so from 2010, in part reflecting tighter monetary policy to guard against overheating. But with external demand weakening in recent months, Chinese authorities appear to be easing policy at the margin, which should diminish the odds of a hard landing. We project that Chinese real GDP will grow at an 8 percent pace this year and next.

Weaker external demand, particularly from Europe, also appears to have diminished growth in the EMEs; as shown in the center panel, EME exports have softened since early last year. However, manufacturing PMIs, in the middle-right panel, picked up at the end of the year, which, along with the end of the Thailand disruptions, supports our view that growth in the EMEs will step up to about  $4\frac{1}{2}$  percent in the current quarter. We expect growth to remain near this pace over the forecast period.

In addition to trade effects, the European crisis has also affected the EMEs by triggering a global retreat from risk, which, as shown in the lower-left panel, led to a reversal of private capital flows since last summer. If this drying up of foreign financing continues, or is exacerbated by European bank deleveraging, it could pose challenges for maintaining growth. In a similar vein, the retreat from risk triggered sizable depreciations of many EME currencies. As shown to right, EME currencies, excluding China's, have depreciated roughly 10 percent against the dollar since the

summer. While this depreciation may improve export prospects for the EMEs, it also puts upward pressure on inflation, the subject of your next exhibit.

As shown in the first panel, commodity prices have generally moved lower since the summer. The main exception is oil prices, which have been supported by supply concerns, most recently from Iran as the international community implements sanctions in response to the country's nuclear program. As shown to the right, our projections for oil and nonfuel commodity prices are fairly flat.

With commodity prices down from their peaks earlier last year and with widespread resource slack, consumer price inflation has begun to ease in the advanced foreign economies. But, as shown in the middle-left panel, these declines have been modest and have occurred only recently as a number of temporary factors held up prices earlier in the year. As shown in the lower left, we anticipate that AFE inflation will move lower amid persistent output gaps, fewer tax increases, and stable commodity prices. Inflation in the EMEs, in the middle right, has also begun to abate in some countries, including Brazil and China. In contrast, inflation has picked up in Mexico due to a spike in domestic food and electricity prices. We expect inflation in the EMEs as a whole to run a bit above 3 percent over the forecast period.

Our views on foreign monetary policy are summarized in the lower-right panel. Given the weak outlook for the advanced foreign economies and diminishing inflationary pressures, we expect policy to remain accommodative, with the ECB continuing to provide extraordinary liquidity and the Bank of England and the Bank of Japan further expanding their asset purchases. In the EMEs, monetary policy will also likely be eased somewhat. But in some cases, continued concerns about inflation, augmented by recent currency depreciation, may limit the scope for such easing.

Your last international exhibit examines the U.S. external sector. The intensification of the European crisis since June has had a significant effect on the outlook for U.S. trade. As shown in the top panels, our current forecast for total foreign growth lies well below our June Tealbook projection. And the broad real dollar, which has been boosted by flight-to-safety flows, is roughly 7 percent above the June path. Both of these revisions, which have been predominantly driven by the heightened stresses in Europe, have diminished the outlook for U.S. exports. As shown in the middle-left panel, we currently expect real exports to expand at a 5 percent pace over the forecast period; while this outlook is still fairly solid, it is markedly softer than we anticipated in June.

As shown in the middle-right panel, the revisions to the outlook for U.S. imports have been much smaller. On the one hand, the downwardly revised path for U.S. GDP growth has weighed on our import projection. But on the other hand, this effect has been significantly offset by the higher dollar, which makes imports cheaper and thus boosts demand for foreign goods.

These revisions to exports and imports have resulted in a noticeably smaller contribution to U.S. GDP growth from the external sector than we foresaw back in June. As shown in the lower-left panel, we now expect net exports to make a roughly neutral contribution over the forecast period, compared with a positive contribution of about  $\frac{1}{2}$  percentage point in June. Similarly, our outlook for the current account, in the final panel, has become more pessimistic: We now expect the current account deficit to remain around 3 percent of GDP, a projection that is about 1 percentage point wider than in June. Josh will now continue our presentation.

MR. GALLIN. I will begin by discussing some of the financial conditions underlying the staff's baseline forecast and then present our assessment of risks to financial stability in the U.S., highlighting a few key vulnerabilities.

As shown by the black line in the upper-left panel, we expect the 10-year Treasury yield to rise substantially from the middle of this year through 2013, ending that year at  $3\frac{1}{2}$  percent. This projection reflects the movement of the valuation window for long-term bonds through the period of near-zero short-term interest rates, a gradual waning of the effects of unconventional monetary policy, and an unwinding of safe-haven demands. We project that yields on BBB-rated corporate bonds (the red line) and conforming fixed-rate mortgages (the blue line) will increase moderately over the next two years, though by less than Treasury yields as spreads narrow a bit. Moving to the right, stock prices are assumed to be about flat in the first half of the year and then to rise as investors gain confidence that the European authorities will be able to resolve their fiscal and financial crises. In addition, our forecast calls for house prices (shown in the middle-left panel) to decrease a bit further in the near term and then to be flat through the end of next year.

We expect credit conditions to ease slowly over the projection period. As shown to the right, results from the January Senior Loan Officer Opinion Survey on Bank Lending Practices show that a small net fraction of banks again eased lending standards for a composite of all loan categories over the past three months. This easing of standards comes amid a continued decline in the aggregate leverage of households and nonfinancial businesses, as measured by the ratio of private debt to total GDP and depicted by the blue region of the lower-left panel. Meanwhile, as shown by the red region, the federal government continues to be an enthusiastic borrower. In the financial sector, not shown, dealers report continued pullback from leverage by their clients in recent months.

The panel to the right plots an index of financial market stress that aims to measure the resemblance of overall financial conditions in U.S. markets to those prevailing during periods of stress such as the recessions in 2001 and 2008 and the period around WorldCom's default in 2002. This index is notably lower than it was late last fall when concerns about Europe were most intense. The recent decline in the index was driven by reductions in the volatility and co-movement of broad asset prices.

Your next exhibits focus on vulnerabilities in the financial system. As shown in the top two panels, CDS spreads for the large banks have fallen from their November highs, and stock prices have risen in recent weeks, reflecting policy actions that appear to have reduced the near-term risk of runs on financial institutions and to have bought more time to resolve the European crisis, as well as recent earnings reports that generally met or exceeded beaten-down expectations. Still, market prices suggest significant concerns remain, particularly for Bank of America, Morgan Stanley, and Goldman Sachs.

The middle panel shows the ratio of the market value of common equity for large BHCs to an estimate of the market value of their assets, which provides a market-based measure of the value of capital. The panel depicts the year-end reading of this ratio for each BHC, beginning in 2007. As shown by the red bars, at the end of last year this measure of capital was, for most of the large banks, around that at the end of 2008, which was near the depths of the financial crisis. Bank of America, shown by the first set of bars is a particularly worrisome case. Its ratio was lower at the end of last year (the red bar) than at the end of 2008 (the yellow bar), and well below the level seen at the end of 2007 (the gray bar). The lower valuations reflect a number of factors, including weak earnings, the potential for losses on mortgage-related lawsuits, the risk of a more pronounced crisis in Europe, and a more restrictive regulatory environment.

Troubles at any one of these large banks could lead to significantly elevated stress at the others. One way to measure such systemic risk is, as noted in the lower-left panel, the conditional value at risk (CoVaR). CoVaR is a market-based estimate of an extreme loss to the financial system that would be expected if a particular firm suffered from extreme distress. The panel to the right plots the staff's estimate of CoVaR for the domestic LISC banks. This measure of systemic risk has come down a bit recently but remains elevated, which suggests that the financial system as a whole remains quite vulnerable.

In the next exhibit, I review possible risks to large banking institutions and the financial system from a significant adverse shock from Europe, building on the scenario that was included in the Tealbook. The shock could result from a disorderly sovereign default, a failure of a large European institution, or because the public loses confidence in the ability of European governments to resolve the crisis. The scenario envisions, for Europe, soaring sovereign and private borrowing costs, plunging household and business confidence, and a precipitous decline in real GDP relative to baseline by the end of 2013. For the U.S., the scenario involves a sharp contraction of GDP and an increase in the unemployment rate to about 11¾ percent by the end of 2013.

As noted to the right, we expect that U.S. banks would experience substantial losses and weak revenues in this scenario. A very rough estimate, based on a top-down approach, is that the aggregate ratio of Tier 1 common equity to risk weighted assets would fall sharply through the end of 2013 by an amount fairly similar to that

in 2007 and 2008. In such a scenario, investors could begin to doubt the solvency of one or more large financial institutions, as they did in 2008.

Such concerns about solvency could be accompanied by a freezing of short-term funding markets and reluctance among market participants to engage in trading activities with weakened institutions. As can be seen by the red-shaded portions of the bars in the middle panel, a significant part of the liabilities of the large BHCs are short term in nature. This is especially the case for banks such as Goldman Sachs and Morgan Stanley that are particularly focused on securities and derivatives activities.

The events surrounding the bankruptcy of Lehman Brothers demonstrated how the failure of a single firm can rapidly destabilize the entire financial system, even when direct counterparty exposures are modest. As shown in the lower-left panel, responses to the December Senior Credit Officer Opinion Survey on Dealer Financing Terms indicate that, since August, dealers have devoted increased time and attention to the management of concentrated credit exposures to other financial intermediaries. More broadly, investors appear particularly anxious about the stability of firms engaged primarily in securities and OTC derivatives activities, especially in the wake of the rapid collapse of MF Global.

The lower-right panel summarizes substantial vulnerabilities of large financial institutions related to their reliance on short-term funding. First, the large firms use multiple legal entities in multiple countries and therefore operate under a hodgepodge of different regulatory regimes. This can pose significant challenges for policymakers, who must assess the liquidity and capital at particular local legal entities as well as at the global consolidated entity. Second, differences in bankruptcy and resolution regimes for affiliates and parents domiciled in separate jurisdictions can add to the uncertainties created by the failure of a large institution. Third, the potential is great for other nonbank financial firms to be harmed by disruptions in short-term funding markets. Unfortunately, only modest progress has been made to deal with these cross-border resolution issues, and the scope for interventions utilizing the Federal Reserve's 13(3) authority is now more limited.

The last exhibit provides an update on U.S. money market mutual funds, which, given their susceptibility to runs and importance to short-term funding markets, remain a significant vulnerability for the global financial system. As can be seen in the upper-left panel, holdings of shares in institutional prime funds (the red line) have been stable over the past few months, in contrast to the sizable outflows witnessed last June and July, and demand for government funds (the black line) has increased.

For several months now, domestic money funds, in aggregate, have been reducing their exposures to European risks. As can be seen to the right, prime money funds have significantly pared direct exposures to institutions domiciled in France (the red line). Funds have already dramatically reduced their exposures to the most fragile European countries. Indeed, most funds have eliminated their exposures to financial institutions in peripheral European countries. Overall, holdings of European liabilities, excluding France, the blue line, have moved down only a bit in recent

months as funds have generally maintained large exposures to financial institutions in the U.K., Switzerland, Holland, Sweden, and Germany. As shown in the middle-left panel, funds have shifted their European investments toward very short maturities and, not shown, from unsecured debt to repo transactions. This has been particularly pronounced for exposures to French institutions.

Although money funds have reduced their direct exposures to Europe, some words of caution are in order. First, aggregate data can mask fund-level risks. Consider the panel in the middle right, which shows the distribution of prime money funds' exposures to France. As shown by the left-most bar, quite a few funds have no exposure to France. However, scanning to the right, many funds have at least some exposure, and, as shown by the right-most bar, quite a few funds have French exposures exceeding 10 percent of their portfolios. In other words, although aggregate exposures to France are way down, plenty of funds have exposures that are large enough such that defaults on French liabilities (or even pressures to liquidate these assets quickly in light of increased concerns about such risk) could by themselves cause these funds to "break the buck." Experience has shown that, in the wrong circumstances, a break-the-buck event at even a single money fund caused by a credit event at a single firm can set off a broader flight of investors that can quickly become a full-fledged run, with consequent serious damage to the entire financial system. Second, although shortened maturities reduce risks for individual money funds, the aggregate effect is to put additional pressure on issuers and likely reduce the overall stability of the financial system. Third, the highly destabilizing run on money funds in September 2008 was stopped only when the Treasury Department instituted a retroactive insurance plan protecting money fund investors' balances. The Dodd–Frank Act has made it more difficult for the Treasury to take that kind of decisive action again.

Stepping back for a moment, the lower panel provides a brief update on some ongoing policy initiatives. First, we expect that the SEC will soon issue for public comment a proposed rule aimed at reducing the susceptibility of money funds to runs. These rules, which have been in the making for an unfortunately long time, are expected to include some form of a capital buffer—likely modest in size—perhaps in conjunction with holdback provisions on redemptions by money fund investors. The SEC will brief the FSOC on the proposal in February. Second, the industry-led task force on triparty repo reform is expected to issue a final public report soon that will acknowledge that its earlier recommendations have not been fully implemented. Most importantly, the industry has not eliminated the market's reliance on intraday credit from clearing banks, although a number of prerequisites to this goal have been put in place. Efforts in this direction continue, notably by the Federal Reserve Bank of New York through the use of supervisory tools in its oversight of clearing banks. Third, the FSOC has issued for public comment a proposed rule for the designation of systemically important nonbank financial institutions. Staff are collecting and evaluating data, and intend to propose a set of firms for further evaluation, with an eye toward designating some firms later this year. And last, the Comprehensive Capital Analysis and Review is under way, and bank supervisors in the System are

engaged in conversations with supervisors in other countries to share information and data to prepare for possible stress events.

MS. ZICKLER.<sup>5</sup> I will be referring to packet labeled “Material for Briefing on FOMC Participants’ Economic and Policy Projections.”

As shown in the top panel of exhibit 1, you are expecting real GDP to expand at a modest rate this year and to then accelerate gradually during 2013 and 2014. You anticipate a further decline in the unemployment rate over the forecast period, the second panel, with the central tendency of your forecasts reaching roughly  $6\frac{3}{4}$  to  $7\frac{1}{2}$  percent at the end of 2014. Regarding inflation—the bottom two panels—the central tendency of your projections shows a noticeable step-down in total PCE inflation this year, now that the effects of last year’s supply disruptions and run-up in commodity prices have largely unwound. In 2013 and 2014, almost all of you expect both total and core PCE inflation to run at rates below or close to your 2 percent inflation objective.

Exhibit 2 presents information on your assessments of the appropriate path for the federal funds rate associated with your economic projections and under the assumption of no further shocks to the economy. As can be seen in the top panel, two-thirds of Committee participants anticipate that economic conditions will not warrant the removal of policy accommodation until 2014 or later. In contrast, six of you believe that earlier action will be required. Regarding the balance sheet, seven of you indicated in your responses that you see the appropriate path for the balance sheet about as assumed in the Tealbook. The rest, who generally are those with a significantly earlier or later expectation for liftoff of the federal funds rate than assumed by the staff, think that balance sheet normalization should also begin earlier or later, consistent with the exit principles agreed on in June. However, one participant suggested ending the maturity extension program early. And three participants indicated that, in their view, appropriate policy would include additional purchases of mortgage-backed securities this year.

The bottom panel details the distribution of participants’ individual judgments of the appropriate level of the federal funds rate over the next three years and in the longer run. Most participants appear to expect a gradual increase in the target federal funds rate during the projection period. In this regard, I should note that although we did not plot dots for those who put the first increase in 2015, they all have the funds rate at only  $\frac{1}{2}$  percent at the end of that year. The two participants with liftoff during 2016, have year-end funds rates of  $1\frac{1}{2}$  and  $1\frac{3}{4}$  percent. Your estimates of the longer-run level of the funds rate are plotted to the right, and you can see that as of the end of projection period in 2014, all of you anticipate that the appropriate federal funds rate will still be substantially below its longer-run level. In broad terms, the federal funds rate path assumed in the Tealbook, in which the funds rate lifts off from the zero lower bound in late 2014 and rises gradually to  $4\frac{1}{4}$  percent by 2020, appears to be in the range of your policy projections.

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

Exhibit 3 shows the relationship between your individual forecasts of inflation and the unemployment rate in the year during which you expect that the first increase in the federal funds rate to be appropriate. As you can see, your expectations for the unemployment rate at the time of liftoff range from about 6¼ percent to 8½ percent, with the median at 7.1 percent. Expectations for the inflation rate at the time of liftoff are clustered largely between 1½ percent and 2 percent, with the median at 1.8 percent. Most of the participants who currently judge that the unemployment rate will be close to or below 7 percent in the fourth quarter of the year of the first increase in the federal funds rate anticipate that the funds rate liftoff will occur in 2014 or later. In their narratives, those participants cited their expectations that the economic expansion would proceed at a moderate pace, that the unemployment rate would decline slowly, and that inflation was likely to be relatively stable at or below 2 percent until the time of liftoff. However, one participant who expects that the recovery will be sufficiently slow that the unemployment rate will not fall enough to warrant liftoff until 2016 projects inflation at that juncture to be substantially above 2 percent. In contrast, the participants who judge that the appropriate path for the funds rate is one that begins earlier and rises more quickly (the shaded triangles and diamonds) generally believe that the Committee should act decisively to contain inflation and to avoid the risks of losing credibility and unanchoring inflation expectations. In addition, several project above-trend economic growth or have concerns about distortions in the financial system. Five of those participants see the need to act to forestall inflation while the unemployment rate is still above 7½ percent. One participant, who is forecasting inflation to run above 2 percent over the next two years, expects the unemployment rate to fall to 7 percent before liftoff in 2013.

Exhibit 4 provides more-detailed summary statistics for your economic projections and compares them with those that you made in November and with the staff Tealbook forecast. Starting with the outlook for real GDP growth, shown in the top panel, the central tendency of your projections is for the economy to expand at close to its longer-run rate this year and then to accelerate moderately in 2013. The changes compared with your November forecasts were relatively small, but the central tendencies of your projections for GDP growth for the next two years are a bit lower. Most participants see a number of factors as continuing to restrain the pace of the expansion over this period—deleveraging by households, fiscal restraint at all levels of government, a depressed housing market, and elevated levels of consumer and business uncertainty. In addition, many of you noted that you had marked down your forecasts some in light of a weaker outlook for Europe and the emerging market economies. By 2014, however, most of you anticipate that the factors restraining the economy will have eased, with the central tendency of your projections showing real GDP rising 3.3 to 4.0 percent in 2014, noticeably above its longer-run pace.

Regarding unemployment (the second panel), the unexpected drop in the unemployment rate since November led most of you to lower your unemployment rate projection for 2012. Nonetheless, relative to the 8.7 percent unemployment rate in the fourth quarter of 2011, a number of you expect only modest improvement during 2012. Thereafter, your projections continue to trace a gradual downward path

for the unemployment rate as the expansion strengthens. Overall, the central tendency of participants' forecasts for real economic activity and unemployment are slightly more optimistic than the staff's.

Turning to inflation—the bottom two panels—you can see that the central tendencies of your projections put both headline and core PCE inflation at or below 2 percent over the 2012–14 period. Most participants anticipate subdued inflation in the near term in light of the easing of price pressures associated with commodity costs and supply disruptions, as well as low wage costs and stable inflation expectations. However, a few of you mentioned concerns about the possibility of disruptions in global oil markets that could boost energy prices. Over the medium term, many of you anticipate that inflation will remain subdued as the persistence of high levels of slack in resource utilization hold down inflationary pressures. However, for a number of you, this outcome for inflation rests on the assumption that monetary accommodation will be removed in the next year or two to forestall a pickup in inflation. By comparison, the Tealbook forecast for inflation skirts the low end of the range of participants' forecasts.

The column to the right details participants' assessments of the longer-run rates of real GDP growth, unemployment, and inflation. The central tendencies for real GDP—2.3 to 2.6 percent—and the unemployment rate—5.2 to 6 percent—are essentially the same as those that you provided in November. Since then, you have settled on 2 percent as your longer-run expectation for inflation. Most of you said that the economy was likely to converge to these longer-run rates in five to six years, although several noted that more time might be required—particularly for the unemployment rate—and several thought that the process might be faster—particularly for inflation.

Your final exhibit summarizes your views of the uncertainty and risks that you attach to your projections. As in November, most of you evaluate the uncertainty attending your forecasts for real GDP and the unemployment rate (the top two panels in the left-hand column) to be higher than the average level of uncertainty seen over the past 20 years. At the same time, as shown to the right, most of you continue to see the risks to your projections for real GDP as weighted to the downside and, accordingly, the risks to the unemployment rate as weighted to the upside. In that regard, you cited the risks of a more severe economic contraction in Europe and of greater persistence of some of the factors that have been weighing on the expansion as well as the possibility that an extended period of high long-term unemployment may have severely damaged the labor market. However, a number of participants who recognized some of these risks noted that, in their view, they were balanced by the recent data showing the resiliency of the U.S. economy and drop in the unemployment rate.

As shown in the bottom two panels on the left, about half of you saw the degree of uncertainty attending your inflation projections as above average—a smaller fraction than in the case of economic growth and unemployment. Moreover, as indicated in the panels to the right, most participants viewed the risks to inflation as

broadly balanced. Many of you cited the stability of inflation expectations as an important factor in your assessment that the risks to inflation were broadly balanced. A few of you mentioned possible upside risks associated with developments in global commodity markets. Several participants noted that highly accommodative monetary policy and fiscal imbalances also posed upside risks to inflation over time. However, one of you noted that some models of inflation suggest a risk of disinflation.

This concludes our staff presentations. My colleagues and I will be happy to take your questions.

CHAIRMAN BERNANKE. Thank you very much for that presentation. The floor is open. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. The Tealbook's forecasts in general seem to be on the weak side relative both to the SEP projections as well as some private forecasters. One aspect of the difference that struck me was business fixed investment, and I would like to get some clarification on it. In our business outlook survey, the diffusion index for prospective capital expenditures actually doubled from 10 to 20 in January. I would also note that in the SPF—the Survey of Professional Forecasters—the projections for business fixed investment in 2012 are in the neighborhood of 5.8 or 6 percent, while the staff's forecast is just barely over 2 percent. And, indeed, the slowdown in business investment from 2011 to 2012 is actually knocking something like ½ percentage point off your forecasted GDP growth. What I would like is some insight as to what is knocking you down from 7½ percent, or whatever it is this year, to 2 percent in 2011? Is it add factors? Is it uncertainty? What's feeding through in your projections for business fixed investment? That seems to be a very important part of the forecast, so I would like some elaboration on it.

MR. ENGEN. There are two parts of that. First, on equipment and software, in the recent data, we have seen a slowdown that is consistent with what we had been anticipating for the fourth and the first quarter. Moreover, we have also seen that although business sentiment measures have improved since the fall, they are still below what they were a year ago, and our

judgment is that the uncertainty about Europe and about the overall economy having prevailed for a while has led to somewhat damped expectations for the path for E&S expenditures. On nonresidential investment, there are two parts to that. We see drilling and mining structures continuing to rise briskly with higher oil prices and other energy prices, as well as with the new and profitable technologies that they are using. We did see some bounce-up in nonresidential structures outside of drilling and mining in the middle of last year. We think that that is primarily transitory, due to some expiring provisions for tax credits for some types of power industries. And so when we look at the fundamentals in that sector of vacancy rates, restrained credit, and other things like that, we think that we will return to the slow and subdued level of nonresidential investment outside of drilling and mining that we saw earlier last year.

MR. WILCOX. If I might just add, you are correct, President Plosser, that the business investment forecast is taking about ½ percentage point off GDP growth this year compared with last year. That is unrevised from the December Tealbook, so our projection in this regard is just as it was in December.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. I wanted to talk about Europe for just a second because in your presentation we talked about spreads, particularly on Spain and Italy, and we talked about the French banks. For reasons that may be peculiar to me, I continue to worry about the French primary fiscal deficit and developments that might occur during the course of an election year. Do we have concerns about France, or am I alone at this table?

MR. REEVE. No, I don't think you are alone. We are actually fairly concerned about all of the fiscal adjustment programs that are in place in Europe, not just in France. Now, France's may be at more risk, I suppose, because of the election. But with the exception of Germany,

which is going to overshoot its target for 2011, the rest of them look likely that they will miss it, although in some cases, like Italy, by a small margin. Italy didn't have much of an adjustment to do between 2010 and 2011, but it has an absolutely massive adjustment to do next year and the following year. And Spain, which missed its target by at least 2 percent of GDP in 2011, is almost surely going to have to negotiate a revision to its target for 2012, especially in light of the deterioration in the outlook for economic growth. My own preference would be that the whole constellation of fiscal targets would be renegotiated at the European Commission level, with new targets that are a little friendlier to economic growth and not quite so "damn the torpedoes, full steam ahead." But of course Spain's initial reaction to missing its target was to announce another 1½ percent of structural cuts. There is a fine balance around going too far, and the key test will of course be how markets respond to these developments as they unfold. But, clearly, the whole fiscal situation is one of the main, if not the main, factor that is underpinning our very weak outlook.

MR. FISHER. On the domestic side of the presentation, we referred to a faster snapback scenario. On the European and the foreign side, the only alternative scenario is basically severe stress or it could be worse than we think. There is that asymmetry. Although I would like to hear of happier scenarios, my concern is that the big issue that could drop could be France, and I would urge us to continue to be mindful of the risk that that presents, particularly given what is happening politically in France.

MR. REEVE. I agree that we are much more worried about the downside risks than we are about upside risks. In December, we did do an upside scenario in the Tealbook. We fully admit that we could be surprised in the other direction. And some of the calming of financial markets and a few little upticks in some recent indicators suggest there may be some upside

potential to the outlook, but nothing sounding very strong to us to make us change our basic outlook going forward.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. The fixed net asset value of our money market funds, as you know, provides this inefficient, overly large incentive to avoid realized losses on a fund and to get your money out early and run. I take it the SEC's proposals are unlikely to include floating net asset value, and I'd appreciate the staff's assessment of the likelihood that the measures they are likely to propose will buffer the money market funds from the run-like catastrophe that we saw in '08.

MR. GALLIN. It looks likely that their opening bid on the size of the capital buffers is not going to be particularly large. We don't know exactly what they are going to propose. It will be out fairly soon. There is the potential for the rules, if they were actually implemented, to make a meaningful dent in the runability on funds. It depends really on the implementation and, in particular, on how the potential holdback provisions are linked to the capital buffers. If they are well designed and integrated well, you could have a meaningful fix to the situation. However, we have to wait to see what proposed rule they actually come out with, and then we have to wait to see what happens with the comments, and we have to wait to see what actually gets implemented. There is a real chance that what would come out would be watered down and not be effective.

MR. TARULLO. Josh, Jeff, it is probably worth adding that there has been a very big shift in the lobbying center of gravity on this over the past few months. The hardliners in the money market fund industries who were saying "no changes at all" have gained a bit of the

ascendancy and knocked out the entities that were trying to forge a compromise. I would actually be slightly darker than Josh on the prospects for something meaningful getting out of the SEC.

MR. FISHER. Including ad hominem attacks against Eric Rosengren. [Laughter]

MR. TARULLO. He is not the only one.

MR. LACKER. On the side of darkness, letters from Jerry Hawke are darkening my inbox these days, as I mentioned to many of you. Thanks.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I had a question about the liability structure of Goldman Sachs and Morgan Stanley. The picture on exhibit 12 gives a good snapshot in time, but I am interested in trends in the liability structure. Has there been a decrease or an increase in the dependence on short-term funding over time?

MR. GALLIN. In the QS report, we actually had some time series on this on page 6. The trends have been roughly flat over the past few years. The more traditional bank-like holding companies—Bank of America, J.P. Morgan, and Citi—have a little bit more of a decline in their reliance on short-term funding, but nothing much for Goldman and Morgan.

MS. LIANG. Can I add just one thing to that? Their ratios have been pretty flat. Since the crisis, their assets have shrunk quite a bit. That is opposed to the deposits, which have been increasing at the bank holding companies, and so their reliance on other types of short-term, nondeposit funding have fallen. Relative to independents, like MF Global or Jeffries, for example, these are actually quite a bit lower. Goldman Sachs and Morgan Stanley would have more capital and more long-term debt relative to the independents.

MR. LACKER. Two hands.

CHAIRMAN BERNANKE. Two-hander?

MR. LACKER. I know in the case of Bank of America, the asset side is very different as well with respect to liquidity management. You talked about the time-series change and their position. My understanding is that their liquidity buffers have substantially strengthened at some of the larger firms, if you take into account the assets they hold.

MR. GALLIN. If you net short-term investments against short-term liabilities, for instance, dependence ratios have come down a lot for some banks. I have looked at Y9C data, which are not the perfect kind of data that a bank supervisor could look at. I always am a little nervous about netting out these big, broad categories that may not be perfectly maturity matched, but the supervisors presumably would have the data to look at that in more detail and more appropriately.

MR. LACKER. Well, for one thing, they are holding a lot of reserves.

MR. GALLIN. That's true.

MR. KOCHERLAKOTA. Mr. Chairman?

CHAIRMAN BERNANKE. You have a two-hander?

MR. KOCHERLAKOTA. Well, I had another question. I'm always glad to yield the floor to President Lacker. He always has such interesting things to say.

MR. LACKER. I will yield the remainder of my time. [Laughter]

MR. KOCHERLAKOTA. My question is about the "Lost Decade" scenario. The thing I found puzzling about that scenario is that we had continued downward drift in inflation throughout that. You could imagine a lost-decade scenario that would be maybe slightly different than the one that staff programmed up, one with so much supply-side damage that

actually you are going to end up with increases in inflation alongside increases in unemployment.

MR. ENGEN. Yes. There is, as I noted, some supply-side damage involved in this scenario in terms of lower participation rates, a higher NAIRU, and lower potential, but not enough to get the kind of result that you were mentioning. A Tealbook alternative that I didn't highlight here that may have had a little more of what you are talking about was the "Greater Supply-Side Damage." It continued with the weak economy, but with greater supply-side damage that policymakers are slow to recognize. In that different scenario, you then can get a boost in inflation.

MR. KOCHERLAKOTA. What would be your thoughts on what would be happening to inflation expectations? If you look at this dotted line in exhibit 3, it is just heading downward. How would inflation expectations be reacting?

MR. ENGEN. We assumed that inflation expectations are anchored. It is one of the things that keeps inflation from dropping further. If it was the case that you also had a big drop in inflation expectations, then clearly inflation could fall quite a bit further.

MR. KOCHERLAKOTA. Thank you.

CHAIRMAN BERNANKE. President Evans.

MR. EVANS. Thank you, Mr. Chairman. As I was listening to the SEP presentation from Joyce, a question occurred to me that relates to the strategic framework statement that we just adopted. I don't know if it's fair game to point this out—you might want to wave it off for another time—but the Committee just adopted what I think is a terrific framework statement about how we conduct policy in line with how we have been doing it. And I certainly agree with President Lacker that if 17 of us were going to write down one of these statements it would take

different forms. But I think that we found a pretty good intersection of our views. But looking at exhibit 1, our forecast for the unemployment rate exhibits a long period of substantial deviations above what everybody's long-run sustainable unemployment rate is, and yet the core PCE inflation forecast has absolutely no overshooting whatsoever embodied in everyone's forecast. Then, on top of that, we have the federal funds rate projections that we will be presenting at the press conference tomorrow, and those indicate some people's tightening begins this year, and then as we proceed more indicate tightening. A question, particularly if you were to bring out the strategic framework at the press conference, would be: How is it that we interpret this as a balanced approach to dealing with these substantial deviations? This could be a defining characteristic of how we portray balanced approach. I don't know if anybody has given thought to that. I didn't expect this exactly until I saw the projections.

CHAIRMAN BERNANKE. Well, I think it is something we ought to talk about. The issue you raise is very legitimate. I will let people speak for themselves, probably tomorrow, but I suppose one argument would be that, if you believe that we are out of tools, that would be one explanation. But if you think we have effective tools, then it is hard to explain that path. Is that okay?

MR. EVANS. Yes.

CHAIRMAN BERNANKE. Governor Duke.

MS. DUKE. Mine is just a question. The Tealbook forecast seems to be way outside of what the central tendency and even in a couple of cases the range, which seems unusual to me. Is this unusual, happening from time to time?

MS. ZICKLER. I think that they are usually a little bit closer than this.

MR. WILCOX. I think this is a little unusual. I wanted to come back as well to the question of our relationship to outside forecasters, too. We are a little more pessimistic, though not much more pessimistic. The Blue Chip consensus projection, for example, of the unemployment rate at the end of 2013 is 8.0, and we are at 8.2. This is within a pretty narrow range, given the width of our confidence interval. I would say, yes, we are on the pessimistic side of the center of gravity of opinion, and probably this is a little unusual in terms of our relative position compared with Committee participants.

MS. DUKE. Thank you.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. I have a two-hander because I want to follow up on the question I asked when we started this off. I wanted to come back to investment because I think investment plays an important role in this somewhat weaker forecast. I didn't quite get an answer to the question. Given where the private sector is on the forecast for business fixed investment, I'm trying to figure out how much of your lower forecast is add factors or judgment calls relative to your investment equations. Can you give me some sense about how those two things affect your forecast?

MR. ENGEN. Certainly there is some judgment in it in the following sense. When we think about how much we've marked down the forecast relative to last June, some of that is direct. As Trevor showed, there is the effect of the exchange value of the dollar on exports. Some of that is indirect in the sense that we saw that measures of sentiment both for businesses and households went down. They've recovered some, but they're still pretty subdued. Risk premiums have risen, and how much to attribute that to more transitory factors and how much is going to weigh on the forecast for a while is always a judgment. How much of that was directly

related to Europe and how much was other factors as well as how much has weighed specifically on the investment is hard to parse exactly. But even though businesses in the past couple of years have invested at a fast rate in order to build back up their capital stock to a certain degree, it is the case that we think some of this uncertainty and subdued sentiment going forward will weigh on it. Some other surveys on capital expenditures that we have looked at, for example those that ask firms what their thinking is on this, indicate that uncertainty and the difficulty in planning long-term projects is part of it, but I can't give you an exact amount from our forecast.

MR. WILCOX. For what it's worth, we're running a little ahead of our preferred staff model. We're not add-factoring down the E&S projection to get a lower forecast. We think we're taking a small bet that there is still a little bit of pent-up demand for replacement of aging equipment.

MR. PLOSSER. Thank you.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I want to talk about exhibit 11 at the bottom, Conditional Value at Risk. I want to get clarification on what this is showing. I would say that this is a high reading; what does it mean? In particular, what are the units here?

MR. GALLIN. The way I showed the CoVaR—Conditional Value at Risk—is an index, but if I hadn't indexed it, it would show a dollar amount that the financial system could lose in an extreme but plausible event—for example, a 5 percent tail event loss to the financial system, conditional on an extreme stress event at a specific firm. Again, in that case it's operationalized with the 5 percent extreme event for a specific firm. It is done firm by firm—the note at the bottom says which banks it is for—and it's added up for that and then indexed. It's a high reading, which suggests that there's a fair bit of systemic risk right now in the system.

MR. BULLARD. What I'd like to know is how much the dollar value is. But also, we actually had an event in 2008 and 2009, so what does it mean when this thing peaks? Does that match up with actual loss to the financial system during that period or is that not what's going on here?

MR. GALLIN. The amount was on the order of something like \$150, \$250 billion. There's a conceptual idea of measuring the risk to the system from a distress at an institution, but you have to operationalize it, and here we have done it with a 5 percent tail. And compared with what happened in 2008, we're not doing it at 1 percent tail or a 0.1 percent tail or wherever you think that event actually occurred. There's also a question of over what amount of time the loss is being incurred, and in this it's a fairly short amount of time, like a week or a month. Of course, over the financial crisis as a whole, the losses were enormous over a longer period of time. The \$150, \$200 billion that this would look like if it were not indexed may not seem like a large number, but actually the reason I indexed it was because of all of these subtleties of how you interpret it. I didn't want that to interfere with the main idea, which is that it has come down some as things like the VIX have come in, but it is still pretty high.

MR. BULLARD. I think it's a potentially useful tool, and I want to get the interpretation clear so we know what we're looking at when we look at it. Thank you.

CHAIRMAN BERNANKE. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I wanted to come back to the question that Betsy addressed to Eric and David on the gap between the Committee's projections and the staff projections. I have two somewhat related questions. One puts you in a bit of a difficult situation. From your point of view, what has the Committee got wrong or what is it missing as a group? The answer to that may be informed by the second question, if you could reveal a bit of

your internal deliberations. That is, you've got, in the best Fed tradition, your projection plus something substantially more optimistic and something substantially more pessimistic. But as you were actually putting this Tealbook together, what was the nature of the actual debate, as opposed to the hypothetical debate, between a lost decade and a really robust snapback that I don't get the sense many of you actually anticipate? And maybe the answer would help inform a bit that first question of why the gap—specifically whether your debate was really between where you ended up and where we as a group ended up, or was your debate actually of a different nature with a somewhat more pessimistic but not lost-decade-like possibility?

MR. ENGEN. Do you want me to take a first stab?

MR. WILCOX. I'll have something, too. You stab, and then I'll stab. [Laughter]

MR. ENGEN. It certainly was the case that we were wrestling with how to interpret the incoming data. Our perception is, yes, that some of the data—labor market, production, and even residential construction—were a little bit better than we expected, and so we were wrestling with the question of whether we were missing a little bit more of a stronger recovery than what we built in. Part of what we settled on was that the perception that some of the news has been better was right, but we did need to see that for our forecast. To try to illustrate that, the staff has a suite of factor models, which is a way of interpreting a whole bunch of data. If you go back to October, those models were saying we should be writing down maybe a recession or very, very low GDP growth. We discounted those at the time. We needed to see the improvement in the data, which those factor models have shown, to get to where we are at this point. In the near term, there are also some special factors, particularly defense spending. That took  $\frac{1}{2}$  percentage point out of Q4 and another  $\frac{1}{4}$  percentage point out of Q1. That's very much off the general perception radar screens, but we had to go with that. Thinking more about the medium term, we

would view it as unchanged, and in some ways one of the reasons I presented the faster snapback is that it seems a little more plausible than it did, say, in October when it was harder to put that scenario out and think about, “Well, okay, how could we get there?” Maybe we are down-reading a little bit too much. A better outcome seems a little more plausible. I would say, in that sense, we are wrestling with this problem of interpreting the data. Maybe we could be a little bit higher, even though, as we noted, there are some big downside risks out there.

MR. WILCOX. I agree with all the considerations that Eric mentioned. Let me add a few other observations coming from the perspective of somebody who presided over the wrestling. We struggled with a number of issues, and based on different calls, we could have put a weaker forecast on the table or we could have put a slightly brighter forecast on the table.

On the downside, I think it would have been quite plausible for us not to adjust our attenuation assumptions that we featured in the Tealbook box. We rethought our treatment of the very negative news about income that we had gotten from the BEA. In the December Tealbook we told you we had attenuated our response to that. We went back, took yet another look, and boosted our consumption spending judgmentally a couple more tenths over the next year or two on the theory that Eric laid out before having to do with mismeasurement. We are still very concerned about the potential consequences of the European situation. I don’t think we have substantial new information since the previous Tealbook, but there would be plenty of reason to draw a more negative inference about the implications of the European situation for the United States. The third thing I would point to is that, at the moment, we’ve got a substantial tension between the gap in resource utilization that’s implied by the output gap and the unemployment rate gap. Our output gap is substantially wider than the unemployment rate gap. We’ve taken the view that we don’t measure either one perfectly. We put most of our eggs in the

unemployment rate gap basket. If we had the unemployment rate gap coming back into line with the output gap, we'd have an unemployment rate that would be two- or three-tenths higher at the end of the projection period from what we have. Those are some of the factors that we wrestled with that could have led to a darker outcome than the one that we arrived at.

On the brighter side, if I were trying to build the case for a stronger outlook, I think I and many of my colleagues on the staff would have built that case around the decline in the unemployment rate and some encouraging signals from the labor market. We didn't choose to go there because we think the preponderance of indicators at this point still counsels caution. Eric showed the quite striking fact that employment gains over the most recent three-month period are about 150,000, exactly the same as in the preceding three-month period. One can look at a number of the other indicators of hiring and layoff and so forth, and we think most of those other indicators are pointing to, yes, an improvement, but one of more limited scope than is suggested by the decline in the unemployment rate.

Those are some of the issues that we wrestled with on the upside and the downside. Now, to be honest, I don't know why it is that you all differ from us. You give us topline aggregates. We show you all the homework. You've got our worksheets in detail that probably you and I both find excruciating. I can't really inform what lies behind your thinking.

CHAIRMAN BERNANKE. Governor Raskin.

MS. RASKIN. To follow up on that, I wonder whether the other potential difference could arise from the idea that when we do projections, we're doing them under what we view to be appropriate monetary policy prescriptions. There is the real possibility that what you guys are doing is making assumptions—and in this case you put those assumptions in footnote 1—but what the Committee is doing is, in essence, putting together projections and then saying to

ourselves, “Well, what do we think appropriate monetary policy would be?” Some people then may have different views as to what appropriate monetary policy is, and that appropriate monetary policy is going to affect what your numbers look like. To some extent, the projections that we are doing are projections that aren’t necessarily ones that we think are going to occur, but ones that we think would occur under appropriate monetary policy.

MR. WILCOX. I think that’s right. You’re positing a normative statement about the right monetary policy, and we’re trying to drive our projection off a positive statement of what monetary policy would be indicated by a particular rule, which is estimated off your typical behavior in the past. This is what we call the outcome-based rule. So we’re positing that your funds rate policy will follow the pattern dictated by that particular rule and then conditioning the rest of the forecast on that.

MR. KOCHERLAKOTA. But I think Governor Raskin’s idea would have the people with the strong growth forecast having more accommodation in place relative to the outcome-based rule. Well, we can test that hypothesis and see if that’s true.

CHAIRMAN BERNANKE. President Bullard.

MR. BULLARD. Yes, to follow up on this discussion, Governor Raskin is exactly right, that the exercise is somewhat different for the policymakers than it is for the staff, and I do think that’s an important consideration. There is literature on this, and you can check it out. The other thing we have to keep in mind is how much uncertainty there is around any forecast, especially if you’re talking several years out, but really even if you’re talking one year out. The amount of uncertainty is actually usually understated around this table. The confidence bands are gigantic. The idea that there’s a lot of difference between a forecast of 2.2 versus 2.7 is not serious. The

amount of uncertainty is huge, and those two numbers are not very different. That's a consideration when we're talking about this issue. Thank you, Mr. Chairman.

MR. WILCOX. I agree with President Bullard's observation entirely, and in fact, we show confidence intervals, which are based on FRB/US stochastic simulations, on page 82 of the Tealbook, and they're very wide. They're quite wide for the current quarter. We spend a lot of time on what's called "nowcasting," which is trying to determine the initial condition.

MR. ENGEN. I should add that both the faster snapback and the lost decade are essentially within the 70 percent confidence band, even though they have been characterized as markedly different.

CHAIRMAN BERNANKE. This wasn't the reconciliation I was hoping for. [Laughter]  
Any other questions? [No response]

CHAIRMAN BERNANKE. I want to broach a question about the projections with participants. In our minutes for the December meeting we said not only that we would provide quantitative information about our expectations of rates in the future, but we also said we'd provide qualitative information about balance sheet policies. And my concern is that the SEP question was probably inadequate to elicit much information; basically we asked you if you agreed with the Tealbook. The Tealbook baseline has no additional purchases, so that people who agree with the Tealbook could include people who would never undertake further purchases or could include people who are quite willing to undertake further purchases if the situation was worse than the mode.

For purposes of the minutes and so on and based on many conversations around the table and bilaterally, I'd like to suggest three short statements that I believe characterize our views, and I would like to see if you are comfortable in using them as a qualitative description on this

subject. The first, I think, is uncontroversial: “There is a diversity of views on the Committee [laughter] about the potential efficacy and desirability of additional asset purchases.” The second one is perhaps more controversial. I would say: “Most participants would set a fairly high bar on further purchases if the economy continues to improve, but are prepared to take further balance sheet measures if it is judged that employment is not making sufficient progress toward our assessment of the maximum level or if inflation shows signs of persisting below its mandate-consistent rate.” So I’m saying that most participants would be prepared. It’s pretty qualified. And then the third one, which I think also is not so controversial, is that many people observed that the balance sheet should be linked to federal funds rate policy according to the principles we described last June in our minutes. I don’t want to get into an extended discussion. I’m perfectly prepared to drop this, but I was hoping to get a little bit more substance for the purposes of the minutes in particular. Reaction? Vice Chairman?

VICE CHAIRMAN DUDLEY. The one question I have is on the words “fairly high bar.” Is that going to be taken as changing where the Committee is headed? You could use different language like “does not expect if the economy were to continue to improve.” That would be a little bit less forward leaning. “Fairly high bar” means there’s an impediment.

MR. BERNANKE. “Does not expect” I think is probably more negative.

VICE CHAIRMAN DUDLEY. I’d just like us to think about that language, because right now the market basically has about a 55 percent probability of further asset purchases, which is actually helping to keep financial conditions more accommodative. If we say something that suggested that we’re significantly further away from that expectation, we’re going to essentially de facto tighten financial conditions, which I would argue our forecast doesn’t call for.

CHAIRMAN BERNANKE. I'm not trying to change market expectations here, and if it's in the minutes, of course, it will have to be approved by the Committee.

VICE CHAIRMAN DUDLEY. I would just raise a question about whether the “fairly high bar” is really quite the right characterization.

CHAIRMAN BERNANKE. Do others have reactions? President Lockhart.

MR. LOCKHART. Yes, I'm maybe on the other side of the sentence from Vice Chairman Dudley in being slightly concerned about characterizing the majority being “prepared.” Could we not say “would consider” or something that signals that there would be deliberations around this in the future, and that minds are not closed, but not go so far as to say “prepared.”

CHAIRMAN BERNANKE. Well, I was trying to balance the “fairly high bar.” Forget the first part about the bar and just say, “Most participants would consider further purchases of the economy if employment is not making sufficient progress,” something like that?

PARTICIPANTS. Yes.

CHAIRMAN BERNANKE. President Fisher?

MR. FISHER. I do think that's an improvement. This goes back to the question I asked Brian. I think the reason that the market is expecting further accommodation through greater asset purchases is because that's been expressed. The Vice Chairman of this Committee has expressed it, the Vice Chair of the Board, and some others at the table. That was the Fed-speak I referred to. These are powerful voices. They condition markets. I'm a little concerned we may be reading into the dealer survey or “market expectations” hints that individuals, albeit important individuals of this Committee, have been giving the marketplace. I think the refinement that Dennis suggests is better. Obviously, all of us would consider whether we are for it or against it.

It's more encompassing and accurate. I would agree with the amendment President Lockhart put to the sentence.

CHAIRMAN BERNANKE. I don't think this is fruitful to continue now, but we'll see what we can do in the minutes to get something people are comfortable with.

MR. EVANS. Mr. Chairman, could we perhaps opine on that tomorrow during the policy go-round?

CHAIRMAN BERNANKE. That would be fine. That's a good point.

MR. EVANS. Get a better survey of what everybody's thoughts about forward guidance through the minutes, at least.

CHAIRMAN BERNANKE. Remember we're not here trying to come to a Committee decision, obviously. We're just trying to get a bit of a feel of what people's stances are. Anyway, it will be an improvement if people will comment on that in the go-round. That will give us a little bit better sense, we can record that in the minutes, and we will have made our promise to give some information about that. Vice Chairman.

VICE CHAIRMAN DUDLEY. Can I ask David just a quick question? Why did the Tealbook not assume another round of asset purchases? I'd like to understand the thought process.

MR. WILCOX. Designing our monetary policy assumptions is always a delicate task, which we try to undertake with some sensitivity to staying as much as possible out of the way of prejudging Committee actions, and it would probably overly dignify it to call it art, but it was our judgment that the more judicious approach was to assume, until further guidance from the Committee, no further asset purchases as the most neutral, bland, beige approach that we could take.

VICE CHAIRMAN DUDLEY. But saying that doesn't mean that the staff is somehow opposed to further asset purchases.

MR. WILCOX. What we have attempted to do as a regular standard operating procedure is to drive the funds rate trajectory, as I was discussing earlier, off the outcome-based rule and to leave existing portfolio policies in place, and that has been our standard practice.

VICE CHAIRMAN DUDLEY. So there is no signal in that?

MR. WILCOX. No. It is by design intended to try to be as signal-less as possible.

VICE CHAIRMAN DUDLEY. Fair enough.

MR. ENGLISH. I'd point out we did send a memo to the Committee that said you could do a \$500 billion MBS purchase program, and if you did, here are the effects of that on financial conditions and on the economy. There's an addition problem that can be done that yields what the effect of that would look like.

VICE CHAIRMAN DUDLEY. Yes. I accept that.

CHAIRMAN BERNANKE. Okay. We have on the agenda an opportunity to make comments on financial stability issues, and we have a couple of people who would like to do that. Why don't we do that now, and then we will take a break? President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. I think the financial stability report was very good this time, not in terms of the outcomes and the concerns but in terms of the thoroughness and directness at which you address some of the issues. That's really beginning to gel, and I really appreciate the effort in making that work. I liked the structure that you had in the very beginning, which began with a LISCC portfolio and then went to the broker-dealers. What struck me as interesting is the LISCC organizations that you focused on all had large broker-dealers. As I looked at exhibit 11 that we were shown today in the briefing, it was

interesting to note that the market equity ratios of both Goldman Sachs and Morgan Stanley were quite low, but in the previous CCAR exercise Goldman Sachs was viewed as relatively well capitalized, whereas Morgan Stanley was viewed as poorly capitalized. Then I noted the observation that you made that hard-to-value assets are continuing to be financed by broker-dealers with short-term financing. And the observation that Vice Chairman Dudley made that during a crisis, like what's happening in Europe, central banks tend to be the counterparty to a lot of organizations—that they choose not to transact with each other, they tend to transact with the central banks. As I put all of these strands together, along with what you put together for the broker-dealers, the question that I came up with is: Is the broker-dealer model sustainable if we have a European crisis? I'd start with asking whether you share my concern about the broker-dealer model being sustainable in a crisis. What was not in the report was how we could mitigate those concerns. Noting the disparity in capital between Goldman Sachs and Morgan Stanley, if your concern is that organizations aren't going to want to transact with them and they're highly dependent on overnight financing, then it would be something like altering the repo market, altering what kinds of investments they could make, altering their liability structure. If you could give me more of a sense of what you think would be right and what more we could do, because it is troubling to have such important organizations having credit default swaps as high as they are.

MS. LIANG. We would agree. We are connecting the dots, in some sense, the same way you are. We don't have a full assessment. Part of why we think stock prices are so low and CDS spreads are so high for these institutions is related to the question of whether they have an ongoing business model that is viable when short-term funding markets are stressed and under Dodd-Frank and the new regulatory regime where proprietary trading is coming off the table.

There is a little less trading activity; we don't know how much there will be going forward. I think that very much is an issue, and that is why we were highlighting it. There are a couple of ways to address that. There are issues about the triparty market and the repo market. Are there ways to make that somewhat safer? There are the intraday exposures and the industry task force, but are there other ways to address some of the funding problems in short-term markets? I think money funds are a big part of that. They are a big source of the funds. They aren't the only source. There are a lot of non-2a-7 funds and other cash pools that we are just starting to try to understand. Those are long-term policy initiatives—money funds, triparty.

On crisis management, which is more near-term if something were to arise, there are ongoing discussions with supervisors in other countries about how one does recovery or resolution for these types of institutions if stresses really escalate. Currently, because many of them operate cross-border and their funds in good times tend to flow between the different entities, everything is fine. The concern is if stresses rise and the home-country supervisor wants liquidity there, then it starts to get dispersed. Having those conversations up front about how one would address that is ongoing. I don't have anything terribly reassuring to say here, except long-term reform and some attention to possible crisis management issues.

CHAIRMAN BERNANKE. I guess the Basel III liquidity rules might be of some help over time.

VICE CHAIRMAN DUDLEY. It doesn't really apply. The securities firms actually are in good shape vis-à-vis the Basel liquidity rules.

MS. LIANG. The way the rules currently are designed, the securities firms look great, and the commercial banks do not. Because they fund with triparty repo, and a large part is Treasury collateral, that doesn't seem to be penalized in the current version of the LCR.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. I thought the staff hit the right notes on the financial stability report. I thought it was really good in terms of what you covered. I am going to add a few thoughts of my own. Let me just start with the U.S. financial institution issue. I think the good news is that firms have more capital—the securities firms have bigger liquidity buffers, and they have cleaner balance sheets in the sense that they have cleaned up some of the stuff that is really difficult to hedge. A good example of that is Morgan Stanley, which closed out its MBIA positions, which were very difficult for them to manage. The bad news, as Nellie rightly gets at, is that there are questions about the business model, and that is why the market values of these companies are depressed. The story is quite different if you look at book capital, as you look at the trajectory over the past few years relative to market value. The questions about the business model are a very big factor there.

But the other thing that is very significant here is that there is no really good lender-of-last-resort backstop for these firms, and that is why the funding can run so easily. The firms have enough collateral to reasonably pledge and gain funding, if people are willing to be their counterparties. But as we saw in 2008 into 2009, just having sufficient collateral isn't necessarily going to actually get you the funding, and there is no lender of last resort for these entities. We can provide 13(3) facilities, but only in extremis. The bar to that is extremely high, they have to be broad based, and they can't be firm-specific. And then, second, when you look at their foreign operations, there are places where it is not obvious how they would get their liquidity. For example, it is not clear where the U.K. broker-dealer affiliates of Morgan Stanley and Goldman Sachs would get funding. The absence of lender-of-last-resort backstop makes it easier for the run to occur because people have uncertainty about what would they do if they

couldn't get funding from me. Well, if they couldn't get funding from me, then maybe they are in trouble, so maybe I should run. I think that is a fundamental problem in the regime. It's not the firm's fault per se. It is just a question that the financial system has evolved pretty dramatically over the past 20 or 30 years, so that these entities, which were de minimis in 1970 in terms of their size and importance, are now quite substantial. And yet the financial regime, the regulatory apparatus, and the central bank and lender of last resort have not really kept up with that evolution. We really do have something serious that we have to think about. Either we decide that we want to remedy this, or we decide that these firms don't have significant social value, and that, therefore, they need to shrink. This is something that we have to wrestle with over the next couple of years.

In terms of Europe, I am pleasantly surprised—that might be the right word—by how powerful the three-year, long-term financing operations have proven to be. But I don't think we should take too much comfort from that, because we have had these periods in the past where things look like they are heading down very rapidly in Europe, and then all of a sudden there is a policy response, and then people say, "Oh, good, the resources are coming." Then we have a few months of improvement, and then we go back on another leg down. I don't think we are out of the woods by any stretch. A couple of things that I would highlight there that have me worried. Even if the PSI program with Greece is successful—in other words, they get the exchange and there is no trigger of the credit default swaps—it is not obvious to me that Greece is on a sustainable debt trajectory. There is also a question that their needs are going to be greater than what the IMF and Europe have said that they are willing to provide. That seems to be a big risk. Portugal seems to have been forgotten, although Trevor did mention it in his comments. Ten-year sovereigns in Portugal are trading at about 14 percent, plus or minus a little

bit—that is not a sustainable path. And they are supposed to return to the public markets in 2013. It is not obvious at all how that is going to happen. The other thing I would stress about Europe is that public support has replaced private markets, and that is the comment I made earlier. That really raises questions about, how do we go back to the process where access to private markets is restored. The exit in Europe is not at all obvious. And then, finally, there is the risk that the countries will continue to not meet their fiscal targets, and the most obvious reason for that is that fiscal austerity may lead to economic underperformance, which then requires further fiscal austerity measures. And, of course, the problem is that at some point the political process may fail to support those additional rounds of fiscal austerity that are needed. It is a little bit better, and I am glad about that. I feel like the downside risks to the U.S. outlook have diminished slightly. But we have seen this movie before, and so I am not convinced at this point.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Yes, Mr. Chairman. I had a quick question for Vice Chairman Dudley. When Draghi took over as the head of the ECB, there was a lot of uncertainty about how he would view the crisis, what kind of role he wanted the ECB to play. Do you think markets have formed a view that maybe he is willing to play a more active role than they might have thought in November? And that might be part of the reason for things being a little more quiet?

VICE CHAIRMAN DUDLEY. I will just give you my view, and the Chairman and Governor Yellen might have other views that they want to express. My view is that he has been very mindful of not going over into the fiscal space by having the ECB expand their bond purchase program in any way. In fact, if you look at the numbers in terms of the amount of

government bonds purchased by the ECB, they have actually been pretty small. He has escalated in the dimension of what central banks can do and what is clearly within the province of the ECB as far as providing liquidity at term against a broadened collateral set. And he has been more aggressive in broadening what a normal central bank could reasonably say, “This is my province. I’m not stepping out into the fiscal space.”

MR. KOCHERLAKOTA. Great.

CHAIRMAN BERNANKE. I’m not sure about the fiscal part. He is playing a careful game. He has actually been very hawkish fiscally, and I think the purpose of that is to give comfort to the Germans in particular, in the hopes that they will, given these reassurances, be more forthcoming themselves. It is a complicated game.

MR. KOCHERLAKOTA. At least verbally he has been quite hawkish on the fiscal side.

VICE CHAIRMAN DUDLEY. Well, I meant that he wasn’t actually doing things by the ECB that could be construed as fiscal policy. He has certainly spoken about fiscal policy quite a bit.

CHAIRMAN BERNANKE. Would anyone else like to talk about financial stability?  
President Lacker.

MR. LACKER. Just a comment about Vice Chairman Dudley’s comments about the broker–dealers. I appreciate the threat they pose and the extent to which they still rely on pretty short-term funding and are vulnerable to runs. It strikes me that they have it within their capability to make themselves invulnerable to runs. We may not have the actual legal capability, except by clearing a very high bar for 13(3) programs, to come to the rescue of their creditors. But I would question whether that is fully appreciated by their creditors, and I would question whether general market supposition is that our lawyers would find a creative way—would they,

Scott? I question whether market participants don't believe that we would find a way to provide support.

VICE CHAIRMAN DUDLEY. I do think market participants are very unclear about one particular thing, which is the ability of the big banks that have broker-dealers attached to fund their securities brokers versus the broker-dealers that don't have big banks attached. It seems like the market takes quite a bit of comfort for Citigroup and Bank of America from the retail franchise when, in fact, the ability of the bank to use that franchise to fund its securities broker is extraordinarily limited under 23A. I don't think the market fully understands how big a barrier 23A is.

MR. LACKER. I would point out that this configuration of ambiguity about whether we could or would, with market expectations that we could—that incompatible set of beliefs is combustible. It is exactly what drove our hand in Bear and all of the other bad cases. And that ought to be a real broad concern for us.

CHAIRMAN BERNANKE. Anyone else? [No response] Okay. Why don't we take 20 minutes and come back at quarter to 4:00 p.m., and we will do the economic go-round. Thank you.

[Coffee break]

CHAIRMAN BERNANKE. Why don't we reconvene? Let's begin now with the economic go-round, and I have President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. The Tealbook is little changed from last time and is forecasting substantial shortfalls on both elements of the mandate. At the end of 2013, the unemployment rate is 8.2 percent and the PCE inflation rate is 1.3 percent. My own forecast is virtually identical to that of the Tealbook, with PCE inflation of 1.4 percent and an

unemployment rate of 8.1 percent at the end of 2013, albeit with an easier monetary policy assumption for appropriate policy. In fact, most other mainstream forecasters share that outlook. Macroeconomic Advisers, J.P. Morgan, and Goldman Sachs all expect similar large misses on both elements of the mandate. Even the four DSGE models predict 2013 inflation at 1.2 percent or less. Despite the high degree of uncertainty, there is surprising agreement that over the next two years, we will fall short of both elements of our mandate.

This large miss is consistent with an economy continuing to face substantial headwinds as a consequence of a severe recession and significant financial problems. One of those headwinds is the continued weakness in residential investment, which did not occur in previous recoveries. I commend the staff and Governors Raskin and Duke for highlighting that our policies would be more effective if we had a more effective housing policy. Proactive fiscal and monetary policies could potentially shorten the adjustment period in housing, which would likely have collateral benefits to other components of GDP, such as consumption. Small business hiring and investment have also been laggards in this recovery. While recently there have been increases in bank lending to large businesses, small business lending remains stagnant. Similarly, when you look at private-sector job gains and losses, the net job gains have been for businesses with 50 to 1,000 employees, with the smaller employers continuing to have net job losses. New business creation is difficult when home equity lines of credit and credit cards are not as accessible as in previous recoveries. In fact, most banks are looking for collateral for a new business, such as residual value in the owner's house. Small business lending is another area where proactive monetary and fiscal policies could reduce the current barriers to lending. For example, resumption of some of the programs used by the SBA during the recession might

make it easier to start new businesses or expand small businesses. Both would support our mandate of more quickly returning to full employment.

A third headwind is the higher-than-normal level of uncertainty. The risks of an Iranian-caused oil shock, a much more significant financial disruption from Europe, too much fiscal austerity here or abroad, or a further slowdown in China raise the level of uncertainty and are significant downside risks to the forecast. While we can do little to directly address these significant downside risks, we can try to promote more-rapid economic growth so that we can better withstand any of these shocks should they materialize. These concerns do appear to be manifesting themselves in real activity. For example, over the past month, there has been a substantial decline in freight rates for ships that deliver bulk goods such as coal, iron ore, and grain, as well as for ships that deliver containers of more-finished goods. This is illustrated by the Baltic Dry Index, which has dropped 50 percent over the last month. The Baltic Dry Index provides a measure of bulk-shipping freight rates for ships of various sizes over the major shipping routes. Freight rates for ships carrying more-finished goods have also been falling. Of course, these rates can be affected by a variety of factors, but the current declines are a possible harbinger of an even slower economy than the one presented in either the Tealbook or my own forecast. Of all of these downside risks, I am most concerned about Europe. It remains unclear to me what will pull Europe out of its recession. Europe is more bank-dependent than the United States, and we may be underestimating the likely credit crunch that will accompany their recession, as well as the political turmoil generated by what is likely to be staggering unemployment rates in much of southern Europe. While there is little we can do to directly influence European outcomes, encouraging stronger growth in the United States is not only

consistent with our mandate, but might also reduce the tail risk of a much worse outcome in Europe. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. Economic activity in the Third District continues to improve. Our coincident activity indexes show moderate growth across our three-state area, with the performance in New Jersey and Pennsylvania similar to that of the nation and with the results in Delaware just a slight bit weaker. Our leading indexes are pointing to continued growth and perhaps some acceleration over the next six months. Manufacturing activity in the Third District continues to expand in our January report, with the Business Outlook Survey indexes of general activity, shipments, and new orders all in positive territory and well above the levels we saw during last summer's slump. Perhaps better news from the survey is the sharp rise in future indexes. General activity, shipments, new orders, and capital expenditures are all expected to grow over the next six months. The future general activity index has risen sharply since last summer, an indication that confidence and expectations about future demand have improved substantially.

District labor market conditions have also improved in the region. In November, the tri-state unemployment rate fell two-tenths of 1 percentage point. And the Philadelphia staff's "nowcast" suggests a continued decline in unemployment to 8.2 percent in December. Employment growth in the region continues at a moderate pace, but somewhat slower than the nation. One feature of Pennsylvania's employment situation has been the growth in oil and gas production in the Marcellus Shale region. Direct employment due to this activity is estimated to be growing at a rate of about 400 jobs a month, as measured by statewide natural resources and mining employment, with employment in ancillary industries getting another 200 to 300 jobs per

month, according to the staff. By way of comparison, Pennsylvania's employment over the past year has risen by more than 4,000 jobs a month. Thus, while this natural resources employment has been a contributor to the job growth we've seen in Pennsylvania, it isn't the sole source. We've seen broader gains across many industries. Other regional indicators are also encouraging. Both current and future employment indexes in our Business Outlook Survey are in double digits, which, in historical perspective, suggests continuing employment gains. And in response to our special BOS question this month, firms were even more optimistic about plans to increase employment over the 6-to-12-month period than they were in response to the standard BOS future employment, which is for just the first six months, suggesting that they continue to expect to hire more in the second half of the year. I've also been encouraged by the recent employment data at the national level. Labor market conditions improved noticeably in the fourth quarter, with job gains accelerating somewhat and the unemployment rate coming down to 8½ percent. This 8½ percent is nearly 1 full percentage point lower than it was a year ago. The last time we saw a 1-full-percentage-point fall in the unemployment rate over a year was in 1995. The four-week moving average of initial claims is now at its lowest level since mid-2008.

The economy, in my view, appears to have entered the New Year on somewhat firmer footing. Measures of consumer and business sentiment have improved. And while the European debt crisis is still a significant risk to the outlook, financial market conditions have improved since our last meeting, with equity prices up and some easing of short-term funding in Europe. My outlook for the national economy has not changed that much since our last meeting or since our last projections submitted in October. I'm more optimistic than the Tealbook, but then again, the Tealbook appears to be somewhat of an outlier, as we've already noted, going forward. I continue to expect the economy to grow close to 3 percent—that is, slightly above trend—over

the forecast horizon. I'm more optimistic about labor markets as well. I expect the unemployment rate to continue to decline another ½ percentage point this coming year, to about 8 percent by the end of this year, and to perhaps be close to 7 percent by the end of 2013.

The case for further accommodation hinges a great deal, I think, on the confidence we have in our forecast. As I mentioned, the Tealbook forecast is below the central tendency of the SEP and generally somewhat more negative than most private-sector forecasts. I must confess, I'm not entirely convinced of where the pessimism comes from, but that's what it is. I think we all have to acknowledge that there is quite a large error band around our forecast and around our long-term projections as well, as we were discussing earlier today. Indeed, the data provided by the staff on the historical root mean squared errors of forecasts are strikingly large, especially in the third year of our forecast horizon. For example, the historical average root mean squared error on the unemployment rate and real GDP growth three years out is about 1.8 percentage points. And for two years out, at least for the Board staff's forecast, the historical average root mean squared error is about 1.6 percentage points for GDP growth and 1.4 percentage points for the unemployment rate. These are substantial degrees of uncertainty and reflect our inability to forecast in the intermediate term. Do we really want to signal in our statement that policy is likely to remain on hold for another three years, given such wide confidence bands associated with our forecast? I think we need more humility when we forecast, and we need to be particularly careful about relying on point forecasts that are largely indistinguishable from pretty wide ranges of views. We are operating with a great deal of uncertainty, particularly on our far-out forecasts. Thus, I'm very wary of phrasing our policy statements based on economic forecasts three years out. Given the attention paid to our calendar dates in our statements, the focus on them suggests to me that it's not entirely clear that the markets or members of the

public understand that these are really conditional and how conditional they might be. It's much preferable that we allow the SEP to do the job and reflect where the sense of the Committee is on our forecasts, rather than putting dates into the statement. I think the value of our SEP exercise on projections of policy is going increase over time as we monitor them and the public begins to see that those projections change as the economy changes. That's a better way to give the forward guidance—and perhaps less confusing.

The recent deceleration in inflation is welcome news, and I'm anticipating that both headline and core inflation will pull back toward 2 percent this year and over the rest of the forecast horizon. But my forecast is predicated on somewhat tighter monetary policy than the Tealbook's. In my view, to keep inflation expectations well anchored and inflation near our goal over the medium to longer term, the Committee will need to commence policy tightening this year. In particular, it concerns me that we continue to seek ways to expand the degree of accommodation even as unemployment rates are falling and inflation is above our goal. We have already reached a point, in my view, where we have taken substantial risks of higher inflation in the medium term. With unemployment beginning to head down, I see little reason for doubling down on further increased accommodation. Even if we don't have further accommodation, waiting until the unemployment rate reaches 7 percent before we begin to move the funds rate from the zero bound is similarly very risky. I don't take much comfort in saying that we'll follow such a strategy only if our inflation forecast stays near 2 percent, since the unemployment rate is a backward-looking indicator and our forecasts for medium-term inflation change only very slowly over time and are not very accurate. Given the uncertainties around our forecast, we run the risk of having to reverse course very abruptly; if we prove ourselves wrong, and that would be very destabilizing. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Feedback from most of our directors and business contacts was positive regarding recent performance, and there was a notable improvement in expectations across most sectors. A number of contacts expressed confidence that fourth-quarter momentum will carry into the first. Nearly 80 percent of our 44 directors reported that they expect the pace of economic activity to improve over the next six months versus the last six months. This director group represents a pretty extensive footprint, both in the Sixth District and nationally in some cases, given the scope of their businesses. Overall, I heard more optimism in this cycle than I've heard for quite some time. Of course, we heard expressions of optimism a year ago going into the first quarter of 2011. Those expectations went largely unmet. While I'm hearing optimism again now, I'm also picking up something a little different. Businesses have noted more confidence among their customers, and this is informing their expectations of sales growth. Firms remain focused on efficiency and productivity gains, but compared with a year ago, more contacts are telling us they have plans to expand and are planning to add to net payrolls in 2012.

A few concrete cases in point. A large national global design-and-build firm noted a new sense of confidence among their clients, which are mostly Fortune 300 companies. This contact cited resumption of shelved building plans, as well as new projects. He also, interestingly, noted a rebalancing of location decisions in favor of the United States versus overseas. A director from a large consulting firm depicted their large-company clientele as showing increased optimism, with many moving ahead cautiously with expansion plans. A major rail transportation firm ended the year strong, and volume trends have continued to be very positive in the first few weeks of 2012. This company said that most of their clients are noticeably more optimistic

going into this year than they were in the fall. A large national auto retailer and the auto manufacturers in our District remain very optimistic. No doubt we are seeing some catch-up in demand from the impact of last year's supply disruption, along with the more predictable demand arising from an old and aging national fleet. Continued strength in this sector would be positive for growth. I think this positive feedback bears watching carefully, as we may be seeing the beginnings of tangible momentum building in the economy. The recession dug a deep hole in economic activity in the Southeast, and the climb out has been slow. Nonetheless, the increased optimism is notable, and firms seem to be coordinating on better outcomes. I acknowledge the need to be a little cautious and not over-interpret the optimism I am hearing in the Southeast. When I look at the Systemwide survey of hiring intentions just completed, which was mentioned in the earlier presentation—the middle-right chart in exhibit 2—I see that the responses from my District, almost 30 percent of total responses, were generally more positive than the aggregate results presented in the staff report. Specifically, when compared with a year ago, we've seen a discernible pickup in hiring intentions and basically no change in layoff intentions. In contrast, apparently other Districts overall saw a marked decline in layoff intentions and a small decline in hiring intentions relative to a year ago.

The forecast I submitted for this meeting varies somewhat from the Tealbook projection, with the staff's continued downward adjustment to growth in the medium term. We see stronger economic growth in 2012 and 2013 than the Tealbook—on the order of about ½ percent each year—and, for whatever it's worth, less of a jump in growth in 2014. This view is overwhelmingly supported by anecdotal intelligence I gathered in preparation for this meeting. Consistent with my outlook for economic growth, my outlook for inflation is also a little higher than what has been marked into the Tealbook. I don't see the inflation trend deviating by as

much, or for as long, from the inflation objective, compared with the Tealbook. To illustrate, our January Survey of Business Inflation Expectations indicates that firms are anticipating unit cost pressures on the order of 1.8 percent higher over the next 12 months, a shade higher than what they say they experienced over the past 12 months. But importantly, they're telling us they can pass these on—that their markups over costs, or their margins, while still soft, have risen with improving sales. My trajectory for unemployment in my forecast also departs from that of the Tealbook. The Tealbook has the unemployment rate in 2014 at 7.8 percent, having been raised ½ point from the staff's October projection, while we see a rate approaching 7 percent by year-end 2014. As regards the balance of risks, it's pretty clear that Atlanta's forecast is more upbeat than the Tealbook's, and the anecdotal input we're getting is consistent with that. In thinking about the balance of risks for growth, I decided to keep the risk weighted to the downside because of the still-looming big, exogenous risks—Europe and others—beyond our control that could throttle the economy and kill momentum. And as regards inflation, I continue to see the balance of risks as balanced. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. Reports from the Fifth Federal Reserve District since our last meeting suggest improvement and are consistent with an outlook for continued growth at a moderate pace. Our January manufacturing survey just released today showed broad gains, with the overall index rising to 12 from December's rating of 3. This is consistent with the same pattern shown by the Philadelphia and New York manufacturing surveys, but I'd remind you that the Fifth Federal Reserve District's manufacturing sector is bigger than the combined manufacturing sectors of the Second and Third Districts. Our survey also showed gains in manufacturing employment and new orders, and the six-month outlook

strengthened as well. The nonmanufacturing survey was more mixed, though still broadly positive. We did see negative readings in many components of the retail survey, although the retail sales revenue index was up from 4 to 24. Residential real estate activity remains pretty weak in our District. As much as one-third of recent increases in sales can be attributed to distressed sales, we're told. This is understandable. Several of our banks have reported taking a very aggressive approach to moving REO off their balance sheet. Interestingly, one of our large banks has shifted strategies and is now accumulating conformable mortgages, finding them more remunerative than selling them or than other alternative uses of the abundant liquidity that's piling up in their deposit coffers. Commercial real estate is more mixed. Office vacancy rates declined in most of our metro areas, but Washington is a notable exception. Consequences of defense spending cuts are taking their toll. More broadly, anecdotal reports from our directors and a number of roundtable councils that we convene month to month, while still mixed in general, have shown a significantly more frequent reports of optimism and a pickup in activity.

My outlook for the national economy is not substantially different from the Tealbook's—somewhat weaker growth in the current quarter, followed by a gradual strengthening over the next few years. My inflation forecast is a notch higher than the Tealbook's, however. Longer-term inflation expectations appear to be pretty stable at this point, and I hope that the release of our consensus statement should, if anything, help cement those expectations in place. I think inflation is likely to fluctuate around 2 percent for the next couple of years. I believe the Tealbook places too much weight on measures of resource slack in forecasting the medium-term path of inflation.

We all submitted projections for the federal funds rate for the SEP this time. My forecast is for us to raise rates in the second half of 2013 because I think economic growth is likely to

move close to 3 percent toward the end of that year. And I think real growth is going to be more relevant to policy than the size of gaps, either output or unemployment gaps, given our uncertainty about the level of the natural rate. This is a feature of monetary policy that's easy to overlook, because in many of our standard models, for a given rate of inflation, there's a one-to-one relationship between the level of the gap and the growth rate. So you could write policy just as well in terms of a growth rate rather than a gap. In the real world, they vary independently, and I view employment growth as a somewhat more reliable indicator, at this point in the business cycle, of whether we need to tighten or not. So I'm going to be looking at growth rates, not the level of gaps, in thinking about when to tighten policy. Just for your information, my projection is that the unemployment rate will average 8.1 percent in the fourth quarter of 2013; this places me among the seven respondents to the SEP whose projection for 2013 is inconsistent with the second sentence in paragraph 3 of alternative B.

A final note about some terminology. I don't know if this is a large miss on our mandate. I just think that scientifically, we're uncertain about that, and similarly, it's not obvious to me that the picture you get from the SEP projections represents a lack of balance. We spent a long time talking about natural rates and maximum employment. What we learned is that there are reasonable estimates that are all over the map, from 5 percent to 7½ or 8 percent. So I don't think it's obvious that the picture you get is so unbalanced or that we're missing in such a large way. Given a history of no shocks to the economy in the last couple of decades, could unemployment be better? Yes, sure. But given the shocks we got, could monetary policy per se, interest rate policy, have been run in a way that delivered a better outcome? It's not obvious it would be materially better under some different reaction function or some different policy strategy. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. President Lacker was bragging about his District. But, Jeff, my biggest company is bigger than your biggest company.

MR. LACKER. No, we're not giving him the bumper sticker. [Laughter]

MR. BULLARD. Since I'm sitting in President Fisher's chair, I'm going to use the word "contacts," but you should all translate that as "interlocutors." [Laughter]

The Eighth District economy continues to be characterized by steady but unspectacular economic growth. Payroll employment continued to grow somewhat faster than in the nation as a whole during the most recent reporting period. Eighth District unemployment has declined, although not as rapidly as in the nation as a whole. Manufacturing contacts have generally been upbeat, especially in the auto and auto-related industries. More than 400 recently hired workers are starting this month at a facility in Wentzville, Missouri, outside St. Louis. Reports indicate that automotive-related industries are working at full capacity and expanding in western Kentucky, and a new auto manufacturing plant has opened outside Tupelo, Mississippi. Transportation industry contacts with daily data indicate that business remains generally good. Prospects for 2012 are regarded as promising, with the slowdown in Europe so far not a significant drag. According to these contacts, Europe is a tale of two regions—north and south—and results there depend on where business is concentrated; considering Pan-European statistics under current circumstances is somewhat misleading. Slowdown in Asia has been noticeable but may reverse once the Chinese New Year effects subside. District bankers continue to report weak loan demand, with considerable competition for high-quality projects. Some commentary on mortgage lending has questioned the notion that credit standards are particularly stringent. According to contacts, conventional mortgage loans sold to Fannie Mae

can be obtained with credit scores as low as 620, well below the subprime benchmark of 660. The FHA will approve a loan with a 3.5 percent down payment and a credit score of 640. Some are concerned about reintroducing mortgage problems going forward. District agriculture remains optimistic for 2012. Land prices are up substantially over the last year, and equipment demand is brisk. Retailers reported generally satisfactory holiday sales, although results varied across firms. Many contacts report that high-end retail has performed quite well even as lower-end retail has had mixed results. A large retailer reported that customer attitudes at the lower end of the retail market were about as weak as they have been since 2009, even as broader consumer attitudes have improved. This segment is particularly price sensitive and concerned about rising prices. They worry a lot about inflation.

Nationally, I regard the news on the economic outlook as generally positive over recent months. My staff maintains an unweighted index of whether economic news reports are stronger or weaker than expected, and that index has been positive recently. This is consistent with global equity price movements since the first of the year, including—these are approximate numbers—in Latin America, Brazil is up 9.1 percent; in Europe, Germany is up 8.8 percent; in Asia, Hong Kong is up 8.2 percent; and in the United States, the market is up about 4.5 percent. It's also consistent with reports from large nonfinancial firms, which tend to think global economic growth will strengthen in 2012 and which remain quite bullish on emerging Asia. While Europe remains an important risk, the ECB's LTRO, heavily discussed here already today, was apparently substantially more effective than I would have thought likely at the time of the last FOMC meeting. It has, at least for now, taken the pressure off European banks and simultaneously put downward pressure on peripheral sovereign debt yields. Whether this effect can continue is a good question, but it is making me rethink the probability of especially

disorderly financial markets in Europe during the first half of 2012. In particular, I am moving that probability down somewhat, even recognizing all of the risk still left on the table.

U.S. labor markets continue to improve. I thought the performance here was impressive, given that in GDP terms, U.S. outcomes have generally been disappointing. The unemployment claims figure has stayed below 400,000 for several weeks, a heartening and long-awaited development. I asked my staff to check whether 400,000 was still a reasonably good threshold value, given that we have been using it for my entire two decades in the Federal Reserve System. It turns out that it remains a good benchmark in the sense that unemployment claims below the threshold have consistently been associated with declining unemployment.

I think the most reasonable scenario for 2012, and the one this Committee should use for planning purposes, is for real output to increase at a somewhat faster pace during the year, such as a still-modest 3 percent, and for unemployment to continue to tick down during the year. I would then expect 2013 to show further improvement on these outcomes. In 2013, in particular, I would put less weight on the fiscal drag notion than what's in the Tealbook. To get that fiscal drag number, you have to make a lot of assumptions about future tax policy and future spending policy, which I think are hard to specify. I view the Tealbook forecast of an essentially stagnant unemployment rate through the end of 2013 as a prediction of a form of unemployment hysteresis, a suggestion that the United States is about to catch the dreaded Euro-sclerosis disease, suffering unemployment that tends to remain elevated for very long periods. Indeed, if the Tealbook forecast comes to pass, the macroeconomic debate will be about exactly that issue. And, in fact, we know how that debate will proceed. It will be all about structural labor market reforms, as it has been in Europe for the past two decades. One aspect of the Tealbook unemployment forecast struck me as particularly unappealing—that is, just at the moment when

unemployment is about to behave strangely by U.S. standards, the Committee is contemplating tying its fate to this variable. Finally, I regard especially low longer-term nominal interest rates as at least in part indicative of a particularly easy stance of monetary policy. The 10-year real yield from the TIPS market has hovered near zero for some time, and the 5-year real yield remains near 90 basis points as of last week. These strike me as particularly low values over this type of time frame. I think the lower real rates currently in play will help support growth in 2012. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Thank you, Mr. Chairman. I'm going to talk very briefly about my District, make a comment on inflation, offer a general comment on the economy, report from my interlocutors, and then make a mention of the SEP—all without any reference whatsoever to Bill Gross or deleting him from the transcript. [Laughter]

First, with regard to the District, we had 2 percent job growth last year. We were fortunate that, on net, 197,200 jobs were created in Texas, 256,000 jobs in the private sector. And while I know the oil and gas industry is suddenly preoccupying other Districts, such as the Kansas City District and others, I want to point out that with respect to weighting and job creation, it ranked fifth in terms of the thousands of jobs created in our District—behind professional business services, trade and transportation, education and health, and leisure and hospitality. We expect that we will continue that growth rate of roughly 2 percent through the year, and we are now back to the point where the jobs in Texas and in the 11th District exceed those of the pre-recession level.

With regard to inflation, as I have been arguing for some time, our calculation of the trimmed mean has led me to conclude that we are trending downward and, in fact, to or below

the 2 percent level. The recent CPI headline release was most encouraging on that front—that is, until I saw the Cleveland and Atlanta numbers for the month; the sticky price CPI was at a 2.7 percent rate, compared with 2.3 percent a month earlier and versus a 12-month rate of 2.1 percent. Both Atlanta and Cleveland—I look forward to their comments on this subject matter—pegged December’s rate as the second-highest monthly increase since the end of the recession. I don’t see that in the trimmed mean numbers, and I’m skeptical about it. But it did take a little glow off of December’s data, and I wanted to mention that, in case President Pinalto would like to comment on that or President Lockhart might wish to add something to it later.

In terms of the economy overall, just looking at the data, I find the discussion that we had earlier a tad pessimistic. The December ISM and industrial production report suggest that the slowing of business investment is partly temporary, consistent with the Empire and the Philadelphia and Richmond surveys for January. The recent slight increases in building permits in the homebuilders’ index suggest that we’re starting to see some pickup in housing. I don’t think it’s quite accurate to say that housing remains depressed. As reflected in single-family housing permits, it has trended up 10 percent since July. I will point out that 61 percent of that rise occurred in the South, and 27 percent in the West. New data released since our last meeting indicate that banks are growing their loan portfolios. Governor Duke and I had a conversation about that in the hallway. To be sure, some of this is just taking part of what the Europeans are selling or taking market share from others. But I notice that small business lending increased 18 percent year over year in November. That’s a data point that I do not recall from our last FOMC meeting. Stock markets rallied. Rates out the yield curve have stayed anchored at these low levels. And according to my corporate interlocutors, confidence, while still tenuous, is increasing slightly.

The data and anecdotal evidence suggest that things are better and not worse than the last time we met, so let me talk a little bit about the interlocutors. In a nutshell, the tune that they are singing—again, this is all anecdotal, and I always preface it with “for what it’s worth”—is a little bit more upbeat, and I would say that the libretto is a bit more pleasant. Confidence is much greater than that which I heard at the last FOMC, and I’d like to give you some of the thoughts that have been expressed by the corporate contacts with whom I spoke and to remind you that these are not dissimilar in my District, including one rather large one that happens to be in your District, as you know. The following points I found of interest and somewhat unexpected. Those who source in China are finding much more accommodative hosts. Contracts for labor are being negotiated presently, and for many of these retailers, these are contracts that are deliverable for the rest of the year, but include the Christmas season at the end of 2012. These contracts are coming in the low single digits rather than the upper teens to low twenties, where they were in 2011, which is promising from a price pressure standpoint. But still, more companies report exploring plans to bring production home to the United States or to Mexico. Second, a broader array of companies, beyond the oil and gas exploration and production companies whose domestic cap-ex and hiring boom continue apace, are talking of expanding investment and payrolls—still, cautiously, and of course pending fiscal clarity. Also, my CEO contacts are hearing more anecdotal reports of foreign companies positioning to deploy investments here, and to quote one, “The obituary written on the American business model and worker was premature.” In terms of the homebuilders—getting away from the data that I cited earlier, but I want to remind you, as I accurately reported before the last FOMC meeting—they were sensing some bottoming out and firming of developable land prices, as well as ready financial resources from nonbank sources. Those same homebuilders that I speak to now are

estimating that a 20 to 30 percent increase in new home sales this year would not be a surprise. They add the reminder that this is coming off the ultralow bottom, but still, this is directionally encouraging. And to quote the colorful language of one, “The constipation of foreclosures is blocking new homes coming onto the market, which is allowing us and other developers of single-family homes to go back to work.” A possible confirming indicator is that 7-Eleven, whose customers are heavily Hispanic and construction-oriented, reported same-store comps of plus 4 percent year over year. And according to the CEO of that company, “We’re not seeing robust demand, but it’s a lot better than it has been.”

Nationally, bankers are reporting that C&I clients are looking to borrow again. To quote one of them, “Companies that are creditworthy are starting to switch to a borrowing mood.” Commitments are running higher, as is line usage. And as I mentioned earlier, small business lending is increasing. Companies still continue to drive to contain costs and spur their productivity—this is a new normal—across the spectrum from manufacturers to retailers. Many will still sit on greater cash reserves than normal until getting past the posttraumatic shock that we have experienced. Low natural gas prices are a boon to the U.S. chemicals industry as feedstock prices plummet. Again, this is a cost-containment factor, but it also is helping in terms of utilities and the ability for U.S. corporations to draw on their key energy input. Someone mentioned the issue of rails and transportation earlier. Rails report that traffic in the fourth quarter year over year was up 3.4 percent; they ended the year with 21 out of the 22 shipment categories that they monitor running positive. The two largest express delivery companies report—and I will quote the CEO of one of them—“a great holiday season. Domestic activity, which was tepid until October, has for the last three months”—and this is through this

Saturday—“been the best that we’ve seen in a long time.” Airlines are reporting stronger revenue growth in the fourth quarter and through last week than expected.

On the consumption front, according to credit card companies, year-over-year retail sales—ex auto, ex gas—were up 5.8 percent in December following plus 7.4 percent in November and 5.3 percent in October. And to quote the CEO of one of the large credit card companies, “The middle of December was dead, but consumption roared back in the last two weeks and has continued for the first two weeks in January.” Consumers remain value-driven in all but the top-income quartiles. Luxury retail, according to MasterCard data, was up 14 percent in December. Discounting continues, except by the telcos, which saw a tremendous year-end growth spurt for wireless consumer products. AT&T had “the best year-over-year performance ever.” Food sales have been the salvation of big-box retailers that sell to the two lower-income quartiles. And I might note, mentioning a specific company here—and I believe this is public data—Wal-Mart had a layaway sales plan. They budgeted \$600 million. They thought the average ticket would be \$83. They ended up doing \$1 billion, and the average ticket was \$273. Middle-quartile retailers report being squeezed the hardest, but part of that has to do with the warm weather patterns that we’ve seen since October, which have not helped. The bottom line on consumption, according to one of my most thoughtful contacts, is, “People are not as down in the dumps as economists seem to think. They’re certainly not galloping forward, but they’re once again walking upright. There’s a slowly gaining but palpable sense of increasing consumer confidence.”

I want to talk very briefly about the SEP exercise. I will not comment on policy, but I will—for what it is worth, again—pass on that in talking to my interlocutors and contacts, to a person, they wonder about the sanity of projecting the fed funds rate over much more than one

quarter. Their own experience in providing what, as you know, is known in the corporate world as forward guidance is vexing. At best, they might get it correct for the next quarter. At worst, they manage to that guidance and can miss opportunities for fear of disappointing Wall Street. To be sure, there are some corporations that have internal exercises. I used to sit on the board of one that forecast out three years. But as one of the most prominent of the former champions of this exercise in the corporate world, at one of the largest and richest corporations, admonished me this week, “What happens is that you end up with all of the sophistication and economic expertise you can buy, project forward a bias shaped by the current economy, and in the end the projections have to be rebased frequently. You then have to spend your time explaining publicly why you were wrong and what you missed, taking your eye off what you actually do rather than what you said you would do.” So nearly every CEO that I spoke to—again, these are business operators and microeconomic operators, not formally trained economists and certainly not theoreticians—is of the belief that this is a very risky exercise.

And with that misgiving, I nonetheless provided my projections. You might not be surprised that the numbers I submitted actually came straight from a “plain vanilla” 1993 vintage Taylor rule, using Okun’s law to convert the unemployment rate into an output gap. My inflation is at the top end of the central tendency. GDP growth starts and ends in the middle of the central tendency and is just above it in the year 2013. My unemployment projection is consistently in the middle of the central tendency. My fed funds rate is tied for highest at the end of 2012, is marginally highest at the end of 2013, and is tied, I might note, with several others for second highest at the end of 2014. I realize that the Taylor rule assumes a constant equilibrium real interest rate of 2 percent, and that some economists, including Robert Hall and others whom I greatly respect and many at this table, would argue that the equilibrium real rate is currently

much lower than that due to debt overhangs, et cetera. Tealbook, Book B, gives model-based estimates of the equilibrium real rate from 0 to minus 4. Yet in talking to John Taylor, who chairs the advisory board of our Globalization and Monetary Policy Institute, he still believes that policymakers shouldn't try to fine-tune his rule. And I am inclined to agree with him.

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. My forecast for GDP growth over the next two years has been essentially unchanged for the past several meetings, while the Tealbook's has come down. So for the first time in quite a while, my forecast for GDP is modestly above the Tealbook's. I am expecting GDP growth of about 2½ percent this year and 3 percent in 2013. In light of the December employment report, I did revise down the starting point for my unemployment rate projection, but I continue to expect the trajectory from that starting point to be one of only gradual decline. At the end of 2014, I expect the unemployment rate to fall to 7¼ percent, still some distance from my estimate of the full employment rate, which I have at 6 percent. I continue to project an inflation rate that dips below 2 percent this year before gradually rising to 2 percent by the end of 2014. With that overview, I will focus on some of the key issues underlying my outlook.

All of the headwinds that many of us have noted for some time—sluggish income growth, household deleveraging, the depressed housing market, financial strains in Europe—remain present to varying degrees. I still expect the economy to expand at a moderate pace despite these obstacles, but I find it hard to anticipate more than gradual progress. Growth at this moderate pace will only slowly chip away at the unemployment rate. The back-to-back surprises in the unemployment rate in both November and December convinced me to take some of the

decline on board in my projection, but I expect only slow progress going forward. Before the recession, there were fewer than two job seekers for every open job. Today, there are about four job seekers for every job opening. I realize that the fundamental solution to the unemployment problem is to increase the number of job openings through more growth in the economy.

Nonetheless, the labor market appears to be adjusting more slowly than it did in the 1980s, which was the last time we had such a high unemployment rate. In the 1980s, there was more churning in labor markets—that is, more people were losing their jobs each month, but more people were also being hired each month. While we don't necessarily want more layoffs, a more dynamic labor market in this sense produces more-rapid declines in unemployment, and our labor market has become less dynamic. There are many factors that could be slowing the adjustment, but one that resonates with my business contacts is a slower matching of workers to available jobs, which is due to greater specialization needed in today's workplace. Looking forward, most of my business contacts are expecting only a moderate number of new openings this year at a rate similar to last year. Their expectations are consistent with my forecast for only a small decline in the unemployment rate. Today's unemployment rate also reflects an unusually stagnant labor force participation rate. While there are several potential explanations for today's low participation rate, I suspect that the participation rate will rise somewhat when labor demand picks up. If so, the unemployment rate won't decline as quickly as the employment gains I expect to see would normally produce. Under these circumstances, I think it will pay us to be cautious about projections of the unemployment rate several years out.

Finally, my outlook for inflation has a decline in the near-term inflation rates, like the Tealbook, which reflects diminished commodity price pressures and continued subdued unit labor costs. What makes my projection different from the Tealbook is that, in my forecast,

inflation returns to 2 percent in 2014. Compared with the Tealbook, my forecast for inflation puts somewhat less weight on unemployment and more weight on the gravitational pull of the longer-run trend rate of inflation of 2 percent. To respond to President Fisher's inquiry about the median and trimmed mean CPI, on the near-term momentum in inflation, the Cleveland Fed median and trimmed mean CPI measures are still running near 2 percent over the past year, but they are showing mixed signals on underlying price trends in the past few months. Looking at the details of the components, while there are some factors pulling core measures of inflation down, inflation in owners' equivalent rent, or OER, has steadily picked up. Looking ahead, my staff is concerned that relative price shifts in housing could well put notable upward pressure on both the CPI and PCE this year and next. OER, which is the largest component in the consumer's market basket, is being boosted by rising house rents even while home-purchase prices are actually still experiencing declines. My staff estimates that this development could add about ½ percentage point to core CPI inflation. This is not necessarily an increase in the true cost of housing or even overall inflation, but at a minimum, it could pose a communications challenge if measured inflation turns out to be obviously larger than what we are expecting.

In assessing the risks to my outlook, although my business contacts were generally more positive on their outlooks than they were last month, I still see a predominance of risk factors for growth to the downside. Similarly, without more underlying momentum in the labor market, the risks to unemployment seem to remain primarily to the upside. I continue to see the risks to my inflation outlook as broadly balanced. On the one hand, labor costs could come in weaker than I anticipate. On the other hand, a range of factors could prevent inflation from slowing as much as I anticipate. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. I'd like to follow up on President Lacker's comment about the size of the manufacturing sector in the Fifth District, and I'll comment about the Eighth District. Just to get the facts straight, the 12th District does represent 19 percent of the U.S. economy. [Laughter]

During the intermeeting period, the economic data have been mixed. Earlier hopes of a strong finish to 2011 have been dashed—along with the Super Bowl hopes of the 49ers, sadly. Final sales growth in the fourth quarter appears to have been a sluggish 1.3 percent, and recent indicators point to only modest improvement in final sales growth this quarter. My business contacts all tell me the same thing. They see no signs that the economy has shifted into a higher gear in recent months. Indeed, an executive at a major national retail chain described the retail sector as “walking on eggshells, gingerly tiptoeing ahead with little confidence about the future.” I'll add another comment about what I hear from my contacts. Often they'll say, “Things are getting better, things are good,” but then they'll say, “But of course, that's not in a level sense. That's in the sense that things are growing, improving, and they're a lot better than what I feared they would be as of like 2009.” So I think that for a lot of business people I talked to, they're happy with how things are going because we're moving ahead—they may be adding jobs and they're growing—but in an absolute sense, things are still nowhere near where they were before the recession.

I anticipate real GDP growth of only 2¼ percent this year and about 2¾ percent next year, and events in Europe are presenting looming downside risks to this already subdued forecast. Europe gives every appearance of a slowly sinking ship amid sovereign credit downgrades, a tightening of credit, and slowing economic growth dragged down by the severe austerity measures. Euro-area authorities are busy bailing out water and patching up the leaks,

but fundamentally some peripheral countries may not be sustainable euro members. And sadly, the cruise liner that struck ground in Italy last week may become an apt metaphor for Europe, as the euro, too, may run aground in the Mediterranean. The situation in Europe is sapping confidence and restraining the outlook for growth in the U.S. This is already occurring, but more than that, though, it could potentially drag our economy down as well, as in the Tealbook alternative scenario “European Crisis with Severe Spillovers.” We’ve already talked earlier in our financial stability discussion about the vulnerabilities of our financial system to events in Europe—vulnerabilities to runs, vulnerabilities to a liquidity stress—and I think those are very real concerns, especially if Europe worsens significantly.

I would like to add, a downside scenario is especially worrisome, as the scope for further monetary and fiscal policy is so constrained. If things go very badly, it’s hard to see where we would find a policy bazooka as big as what was available in 2008. And as noted in the discussion of leverage this morning, much of the slow economic growth of the past few years is related to the credit boom and bust. To get a better handle on this question, my staff looked at 140 years of data for 14 advanced economies, and this rich data set shows that recoveries from financial crises are not, in fact, all alike. Instead, they differ depending on the amount of leverage that was accumulated before the crisis. So they’re differentiating between financial crises where there is a big buildup of leverage before the crisis versus ones where there wasn’t such a buildup of leverage. The way the leverage is measured in this case is by excess credit growth over GDP growth during the expansion. What this research shows is that when leverage is high, recessions are deeper, and recoveries are slower, than when leverage is lower. Based on this analysis, it’s not surprising that we’re still muddling along well into the third year of the recovery. It’s also a major reason why I have a relatively pessimistic view of where economic

growth will be this year and next year. Now, of course, in principle, the current U.S. situation could reflect weakness in either aggregate supply or aggregate demand. So the fact that we have weak economic growth doesn't have an obvious implication for monetary policy. But again, the historical evidence from these 140 years of data in 14 countries strongly suggests that the weak aggregate demand is the most important factor. Both inflation and interest rates tend to be very low following crises where leverage was high. Indeed, the estimates imply that three to five years into recoveries, inflation is still subdued.

This evidence from history is consistent with my forecast for subdued economic growth and inflation. Inflationary pressures have clearly diminished over the past six months, and I foresee PCE inflation around 1½ percent this year and in 2013—and below our shared goal of 2 percent. It's not surprising that inflation has receded. Compensation growth is still soft, and after taking into account productivity gains, unit labor costs have actually declined modestly during the recovery. And it's no wonder that insourcing and onshoring—issues that President Fisher already made comments about, where companies return jobs to the United States from production facilities abroad—have become hot topics that I hear about from a number of contacts.

All indicators point to a lot of slack remaining in labor markets. Indeed, much of the recent decline in the unemployment rate comes from people leaving the labor force, which we expected to occur as the extended unemployment benefit program winds down. As the effects of extending unemployment insurance benefits diminish, the effective natural rate of unemployment is declining. Now, I recognize that the program is still in place, but there are an increasing number of people who run out of their 99 weeks of coverage. Also, the way the program is set up, it depends on the unemployment rate prevailing in the state. So as the

economy improves, you'll see fewer and fewer people able to take advantage of the 99 weeks of coverage. By our staff's calculations, the drop in the natural rate entirely accounts for the 0.3 percentage point fall in unemployment from the first quarter of 2011 through the fourth quarter of 2011. I expect the unemployment rate to come down several tenths further this year, but again, in our forecast, much of the projected decline reflects reductions in the effective natural rate. That implies that we will make little progress, and we do see slack, in achieving maximum employment over the next year. My staff has also looked at where the unemployment rate will settle in the long run. Looking at demographic and other factors, they find that the long-run natural rate probably lies in a range of 5 to 5.8 percent, probably with standard errors of 5 to 5.8 percent, too. [Laughter] But still, our preferred estimate is 5½ percent, and this is a higher number than we had before the recession—but still quite a bit lower than our estimate of the current effective NAIRU of nearly 6½ percent.

So in summary, the economy remains in a frustrating, stutter-step recovery, alternating between modest and moderate growth; this kind of pace won't do much to reduce slack in the economy, and it means that inflation is likely to undershoot our target for quite some time.

Thank you.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. And thanks to President Fisher for revealing that you're respondent 14 in the SEP. I couldn't have guessed that. [Laughter]

MR. FISHER. It could be worse.

MR. EVANS. The reports from my business contacts this past week were pretty much in line with their December commentary, and my views are also going to be quite similar to December. Heavy equipment manufacturers such as Caterpillar and Deere are doing extremely

well. The auto sector is also continuing to improve steadily. In the financial sector, our Chicago contacts said that they were a bit more optimistic about both U.S. growth and the prospects for stability in Europe, but that's mostly talk. When it came to their investments, at least as they described them, hedge funds and proprietary traders remained in a defensive mode. This seems to be true in the nonfinancial sectors as well. As one of my directors put it, "While business leaders have become more optimistic, they still are not confident enough to expand hiring or increase cap-ex." With regard to employment, the CEO of Manpower employment services mentioned that his clients continue to be very cautious about increasing permanent staffing levels. They don't expect a big increase in demand. They are concentrating on small productivity improvements that wring out remaining inefficiencies. Indeed, Manpower is seeing a growing demand for their outplacement services. The number of firms currently planning cuts is now roughly the same as during the depths of the recession, though the quantity of workers being laid off is much lower now. So, many firms are cutting, but they're in relatively small numbers. In terms of wage developments, Manpower noted that many displaced workers are finally realizing that they will not be finding new jobs at their old salaries and that outside of a few hot occupations, wage gains are basically nonexistent.

In terms of our national outlook, the basic shape of our forecast is similar to the Tealbook projections. Our GDP growth forecast is marginally higher, as we assume a slightly higher growth rate for potential and somewhat less drag coming from Europe and fiscal policy, but we share the same story line. While there has been some modest increase in underlying momentum, we are not talking about any real breakout. Our projection is just modestly above trend, and that might be on the optimistic side.

Why do I say this might be optimistic? Well, there are three things that I'd like to point out first about most current forecasts for the United States—that is, about the conventional wisdom outlook. First, it's natural when we begin to see some lift in the incoming data that we also tend to get complacent about the outlook. On two previous occasions over the past two and a half years, we expected that the recovery would gain momentum, and both times we were disappointed, as growth weakened in 2010 and again in 2011. Of course, even once we had realized the weakness, we waited for a time to see if the momentum would return before taking any action. Well, to use some golf-speak, I think we've used up our mulligans. I can't imagine receiving dispensation if we're wrong a third time on this one. We should not ignore the inadequate demand and economic growth during this stop-and-go recovery, especially when inadequate demand is combined with the absence of rising inflation risks.

With our inflation projections not even close to any reasonable upper tolerance range relative to our 2 percent objective, this argues for balance and having more monetary insurance in place, in my opinion. This lack of inflation risk is the second point about current forecasts that I want to make. Tealbook A, analyzes a relatively large number of alternative risk scenarios that the economy is facing. In the table on page 80, "Alternative Scenarios," the highest and most worrisome inflation rate reported is for 2015 through 2016 at 2.3 percent PCE inflation. That's in the "Greater Supply-Side Damage" scenario; 2.3 percent—that's just not a very large number relative to our 2 percent inflation objective. Financial markets also don't see much inflation risk. For instance, our Chicago affine term structure models imply that three years from now, the three-year-ahead PCE inflation outlook is only 1.4 percent. So that's three years, three years ahead, 1.4 percent—and that's just a straight reading from the forward curves. With resource

slack so large and with our inflation forecast well below an upper tolerance range, it seems as if there's still substantial capacity to allow further accommodation.

This brings me to my third point. The Tealbook analyses that report on equilibrium real interest rates indicate that policy is not adequately accommodative. The staff analyses, it seems to me, are begging for more accommodation. The short-run Tealbook-consistent measure of the equilibrium real interest rate is minus 3.2 percent, and the actual real rate is higher at minus 1.6 percent. Furthermore, the optimal policy simulations of FRB/US show that to achieve our dual-mandate objectives, we should want to achieve a short-term real funds rate of about minus 5 percent. Again, we're only at minus 1.6 percent. In those analyses, policy is too restrictive. Everywhere I look, economic analysis using our workhorse models tells me that our policies remain too restrictive. Only fear and worries over unobservable and undocumented inflation expectations argue for further timidity with respect to our monetary policy accommodation, and all of President Plosser's comments about the inability to forecast economic growth and variables like that are true, writ large for inflation—we're not very good at forecasting that. How you make a judgment as to which uncertainty you care about most depends a lot on how you balance risks. It's difficult for me to understand how this can be compelling, and we need more balance today. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The 10th District economy continues to expand at a moderate pace. Consumer spending has been solid outside of some softness in restaurant and auto sales, and manufacturing activity, which contracted slightly in December, has bounced back in January, with factory operators remaining generally optimistic about the coming six months. Activity in the commodities-producing regions of our District remains at a high

level. Farmland values continue to rise at rapid rates, and in the energy sector, the widespread use of new drilling technologies is promoting strong drilling activity, which in turn has created somewhat of an oil boom in parts of our District. Competition for workers in these areas is intense. Some employers report difficulties filling openings, and the demand for skilled workers has pushed up overall wage levels in Oklahoma and Wyoming, in particular. Amid these booming conditions, there's considerable outside investor interest and money being directed to the energy sector. District residential real estate conditions remain weak. However, rents and vacancy rates on commercial properties are stable, and our contacts are increasingly optimistic about sales volume and prices in the coming months.

At the national level, I continue to expect moderate growth that strengthens over time. A key factor supporting this outlook is improvement in the labor market. While the unemployment rate remains higher than we'd like, it has declined  $\frac{1}{2}$  percentage point in the last three months. Most of this decline has been from job gains rather than unemployed workers leaving the labor force. A wide range of other labor market indicators are consistent with improving conditions as well. Other releases have been mixed but are generally consistent with my view of moderate but gradually strengthening growth. Consumer sentiment is up sharply since August. Auto sales are trending higher, and there are even some tentative signs of improvement in residential investment. Taken together, I view the data as suggesting little change to my medium-term forecast over the last several meetings. This is a considerable difference from the Tealbook forecast, and I generally project a brighter outlook for GDP growth than Tealbook, coupled with substantially more improvement in the unemployment rate over the next few years. In terms of inflation, we are now seeing some welcome moderation from elevated levels in early 2011, but the deceleration in PCE inflation might be a bit overstated, as measures of CPI inflation haven't

fallen quite as much. I expect that a gradually improving economy and stable inflation expectations will pull inflation back closer to 2 percent over the next year or so. As always, there are considerable risks around this forecast. Events in Europe and the potential for slowdowns in emerging markets that are greater than expected pose downside risks to growth, especially in the near term. In summary, I see the recovery continuing and slowly picking up the pace over the next few years, barring setbacks emanating from abroad. Thank you.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. In the third quarter of 2011, the Minnesota unemployment rate was 7.1 percent. In the fourth quarter of 2011, the Minnesota unemployment rate was more than 1 percentage point lower at 6 percent. This is certainly still high relative to historical norms for the state—by about 1 percentage point, not by 3. Our business contacts indicated they expect wages to rise about 2 to 3 percent from 2011 to 2012, roughly enough to compensate workers for increases in productivity and prices. This kind of evidence suggests that labor markets have almost normalized in Minnesota. Yet the employment-to-population ratio in Minnesota remains markedly below its December 2007 level, and the payroll employment level is even more suppressed. In the third quarter of 2011, real personal income in the state was only 3.4 percent higher than in the fourth quarter of 2007—something like 7 to 8 percent below trend. More anecdotally, young people report that their typical entrées into the labor market—jobs at fast-food chains, for example—are being taken up instead by middle-aged workers.

My forecast is that the United States' economic picture will grow to resemble Minnesota's over the next few years. Currently I'm expecting that the national unemployment rate will be 6 percent sometime in 2015, but I expect that the employment-to-population ratio

will remain well below its December 2007 level, and that real GDP will remain well below its 2007 trend. In other words, the U.S. labor market will normalize, but as in Minnesota, the new normal will be distinctly worse than the old normal. If I am right in my forecast, the Committee will need to be careful to keep in mind the limitations of monetary policy. We will face ongoing political pressures to use monetary policy to try to jump from the new normal back to the old normal. That's simply not the role of monetary policy. You cannot move an economy from one long-term normal to another long-term normal. What monetary policy can do is to enhance economic stability by facilitating an economy's adjustment to macroeconomic shocks.

At this stage, I'm going to switch gears. President Bullard was channeling President Fisher; I'm now going to channel President Bullard because I'm sitting where he usually sits. I was waiting for President Evans to channel me [laughter], but I was disappointed in that expectation. The message of the remainder of my remarks is that full use of our tools today could jeopardize the stabilization capabilities of future FOMCs, and my remarks will emphasize a risk that President Bullard has stressed in earlier meetings—the risk that we could end up in a self-fulfilling deflationary outcome. We talk a lot about keeping inflation expectations anchored, and our consensus policy statement is going to talk about our desire to keep longer-term expectations anchored at 2 percent. But that anchoring doesn't just come from statements and from talk. It comes from the public's beliefs about our willingness and ability to act to defend that 2 percent anchor. Thus, if the public believes that if inflation or inflation expectations were ever to start to drift upward, then the FOMC would raise interest rates and thereby bring inflation back down—"the public believes that we will take effective actions" means that we will never see upward drift in inflation expectations, and so we will never have to act. Our willingness and ability to raise rates are a credible backstop that keeps inflation expectations from drifting

upward. So here I'd emphasize what we usually emphasize: our commitment to keep inflation expectations from going up. But of course, the same is true on the downward side. The public believes that if inflation expectations start to drift downward, then the FOMC would cut interest rates and bring inflation back up. And it is this belief that keeps inflation expectations anchored at 2 percent and keeps them from falling below that. But this last logic hinges on the FOMC having the ability to add a sufficient amount of monetary accommodation. Suppose we bought nearly all of the assets that we can buy and that we've already promised to keep interest rates extraordinarily low for a relatively long period of time. At that point, we have little extra accommodation with which to fight off a downward drift in inflation expectations. We are now supporting our 2 percent anchor with talk alone and nothing more.

This doesn't mean that a downward drift in inflation expectations is inevitable. We're just going to be in a position analogous to that of a bank without deposit insurance. Such a bank won't necessarily have a run, but it's susceptible to a run, especially in conjunction with adverse fundamental shocks. In the same way, we've nearly maxed out on accommodation. We leave the country open to a downward drift in inflation expectations, especially in conjunction with an adverse shock of some kind. Now, a downward drift in inflation expectations would be unlikely to continue forever. There's a self-fulfilling outcome, and this is what President Bullard is emphasizing in his paper "Seven Faces of 'The Peril,'" where the monetary authority is perpetually maxed out in terms of accommodation and inflationary expectations stay constant at an undesirably low level. In this outcome, with the monetary authority perpetually maxed out in terms of accommodation, monetary policy is no longer a viable tool in terms of macroeconomic stabilization, and the country is left more susceptible to macroeconomic shocks. To sum up, if we choose to get close to maximum accommodation in the coming year or so in terms of

purchases or in terms of how long we plan to keep interest rates low, we lose our ability to keep inflation expectations anchored from below. We leave ourselves open to the possibility of a low-inflation outcome in which accommodation is always maxed out. In such an outcome, future FOMCs will not be able to conduct countercyclical monetary policy. It is, I am sure, quite tempting to dismiss this possibility as an arcane product of economic theorizing. This would be a mistake. On December 21, Olivier Blanchard, the research director of the IMF and a professor of economics at MIT, posted a very good blog called “Four Hard Truths.” Blanchard drew four main lessons from the global macroeconomic events of 2011. His first lesson was, in his words, “The world economy is pregnant with multiple equilibria—self-fulfilling outcomes of pessimism or optimism, with major macroeconomic implications.” Blanchard’s lesson means that good risk management in the area of policymaking has to keep the possibility of these self-fulfilling outcomes in mind. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you.

VICE CHAIRMAN DUDLEY. Could I ask a question?

CHAIRMAN BERNANKE. Go ahead.

VICE CHAIRMAN DUDLEY. Does that mean you hold back monetary policy stimulus so you always have some in reserve? Is that the implication?

MR. KOCHERLAKOTA. That would be the implication of what I’m saying, if you’re worried about that risk.

VICE CHAIRMAN DUDLEY. Okay.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you. In general, I think the economy looks to be in a bit better shape than a few months ago. Although the estimated 3 percent or so real GDP

growth case that we're likely to see in the fourth quarter undoubtedly overstates the degree of improvement, there are several promising signs that, to me at least, suggest that the downgrade evident in the Tealbook over the last two meetings might be somewhat too pessimistic. In particular, I would note that the trend in real disposable income is improving as a consequence of more hours worked and lower inflation. Credit availability continues to improve, and financial conditions, with the notable exception of the dollar, have eased considerably recently. I don't cite anecdotal information very often, but I was struck by a shift in sentiment among a New York Fed small business advisory group concerning the availability of bank credit. At the most recent meeting, there was a marked sea change in terms of improved availability compared with earlier in 2011.

That all said, I do still think, though, there are significant impediments, and the Tealbook highlighted a number of them: first, fiscal drag in 2012; second, the impediments in the structure of the housing industry, which undercut the ability of monetary policy to stimulate the economy; and, third, the effect of Europe. Even if Europe goes well, it's going to have an effect on the U.S. trade sector. It seems to me that those impediments are pretty much "baked in the cake," which says to me that a significant acceleration in the economic growth outlook seems pretty unlikely.

One other issue that I think is worth flagging is the Iran sanctions and the threats of Iran to blockade the Strait of Hormuz potentially in response to those sanctions. Now, even if nothing dire actually occurs—things go a benign way rather than a bad way—the consequence could still be a persistent risk premium embedded in oil prices, and that could actually constrain real disposable income growth. I'm struck by the fact that oil prices haven't really fallen very much, despite the fact that we've seen a pretty significant downgrade in global GDP growth and

we've also seen the prospect that Libyan oil will gradually come back on stream over the next year. One other factor in that regard that I think is significant is the budget pressures that Saudi Arabia is under to maintain social and political stability by expanding their education and safety net support. That also suggests that expectations that oil prices will moderate significantly from \$100 a barrel may be mistaken. Even if tensions with Iran were to subside, Saudi Arabia may now favor oil at \$100 per barrel rather than lower. And I think that's noteworthy, given that they are the swing producer in the oil market.

The bottom line for me is, I feel a little bit better. But as President Evans noted, we have been fooled before by a better tone to the data. So call me unconvinced by the recent evidence.

CHAIRMAN BERNANKE. Thank you. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. The forecast I submitted coincides closely with the Tealbook. It's slightly optimistic, and that's because I thought it called for, and I incorporated, policy actions beyond those in the Tealbook baseline. Even so, I envision painfully high unemployment for many years to come and little or no progress over the next several years in restoring full employment. I also project inflation to run consistently below our 2 percent objective. The Tealbook reserves the moniker "lost decade" for an outcome yet weaker than their baseline forecast. I think they've set the bar too high. I wouldn't hesitate to apply the "lost decade" label to a projection that envisions more than 20 percentage points of cumulative unemployment gaps and nearly 50 percentage points of cumulative output gaps over the decade following the onset of the recession in December 2007.

I did initially struggle to decide whether the staff forecast or a scenario along the lines of the "Faster Snapback" alternative would serve as a more reasonable modal trajectory. In recent weeks, we have enjoyed some respite from downside surprises, and some of the economic data

have been surprisingly strong. Financial markets have been calmer as well, and I worry that the staff has attached too little weight to these positive indicators. I'd long feared the economy would stall, but it hasn't, and my sense is that the risk of recession has subsided. Moreover, in recent weeks, we've had no major unpleasant news pertaining to European financial markets, institutions, and policy. As we have discussed, the sovereign debt spreads for Italy and Spain moved down following the ECB's large and successful LTRO, and the market appears to have taken in stride recent downgrades of a number of euro-area sovereigns and the EFSF.

That spate of good news tempted me to pen a stronger forecast than the one I submitted. On further reflection, though, I realized that staff members have reacted very sensibly to recent news. Moreover, they are in good company. Macro Advisers characterizes the recent data as "holiday cheer" that is not expected to last into next year. And the latest Blue Chip survey, published 10 days ago, projects unemployment at 8 percent in the fourth quarter of 2013, only a notch different from the Tealbook forecast. The Tealbook notes that the incoming data are no more favorable than what would be required to support a projection in which the economy treads water over the next two years. For example, even though motor vehicle sales have rebounded as supply chain disruptions have eased, real PCE appears to have grown only at a rate around 2.2 percent in the fourth quarter. Consumer sentiment has rebounded from the lows reached last August, but only to still-depressed levels. Income growth has been exceptionally weak, and house prices have surprised to the downside. With fiscal policy set to impose increasing drag over the forecast horizon and a considerably weaker outlook for global growth, I have been unable to identify any plausible scenario in which growth in employment turns out to be much stronger than the Tealbook baseline. I'm also concerned that the progress in lowering unemployment in the Tealbook baseline rests partly on the assumption that a considerable

portion of the decline in labor force participation we've seen in the last several years has been secular rather than cyclical, and therefore unlikely to be reversed as the recovery strengthens. I find that assumption questionable given that the decline has been concentrated among demographic groups—young people and prime-age workers—with strong labor force attachment. In contrast, labor force participation among those over 55 has increased considerably, and several studies and recent articles in the press have highlighted the frequency with which older workers are moving back into the workforce because, with declining stock and house prices and a weak economy, they have insufficient retirement reserves. If this pattern holds up, the rather weak employment growth in the staff baseline could prove insufficient to reduce unemployment by even the modest amount that the staff projects.

In my view, the risks to the forecast remain exceptionally large and are weighted to the downside due to the continued potential for European developments to unfold in a more disruptive manner than assumed in the Tealbook baseline. Earlier this month, I spent a week in meetings in Europe with policymakers and academic economists. I would describe the sentiment among this group as quite negative in spite of the apparent tranquility in financial markets. Only a few policy officials with whom I spoke could see any path to full resolution of the crisis in light of the political constraints. And some policymakers openly discussed the potential for a breakup of the euro. The most positive scenario I heard was one in which the financial market relief resulting from the ECB's massive LTRO, coupled with some restoration of confidence due to new political leadership in Italy and Spain, touches off a virtuous dynamic that stabilizes sovereign debt markets, relieving strains on European banks. By eliminating the need for European banks to refinance massive amounts of maturing debt in the coming year, the ECB intervention has mitigated market fears about the liquidity of banks and relieved the pressure

they have faced to offload sovereign debt. With yields on Italian and Spanish debt down substantially, at least in the short end, as we have discussed, it may turn out that the ECB's intervention has broken a dynamic with characteristics of a self-fulfilling run. If the vicious cycle becomes virtuous, then yields would continue to fall, improving sovereign debt sustainability, which would in turn strengthen the banking sector and the economic outlook. Regrettably, few of my European contacts assigned high odds to such an optimistic scenario. In the interest of time, I won't even try to list the myriad ways in which it could go awry. I would only note that, like Trevor and Steve—and Vice Chairman Dudley mentioned this as well—I'm particularly concerned about the prospects for an involuntary debt restructuring in Greece before any meaningful firewall is in place to protect Italy and Spain. Even if there is progress on PSI, Greece, as Trevor indicated, has not met any of its IMF targets, and that makes it difficult for the IMF to endorse a new lending program.

European policymakers are also quite concerned about the potential effect of bank deleveraging on economic growth. Deleveraging appears to have accelerated in the fourth quarter, and it's adversely affecting emerging market economies in Asia, where euro-area banks have started pulling out from trade, commodity, and project finance. Its effect is also being felt in emerging Europe, where subsidiaries of euro-area banks account for about two-thirds of private-sector lending. I do find it encouraging that there's now growing recognition among European policymakers that, without economic growth, austerity may be self-defeating. But there is still no plan to achieve growth except through structural reforms, whose payoffs are only likely to be realized over a much longer time horizon.

Turning back to the U.S. economy, the bottom line is that I see an exceptionally weak outlook for employment and a subdued outlook for inflation, and the downside risks to those projections remain disturbingly large.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. Unlike Governor Yellen, I did not resist the attraction of the “Faster Snapback” scenario. [Laughter] I understand the risk of taking too much signal from the recent unemployment and claims data, and I appreciated the discussion in the special topic presentation on the role of leverage and in the Tealbook box about the way the staff is reconciling very weak income data with consumption projections. So I recognize that I might be setting myself up for yet another disappointment or a forecast downgrade, but I find the recent improvement in business and household sentiment, along with strengthening in the stock market and other indicators of improving investor confidence in financial markets, to be signs that outside this room, businesses, consumers, and investors are viewing recent economic news and data somewhat favorably.

We even saw some growth in credit outstanding toward the end of the year. However, bankers report that the recent growth in lending is not likely to carry over its momentum in 2012. Some portion of the growth in C&I loans was U.S. banks filling the holes left as European banks pulled back from lending, and there was some portfolio CRE lending, as the CMBS pipelines were closed. But the pipelines supporting some renewal of the CMBS market in coming months are already being built. Small business demand is a little stronger, but not enough to make a difference in total lending. And the increase in credit card outstandings seems to be coming from higher spending, but that spend is being rapidly paid off, as current portfolios are now more heavily weighted to transactors than to revolvers. That is, the current credit card holder seems

less likely to maintain a balance on the card from month to month. Still, the reported strong transaction growth in credit and debit card sales in November and December doesn't quite square with disappointing retail sales in the same time frame. Bottom line: In the nonmortgage space, credit is actively being offered, but it is not yet being taken up very strongly. However, if the decision to spend or invest is made, credit will be available for a wide population of borrowers.

To echo President Fisher, even in housing, there are some tiny, incremental, but still positive signs of improvement, although I have to say that, to me, the most glaring sign of how bad the housing market is, is what passes for good news—but here goes. Single-family starts have increased for the last few months. Existing single-family sales are picking up. More important, inventory has adjusted to the low level of sales. Inventory of new homes has been in the six-month range for most of 2011, as builders can't or won't build ahead of sales much more than that, and the inventory of unsold homes from failed construction projects that has come through bank REO is dwindling. Now, for the first time, the inventory of existing homes is down to six months, which is the level that I used in my years as a lender to indicate a market in balance, even at a very low level. Within the existing home sales and inventory numbers are still a high percentage of REO sales and investor purchases, so the level of normal homeowner-to-homeowner activity is quite low. I take it as a sign of stability and believe that more-balanced inventory will work to stabilize prices in the coming months. Further, because real estate markets, like politics, are local, the national figures should include some markets where supply is quite tight.

Just a few anecdotes to illustrate the point. Omaha, Nebraska, had a seven-year residential lot inventory in 2008. It's now down to 18 months, as the lot sales in 2011 were higher than the three previous years combined. And as inventory is depleted, what is left is a

little picked over and less desirable, so the expectation is for an actual shortage of desirable lots within a year. Granted, Omaha has a 4 percent unemployment rate and didn't have the boom-bust in prices that other markets saw, but there are other Omahas in the country—even in Florida and even in higher-priced homes. A banker from Naples reported that in the higher-priced areas, places where homes go from \$2 million and up, inventory is down from 138 to 68 in a year. They might have been \$4 million homes in better times, but still, that inventory is coming down.

Home price declines in November were disappointing, but likely to have been seasonally more dominated by distressed sales. So I'll look to the spring selling season to see if maybe we're hitting bottom in home prices. Also, I believe that if the GSEs take the lead in moving some owner-occupied homes into rental inventory, it could solidify that bottom. And speaking of GSEs, the streamlined refinancing of high loan-to-value GSE loans, the HARP 2 program, was announced in November and first offered in December. Volume was disappointing in December but has reportedly taken off like a rocket in the first two weeks of January, and it now threatens to strain capacity. I think this is another development that bears watching.

So, Mr. Chairman, I'm still optimistic that we're in the "Faster Snapback" scenario, and I even see indications that housing might be finding its own zero lower bound. But in order not to jinx any of these signs, I promise not to refer to them as green shoots or to mention exit strategy.

[Laughter]

CHAIRMAN BERNANKE. I appreciate it. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. As President Evans and Vice Chairman Dudley have already noted, there have been a couple of times—once each in the last couple of years—where there was a string of favorable, or at least above expectations, data releases that were construed by some within and without this Committee as the start of a sustained, above-

trend recovery. And as they both noted, in both instances there proved to be transitory reasons for those short-lived bursts. So the question now, of course, is whether the recent burst of moderately favorable data portends a more durable trend in this direction. One point in favor of that interpretation is that in the past, there was a pretty close correlation between those bursts of activity and the maximum effects of either fiscal or monetary stimulus, which is surely not the case right now. But my first direct answer to this question is that I don't think we're going to get there this year, for many of the reasons detailed in the Tealbook and by some of you. The most relevant of these for me continues to be that we're still working our way through the aftermath of the problems peculiar to a serious recession induced by a financial crisis, and that's what President Williams was referring to a few minutes ago.

However, I want to add to that a second point, which is that with the very great condition of the absence of negative shocks whose origins are essentially political or geopolitical, I do think it's possible that by the end of this year we could be getting closer to the point at which we pull out of the mud and onto a reasonably dry stretch of pavement for a more extended period of time. There are several relevant indicators, some of which were discussed in the introductory session this morning. But like many people, I continue to think the most important factor in determining this point would be the reality and, importantly, the perception that housing prices have bottomed. This was the essential asset bubble; the bursting of that bubble was the essential problem that led to the domino-like effects in the markets, and it seems to me that needs to be repaired before we're going to be in a durable recovery. While the experience of developed nations after banking crises, as surveyed by Rogoff and Reinhart, would have suggested that the relatively optimistic predictions about housing of a year or 15 to 18 months ago were misplaced, improvement toward the end of this year or the beginning of next year would fit much more

comfortably with that same experience. But while we're now in the range of historical experience of the amount and duration of housing price declines associated with domestic banking crises, it's a pretty broad range. And unfortunately, Rogoff and Reinhart are more helpful in mapping the experience than in explaining why housing prices decline further and longer in the wake of some domestic banking crises rather than others.

My third point would be that I don't think that near-term economic policy choices need much be affected by whether the much-awaited turning point is next year, 2014, or for that matter, even this year. The hole out of which the economy needs to dig is sufficiently deep that continued stimulus will likely be desirable for some time after even a genuinely sustained, above-trend pace of recovery has begun. In housing, for example—despite whatever the euphemism for “green shoots” is that Betsy would use—the overhang of foreclosed homes is going to be with us for quite some time. So, too, with private securitization markets essentially dormant and the future of the GSEs murky, financing will probably remain at least somewhat encumbered even after a price bottom has clearly been reached. In the employment area, the relatively good news of the last couple of months—and it's really only that—cannot obscure how far we have to go. President Pinalto said much, and indeed more, of what I would have said on this point, so I'll just incorporate by reference or endorse what she said. And I'd also, by the way, endorse what Ed Lazear said in his op-ed in the *Wall Street Journal* last Friday, except for the line where he got kind of political. But the labor market analysis, I thought, was excellent.

Last month's relatively good job growth number of 200,000 isn't really a reason to get too excited. First, of course, it does follow a couple of fairly tepid months, and as the staff pointed out, the fourth quarter and third quarter, when they're averaged out for the quarters as a whole, look pretty much the same. We're still 6 million jobs short of the number of employed

persons in the economy before the recession began, and that doesn't even take into account population growth over the last four years. Even if we were to assume a pickup in job growth to a sustained rate—not just of last month's 200,000, but 250,000 a month, which is a pretty heroic assumption—it would take well over two years to get us back to where we were in terms of the number of jobs pre-recession—again, not taking account of population growth. I also want to point to this FOMC's featured favorite labor market indicator, which is U-6. U-6, of course, includes in its broad measure of unemployment all of those who are employed part time for economic reasons—that is, they'd like to be working full time, but they're not. Now, U-6, even though it's come down a bit, is still at 15 percent. It's the broadest gauge of unemployment the BLS puts out. About three-fourths of the people who are working part time for economic reasons are incumbents in jobs whose hours have been cut; only about one-fourth are those who looked for work and found an existing part-time position. The number of such people is still well over 3 million above where it was at pre-crisis levels, even though it's come down some over the last six months. But what's most striking about this population of the employed part time for economic reasons is that a chart superimposing each measure of unemployment from U-1 to U-6 shows us that the gap between the various measures of unemployment has remained proportionately roughly the same in the nearly 20 years since the U-5 and U-6 data series were begun, except for the relationship of U-6 to the rest of the indicators since this recession began. That is, even as unemployment goes up, the relative relationships among U-1, 2, 5, 6, and the like have remained relatively the same, except there's this big jump in U-6 relative to the other measures over the last three years. And that, of course, is attributable to the part time for economic reasons. This gap used to be just a couple of tenths of a percentage point to 1 percentage point in the 2001–02 recession, and it's been 3 to 4 percentage points over the course

of these three years. This pattern, I think, underscores the considerable amount of slack in labor markets, a good deal of which will eventually be filled by restoration of full workweeks rather than new hires. And so it lends a good bit of support to the proposition that the amount of slack in the labor markets is really greater than the unemployment rate would suggest. Now, anticipating the response that this is all about the potential rise of structural unemployment, I would underscore that indicators, such as the rate of movement of the long-term unemployed out of unemployment and the JOLTS data, still don't suggest that the NAIRU has risen beyond the level estimated by the Tealbook. I think this is still an aggregate demand story, and we don't yet know what the new normal is going to be. I don't think it's predetermined, but it's dependent in no small part on policy decisions and directions that are taken over the course of this year and beyond. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. In updating my economic forecast this week, one question I asked myself was whether the improvement that we've seen in consumption over the past few months appears any more sustainable now than it did at the time of our last meeting in December. When I asked this question this week, I didn't have the benefit of the strong research described this morning in our special topic, but I intend to take that research into account in refining my rough thinking on this topic, and here is that rough thinking.

Real disposable income was quite weak last year and considerably weaker than the staff had expected in the fall. The October Tealbook had predicted a 1½ percent increase in real disposable income, but now it appears as if it edged up only ½ percent. One wouldn't expect such a sluggish pace of DPI growth to be associated with the moderate pace of consumption we've seen. Real DPI is a primary determinant of consumption growth, and it has been nearly

flat. If we're going to achieve a sustainable recovery, I can't imagine how it happens if real disposable income doesn't increase steadily. Rising consumer sentiment and household wealth are not likely to support consumer spending on their own. Although consumer sentiment has moved up recently, it remains at levels we usually see in recessions. Moreover, if you peruse the components of the consumer confidence index that aren't included in the headline figure, you note that people remain extraordinarily pessimistic when asked about their own prospects for higher income growth. Presumably that reading won't improve until they start to see some hint that rising incomes are on the horizon. Similarly, in terms of household wealth, many households are still hurting from the loss of so much home equity in recent years. So this factor isn't likely to support spending. In my view, home values are likely to remain flat, and gains in the stock market are unlikely to be sharp enough to single-handedly drive consumption growth.

Of course, none of these factors has to drive consumption by itself. More likely, we'll get a little more income growth, which leads to a little better sentiment and spending, and that good news in turn will lead to higher equity values and improved hiring to create a virtuous cycle. But the really lousy income figures that we've seen recently make me pretty worried that we're not yet at the start of that cycle. This is one of my major concerns about the outlook. At the time of this current projection, I'm also concerned about higher oil prices because of events in the Middle East and Nigeria, which could further hurt disposable income, demand, and economic growth. And of course, a renewed worsening of the European crisis could lead to strains in financial markets as well as cause a drag on our net exports.

In terms of relative bright spots, I am optimistic that state and local government payrolls may be poised to finally turn around. After having been under severe pressure in recent years, 2012 may be the year when these payrolls begin to stabilize as budget pressures ease. Tax

receipts at the state level are improving. Federal aid to state and local governments, after a significant downturn in 2011 from the phaseout of federal stimulus measures, may stabilize in 2012, and house prices might finally hit bottom in 2012 at the national level. If all of these factors bring state and local payroll cuts to an end in 2012, perhaps there will be meaningful growth in this segment of the labor market after this year. Thank you.

CHAIRMAN BERNANKE. Thank you—and thank you, all. To leave maximum time for tomorrow morning’s policy discussion, I think I’ll make my remarks now. I have not had the opportunity to organize my notes, and so coherence is not guaranteed.

First, trying to summarize a bit what I heard—and there was some diversity in the comments—a lot of people took note of the recent somewhat better data, and I would say the modal view is that going forward, we expect modest to moderate economic growth. However, some thought there might be acceleration beyond that. With economic growth being only modest to moderate, the unemployment rate will tick down over the next year or two. We heard a variety of descriptions of economic growth—steady but unspectacular, stutter step, et cetera. One countervailing view expressed by a couple of people was that we’ve seen false dawns before, and we shouldn’t overstate the potential from the recent good news. Many people acknowledged headwinds to a stronger recovery, including the housing market; deleveraging, noting that high leverage before a recession often implies a slow recovery; financial conditions; and fiscal drag, although noting that the state and local fiscal situation may be improving slowly. There are also significant downside risks. Europe was certainly cited, together with possible vulnerabilities of U.S. financial firms, and oil prices were mentioned with respect to developments in Iran and Nigeria. On inflation, it was noted that inflation has decelerated recently, as the staff projected. Commodity prices have come down, and unit labor costs remain

low. I would say that the risks to inflation—for those who spoke about them—in most cases were seen as balanced, but not for everyone. One person noted that all of the Tealbook alternative simulations implied inflation no worse than a little bit above 2 percent.

In the labor market, we've seen some recent encouraging data. The unemployment rate is lower than we had thought it would be, and therefore the starting point for our unemployment rate projections is also lower, but further progress may be slow. There were a number of points made about the weak aspects of the labor market, including potentially a slower matching process; the fact that ratios of job seekers to openings, at 4-to-1, remained very high; the fact that much of the decline in unemployment over the last year has been the result of people leaving the labor force rather than finding jobs; and the fact that involuntary part-time work remains high.

In the household sector, consumption growth has been moderate, like the overall economy, and confidence is up with somewhat better news, though it remains low in absolute terms. There are some indications of increased spending—for example, credit card and debit card transactions. On the other hand, consumers are still seeking value. Income remains well below trend, and people who are surveyed about their income prospects are quite pessimistic. The housing sector generally remains weak. Distressed sales are ongoing and prices are still down. But there are a few signs of life, for example in permits. There's some optimism on the part of homebuilders, and inventory-to-sales ratios have declined. One person noted that mortgage terms may be easing.

In the business sector, confidence was better in some areas, although not all. Manufacturing is expanding, notably autos. Other sectors that have been doing well include oil and gas production, high-end retail, and agriculture. And some offshore employment is being brought back to the U.S. Those are positive signs, although the linkage between increased

business confidence and willingness to actually commit to hiring and investment probably varies across Districts. Internationally, exports will probably be affected by an ongoing global slowdown. A decline in the Baltic Dry Index was cited. Many people spoke about Europe—how austerity and the credit crunch there may cause Europe to be weak in the period ahead and how European deleveraging also affects emerging markets. But again, there was a counterpoint that the northern and southern parts of Europe differ, and that broadly speaking, emerging markets continue to do well.

Financial conditions are somewhat better, in part because of encouraging news from Europe. In particular, the ECB's long-term refinancing operation has taken pressure off the banks, but it's clear that the fundamentals remain troubling. The situation is far from resolved. It was noted that real interest rates are very low, although one could also point out that, given the state of the economy, the Tealbook looks for significantly negative rates. We heard somewhat different views on bank lending. Broadly, there was a view that banks were lending more and seeing more business borrowers. In part, that's because U.S. banks are replacing European lending and have been replacing CMBS. There were a number of different views on small business lending, both optimistic and pessimistic, and other types of lending besides C&I still appear to be relatively weak. In particular, loan demand remains relatively weak.

With respect to inflation, the recent deceleration was noted, although other indicators, like the sticky price CPI and the trimmed mean inflation, give somewhat different signals. Most do see PCE inflation as remaining at or below the 2 percent objective for the next couple of years, although, again, views varied somewhat. OER was mentioned as potentially exerting an upward influence on inflation. Bond yields, however, suggest that inflation expectations remain very low, and wage gains, generally speaking, remain limited.

With respect to policy, I have just a few comments. One person observed that output gaps were probably not the best indicator, that employment growth is better correlated with inflation, and that inflation expectations are also very important in thinking about inflation and policy formation. Several people raised concerns about the uncertainties in forecasting—the RMSEs, root mean squared errors, associated with macroeconomic forecasts more than a few quarters out. Another point made was a concern that, in the possible case of a self-fulfilling deflation, excessive use of policy would leave the central bank defenseless. On the other hand, one person pointed out that the economy is still in such a deep hole, with 6 million jobs less than the total number before the recession, that precise forecasts several years out are probably not necessary in order to see that additional support might be needed.

Those are some observations from the go-round. I'd be happy to take any comments.  
President Lacker.

MR. LACKER. You said something that referenced something I said, and I think it was a little bit different than what I said. I mentioned employment growth, and I didn't say I thought it was more correlated with inflation. I just thought it was a better policy indicator.

CHAIRMAN BERNANKE. Okay.

MR. LACKER. A subtle difference.

CHAIRMAN BERNANKE. All right. Thank you. That's fine. Let me make a few comments of my own. Like most others, I see modest, near-trend economic growth over the next year, which of course implies very slow progress in the labor market. I must say—and we'll discuss this more tomorrow—that it concerns me that we're missing both parts of our mandate from the same side, so to speak. I think that given our agreement today on a policy objective, we

do need to confront that and discuss whether we are going to miss our targets, why that is the case, and what we can do about it.

I'd also like to comment on the difficulties of forecasting that a couple of people talked about. No one doubts that forecasting is difficult, but in order to make policy, which is a forward-looking exercise, it seems inevitable to try to set up at least a provisional scenario or forecast on which to base the policy decision and then obviously to adjust as new information comes in. President Fisher talked about the difficulty corporations have in forecasting earnings. But corporations sometimes undertake 10- or 20-year capital projects, and inevitably they have to think about the likely outcomes for demand and for the broader economy and so on. Although they certainly will often miss, they really have no alternative but to make a forecast and do the best they can and try to tie their decisions to that forecast.

Let me return to the outlook. Like others, I noted the positive developments in the intermeeting period, including some good data in the employment area, in sentiment, and in housing. I don't think we should ignore the fact that equity prices rose considerably and volatility declined. I think there's some signal in those about the economy, as there is in the increase in Treasury rates. However, I do think it's important that we not over-extrapolate from the fourth quarter of 2011. If you look at the composition of demand in the fourth quarter of 2011, you see that the increase in final demand in Q4 was actually weaker than in Q3. The inventory build, according to the Tealbook, accounted for about 1½ percentage points of the increase in real GDP in Q4, and another percentage point came from the fact that durable goods spending, notably in automobiles, rose at an annual rate of 15 percent in the fourth quarter, which is certainly not sustainable. On the other hand, fiscal spending was unusually weak in the fourth quarter, but overall, the growth in final private demand was not particularly impressive.

And if final demand continues at that rate, then we should see a more moderate pace of overall economic growth going forward, and, in particular, fiscal policy and global slowing should continue to exert drags on economic growth going forward.

No one talked much about the supply side in the near-term context. I would just note that to the extent that we do have reduced expectations about the future, that's going to feed back into consumer plans and business plans. It's going to reduce the willingness of firms to invest and hire, and it's going to reduce the willingness of consumers to spend. So the potential weakness of the supply side of the economy has its implications for demand and near-term growth as well. Again, just in terms of the near-term outlook, the news was good in the fourth quarter—not blowout news, obviously—but I don't think that at this point we've seen enough strength to conclude that we'll be seeing significantly stronger economic growth in the near term.

Now, of course, as we try to make those projections, the strength of household spending will be central. It is, after all, the largest component of spending, and the household sector is obviously the key to the broad economy. Last time, I talked about the problems of reconciling what has been moderately good consumption spending with very weak income growth. On the surface, the fact that income growth has been so weak, and that saving rates have come down, would bode poorly for continued strength in household spending because, obviously, barring substantial increases in asset values, which we haven't seen, the lower saving rate can't be maintained indefinitely.

Like Governor Duke, I also found the Tealbook box on the shortfalls of income very interesting, and in talking about that for a moment, I'm going to actually reinforce the point that forecasting is difficult. The Tealbook estimated that income in 2011 was \$120 billion below what the staff had anticipated at the beginning of the year or maybe the middle of the year, but if

you decompose that shortfall, only \$27 billion of it was in compensation. About one-third of the total shortfall was in dividends and interest, mostly dividends, and about one-third of it was in transfers. On the dividend side, first, it's in a way very puzzling that dividends are so weak, given that profits have been exceptionally good. Two conclusions are possible. One is that payout ratios have dropped significantly, in which case it's certainly possible that firms are just being conservative and that ratios will come back up and we'll see those dividends flowing out in the future; to the extent not, then they'll be reflected in capital gains and stock prices. The other possibility, though, is that the measurement is just inadequate; we know that dividends and interest constitute an area that can be highly volatile quarter to quarter, and revisions are large. The tax data that are used to construct this are not available in real time, and so that's one area where it's hard to draw conclusions. The other major category of shortfall was in transfers, and when I asked staff members about this, they reported to me that half of that shortfall was in Medicaid. Now, Medicaid, unlike dividends and interest, is very easy to measure in real time because we see the money being paid to the states. But it's very puzzling that Medicaid payments would be so much lower than anticipated, particularly given that in current economic conditions, we'd expect more people to need Medicaid. So, again, interpreting this, there are two possibilities. One is that costs have been kept down through better efficiency, for example, in which case the income reductions for transfers will probably be matched one for one in reduced consumption of health-care spending. But the implications for the rest of the consumer's market basket should be pretty small. The alternative is that the Medicaid shortfall comes from cost shifting, where the total spending on medical cost is the same but families are required to bear more of it. In that case, you would expect to see a significant impact of that reduction on spending.

And of course, I can do the same thing in looking at consumer spending. There are many components, like services, that are poorly measured. So I have to concede—and I think it's inevitable—that we really don't know why the saving rate has fallen or if indeed it has fallen. There's a lot of uncertainty about this. All that said, as we look at the fundamentals that we have more confidence in—such as asset prices, sentiment, gas prices, and the labor market—I think overall, when we take all of those together, what is most likely is a moderate path of expansion in consumption, but that will be a critical issue that we have to follow going forward.

There was a lot of discussion around the table on Europe and the benefits of the three-year LTRO. It does appear to be affecting sovereign debt. The point made by the staff is that there is some evidence that the declines in yields of sovereign debtors have been most pronounced in the maturities of less than three years, and that's helped market confidence. But I think it's widely appreciated—it's not just a technical point—that the fundamentals have not really been addressed. Greece and Portugal remain very far from being able to return to the market, and it seems very unlikely that Greece can avoid some kind of default, even if it's disguised in some way. If that happens, then the concern is that the firewalls that have been set up by Europe so far will be insufficient to protect all of the countries that might come under pressure if Greece, or Greece and Portugal, fail to make their payments. More fundamentally than that, of course, you have the basic contradiction that in order to address the fiscal deficits and the current account deficits, you have austerity. But austerity combined with money that is a little bit easier, but still tight, and with deleveraging in the banking system is a recipe for very slow growth, which in turn makes the austerity all the more difficult. Like Governor Yellen, I've heard much of the same commentary from our European colleagues. It is a very worrisome situation. At this point, they're in a kind of extend-and-pretend type of environment, hoping that

ECB liquidity can help get through this difficult period, but it's far from being obvious. So, like others, I think this is a very important issue we'll have to continue to follow.

And then, finally, just a couple of words on inflation. Staff members get very good marks here. They showed that forecasting can be done; their prediction that pass-through into non-commodity core goods and services would be reversed seems to be coming true. Prices of autos and other durables have come back down. Apparel prices have stabilized. The data I've seen suggest that OER seems to have been stabilizing lately close to 2 percent, but I certainly concede that, for the reasons President Pianaalto discussed, the potential for rent increases certainly is there. The basic facts, though, are that commodity prices seem very tame. They're down about 10 percent since July. Not only has energy fallen a lot, but also food at home, for example, has risen at an annual rate of less than 1 percent in the last three months. Inflation expectations remain at the low end of historical ranges. So again, I think that if we look at the risks we're facing, while we have to monitor all dimensions of the economy and of our objectives, inflation risks seem relatively low at this stage.

Those are some observations. Tomorrow we'll want to draw the monetary policy conclusions. We are slated for an 8:30 a.m. start tomorrow because we need to wrap up our deliberations by 11:30. I think we can certainly do that, but we want to be sure to get that done because we have to get all the material together in time for the press conference tomorrow afternoon. If you have any changes to your projections and you can possibly get those in this evening, it would be very helpful. We now have a whole bunch of figures that we have to revise, and clearly, the chance of a mistake is increased if we have to do that in a very short period. I thank you for a highly productive day. There's a reception and dinner available.

[Meeting recessed]

### January 25 Session

CHAIRMAN BERNANKE. Good morning, everybody. I'll start by reminding you that at the last meeting, President Kocherlakota raised some interesting questions for the staff to look at. They were sufficiently deep that we don't have responses to them yet. In particular, the first question was to look further into how we might adjust our measures of the federal funds rate to take into account the effects of asset purchases and other policies; the second was to analyze further the differences between the implications of optimal policy simulations for policy rules and the implications of simpler Taylor-type rules, for example; and the third was to look further into the monetary policy transmission mechanism. We will have discussed this, of course, a great deal, but can we say more, quantitatively, about the extent to which the transmission mechanism might be impaired or changed by the effects of the crisis? Bill English has authorized me to tell you that the staff is working hard, and we will be providing you with memoranda on these subjects over the next couple of meetings, but these are obviously important issues for us to consider.

Our main item of business this morning is current monetary policy. So why don't we begin that by turning to Bill English. Bill.

MR. ENGLISH.<sup>6</sup> Thank you, Mr. Chairman. I'll be referring to the packet of material that was distributed. It should be in front of you. That packet contains the policy alternatives as well as the associated draft directives. The one-word change in the language that we distributed Monday is incorporated here.

Turning first to alternative B, on page 4, the Committee may view the economic information received since the last meeting as indicating that the economy has been expanding moderately. However, your SEP submissions suggest that you see only modest economic growth over coming quarters, with the unemployment rate declining even more slowly than you anticipated at the time of the November SEP. Moreover, as a number of you mentioned yesterday, there are significant downside risks to the economic outlook related to the problems in Europe. With regard to inflation, the SEP results suggest that most of you see inflation as likely to be

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

subdued. Against this backdrop, you may wish to ease financial conditions a bit further by providing forward guidance that pushes out the expected date of the liftoff of the federal funds rate. You may also think it helpful to provide clear guidance regarding the economic conditions that would warrant retaining the current very low level of the federal funds rate.

The first paragraph of the statement under alternative B is updated to reflect the incoming economic data. In particular, the statement says the economy “has been expanding moderately,” and recognizes some “further” improvement in the labor market, but states that the unemployment rate “remains elevated.” The paragraph also updates the characterization of inflation, describing it as having been “subdued in recent months” rather than having “moderated.”

The second paragraph indicates that the Committee expects “modest” economic growth over coming quarters and anticipates “only slow progress” toward its employment objective. The statement would also note that inflation is expected to run at or below levels consistent with the dual mandate over coming quarters. The last sentence of paragraph 2, which emphasizes the Committee’s intention to monitor inflation and inflation expectations closely, is shown in brackets. This sentence was adopted when inflation was elevated and upside risks to inflation were a particular concern. With inflation having fallen back, the Committee may now think the sentence is unnecessary. Moreover, members may be concerned that there is no analogous sentence pointing to the Committee’s concerns about the elevated unemployment rate.

In paragraphs 3 and 3’, alternative B offers two options on forward guidance. The simpler version, shown in paragraph 3’, starts by indicating that the Committee expects to maintain a highly accommodative stance for monetary policy. It goes on to update the forward guidance the Committee has used since August, stating that members expect economic conditions to warrant exceptionally low levels of the federal funds rate “at least through late 2014,” rather than “at least through mid-2013.” The revised date would be consistent with the median SEP projection of the Committee members, which was for liftoff in 2014, but with the target federal funds rate still quite low at the end of the year.

The more detailed version, in paragraph 3, provides guidance regarding the economic conditions that would warrant retaining the current very low level of the funds rate. You may feel that adding to the statement an indication of the Committee’s collective judgment regarding potential policy thresholds and the possible timing of liftoff would provide increased clarity to the public regarding the Committee’s intentions. Specifically, paragraph 3 begins by indicating that the Committee “intends” to maintain a “highly accommodative” stance for policy and then goes on to state that the Committee anticipates that it will be appropriate to keep the funds rate within its current low range “at least as long as the unemployment rate exceeds 7 percent, the inflation rate . . . at a horizon of one to two years is projected to be either below or close to 2 percent, and longer-term inflation expectations

continue to be well anchored.” It then notes that the Committee expects these conditions to prevail “at least through late 2014.”

By setting the threshold for inflation as a projection that is “close” to 2 percent, rather than precisely at 2 percent, the Committee would signal that projected inflation a bit above 2 percent would not necessarily lead to an increase in the funds rate, particularly if the unemployment rate were still elevated and inflation expectations well anchored.

For the unemployment threshold, a number of considerations suggest that 7 percent could be an appropriate benchmark. First, some simple rules imply a threshold of roughly this value. For example, a Taylor (1999) rule, with an assumed value of the equilibrium real federal funds rate of 2 percent, an inflation rate equal to the Committee’s objective, an equilibrium unemployment rate of 5½ percent, and an Okun’s law constant of 2.5 yields an unemployment rate at liftoff of about 7 percent. Second, 7 percent would be a conservative threshold for the unemployment rate in the Tealbook’s constrained optimal control simulation, which suggests that the first increase in the federal funds rate should come in the first half of 2016, when the unemployment rate would be below 6 percent. Finally, your SEP contributions suggest that the median Committee member sees the unemployment rate close to 7 percent in the fourth quarter of the year of liftoff.

The final paragraph of alternative B indicates that the Committee will continue its existing MEP and reinvestment policies, that it will regularly review the size and composition of its securities holdings, and that it is prepared to adjust those holdings as appropriate “to promote a stronger economic recovery in a context of price stability.”

Market participants see significant odds that the Committee will raise the funds rate by the middle of 2014, and so specifying a date of “at least through late 2014” would likely push out somewhat expectations for the date of the first increase in the funds rate. Longer-term interest rates would likely decline a little, equity prices could rise some, and the foreign exchange value of the dollar might soften. These market effects might be a little larger if investors also delayed their expected timing for the normalization of the balance sheet, thereby putting a little additional downward pressure on term premiums. The inclusion of the threshold language would likely push back the expected date of liftoff a little further, and so have somewhat larger effects on asset prices.

Alternative A, on page 2, would have you augment the stronger forward guidance in alternative B with a new asset purchase program. You might view this as appropriate in light of SEP projections showing the unemployment rate still well above its longer-run normal rate in the fourth quarter of 2014, and inflation generally at or below your 2 percent objective.

The first and second paragraphs under alternative A would be quite similar to those under alternative B, although paragraph 2 includes the option of indicating that

inflation is expected to run below mandate-consistent levels, and the sentence at the end of paragraph 2 has been removed.

Alternative A provides two variants of an MBS purchase program: The first, in paragraph 3, announces purchases of up to an additional \$500 billion of MBS; the second, in paragraph 3', announces a program to purchase MBS "initially at a rate of \$40 billion per month" and indicates that the Committee would adjust this program as needed to foster its objectives. Members may see an MBS purchase program as more desirable than a Treasury purchase program because such purchases would ease broader financial conditions and also provide support specifically to the housing sector. Both versions of paragraph 3 indicate that the Committee would maintain its reinvestment policies and the MEP.

The forward rate guidance provided in paragraph 4 of alternative A is similar to the more detailed forward guidance option in alternative B, except that the unemployment rate threshold is reduced to 6½ percent. The lower number would reflect a decision by the Committee to provide more accommodation through forward guidance than under alternative B.

An announcement along the lines of alternative A would surprise market participants. Longer-term interest rates would decline, equity markets would rally, and the dollar would likely depreciate some. Of course, equity prices might increase less and longer-term interest rates might decline more if market participants read the policy decision as suggesting heightened concern on the part of the Committee regarding the economic outlook.

Under alternative C, on page 6, policymakers would reduce the size of the MEP and make changes to the forward guidance to eliminate the use of dates and allow for the possibility of a shorter period over which rates would remain exceptionally low. Such an approach would reflect an assessment that the information received since the December meeting suggested an improved outlook for growth, so that less monetary policy accommodation was needed to sustain progress toward the Committee's goals.

The first paragraph under alternative C would take a more upbeat signal from recent economic developments, and paragraph 2 would exclude the reference to downside risks posed by strains in global financial markets and indicate that the Committee expects a firming in the pace of economic growth.

In paragraph 3, the statement would indicate that "the Committee decided today to reduce by half" the size of the MEP "and to complete the program by the end of February." In addition, with the policy projections now included in the SEP, some of you may see no need to provide a date for liftoff in the forward guidance, and still see a risk that the use of a date could be seen incorrectly by investors as an unconditional commitment. If so, they might prefer to go back to the "extended period" language used prior to the August meeting, as in paragraph 4.

The adoption of alternative C would greatly surprise markets and would likely prompt significant declines in stock prices and sharply higher yields.

The draft directives for the three alternatives are presented on pages 8 through 10 of your handout. Thank you, Mr. Chairman. That completes my prepared remarks.

CHAIRMAN BERNANKE. Thank you very much. Questions for Bill? President Lacker.

MR. LACKER. Bill, first, have any participants altered their economic projections?

MR. ENGLISH. For this round? Changed their SEP contributions, you mean?

MR. LACKER. Right.

MR. ENGLISH. There were a couple of changes on Monday.

MR. LACKER. So that was in the packet we got?

MR. ENGLISH. Yes.

MR. LACKER. Okay. Great. The packet shows, as I said yesterday, that seven participants have a federal funds rate above 13 basis points—but the lowest is 50 basis points—and have an unemployment rate above 7 percent. You cited a median figure. I wasn't quite sure what that median was.

MR. ENGLISH. It's the median for the Committee members. Which sentence?

MR. LACKER. You cited something, a median involving 7 percent unemployment. I wasn't quite sure I caught what it was.

MR. ENGLISH. Yes. The median unemployment rate for the year of liftoff varies depending on which set of participants you're talking about. It is either 6.9 percent for voters or 7.1 percent for all participants—so, about 7.

MR. LACKER. The big question I have has to do with these words “currently anticipates” in B(3).

MR. ENGLISH. Okay. Just to be clear, the package of SEP results that you got yesterday on the table has all of the new results. The package that was distributed on Monday didn't have one of the changes that was made Monday evening.

MR. LACKER. Well, I got a packet on Tuesday morning. Is that the same packet distributed Monday afternoon to which you're referring?

MR. LUECKE. Yes.

MR. LACKER. Okay. Great. Maybe sometime we could get that updated. The big question has to do with "currently anticipated." Paragraph B(3) has the condition that "this exceptionally low range for the federal funds rate will be appropriate" as long as three conditions are met, and the sentence says that the Committee "currently anticipates." So the word "currently" there suggests that at some future time, given future data, it could be the case that we no longer anticipate that interest rates will be exceptionally low under those three conditions. And yet this forward guidance language is widely interpreted as a commitment by the Committee. Today's *Wall Street Journal* said the Fed is committed to keeping interest rates low until at least mid-2013, and the same sort of "anticipates" language is used with regard to the year—"Committee expects"—right? So I'm just wondering. You helped draft this language. Do you view this as a commitment—that we're saying that we're going to behave in a way that in some circumstances would be other than what we'd want to do then, or is this merely a forecast of our future behavior?

MR. ENGLISH. I would have said it was primarily a forecast of future behavior, your expectations today, but it may have a very small element of commitment because you'd be hesitant to change something you'd put out there. But for the most part, this is, as it says, the Committee's current anticipation.

CHAIRMAN BERNANKE. President Lacker, if I could just interject. If we do accept either of these kinds of forward guidance languages, I will be making clear in the press conference opening statement that it's not intended to be a commitment, that it's entirely conditional. Now, I think there is a little bit of a difference between the 7 percent language and the simple date language. The simple date language is obviously very contingent on changes in the outlook, and we reflect it in changes in the SEP projections from quarter to quarter. The language that is contingent on economic outcomes should be a little bit more permanent because it's more about our reaction function than it is about the state of the economy. It could accommodate an earlier or later date. It's also a threshold, not a trigger, and so there's flexibility in that respect, but I even in that case think one reason to play down the commitment language is that we all recognize that we can't entirely mechanize these decisions. I know that a number of people are interested in rules, et cetera, but we can't entirely mechanize. There may be other considerations that would be relevant, and so for that reason, we have to leave ourselves flexibility.

MR. ENGLISH. One other thing that might be worth saying is that I think that the date language that was added in August had an effect on expectations. It was read as meaning that the Committee perhaps really did have a slightly different reaction function than had been thought. But since then, as data have come in, that date has moved around. In particular, it's moved back a fair amount. So I don't think that it would be read as immutable. It would be read correctly as subject to revision as the data change.

MR. LACKER. So your interpretation is that in August, the market reaction was that it learned something about our reaction function, but subsequently the reaction to data surely

reflects a sense that the future evolution of the data is going to be different given our reaction function? Is that how you interpret movements since August?

MR. ENGLISH. Since August? Yes, I think that's right.

CHAIRMAN BERNANKE. Other questions? President Bullard.

MR. BULLARD. Just on that point, I think there is an alternative interpretation of what happened in August, which is that there was tremendous market turmoil at that time. There was the July 29 GDP report, which marked down the path of GDP through the recession. A simple interpretation is that that's what pushed out market expectations of our time of tightening, and it didn't have much to do with whether we put "2013" in the language or not.

MR. ENGLISH. But there was an announcement effect with the release of the statement. On that day, there was a pretty noticeable move in Treasury yields, for example, or in fed funds futures, and so I think the statement itself did seem to do something.

MR. BULLARD. I think it was an extremely volatile market situation. It's hard to interpret what happened, but one interpretation is that there was a recession scare right around that time.

VICE CHAIRMAN DUDLEY. Also, volatility came down for the short-dated yields after our announcement.

MR. ENGLISH. Absolutely.

VICE CHAIRMAN DUDLEY. So something was going on there from the announcement.

CHAIRMAN BERNANKE. The relevant point, though, is, was this viewed as an ironclad commitment? If it was viewed as an ironclad commitment, then the rates would not have responded to subsequent developments, which they did.

MR. BULLARD. Well, you're saying that sometimes what the Committee says moves the market, and then other times, the market is moving the date of liftoff independently because of changes to the data. I'm saying that the data were very volatile around the August meeting.

CHAIRMAN BERNANKE. Other questions?

MR. LACKER. Can I follow up on that? This other hypothesis about August is that it conveyed our sense of future economic data as much as it conveyed information about our reaction function, and the same thing plagued interpreting March 2009, right? We don't know whether they're taking a signal from our read about the economy—gloomier than they thought we'd read the economy—or it's the reaction function. Do you have a way of teasing that out?

CHAIRMAN BERNANKE. It doesn't matter. They're both in there. When we said "extended period," we said we think conditions will be such that low rates will be justified. So that's saying something both about our expectations of economic conditions and about our reaction to those conditions.

MR. LACKER. Oh, I know it does, but as a matter of logic, there are two separate effects going on: how they're updating about our reaction function and how they're updating about the data, right?

MR. SACK. I think if it were seen as a significant downgrade to the forecast, you probably would have seen a meaningful decline in equity prices on the announcement, which I don't believe happened. I do believe it was interpreted as a defining signal about policy intentions.

CHAIRMAN BERNANKE. Okay. We'll continue with questions, but I just want to make sure everybody will have a chance, of course, to comment on the whole situation here. Two-handers? President Fisher.

MR. FISHER. I think we have to be very careful about what we ascribe any market movement to; markets don't work that way. I did read Bill's paper pretty carefully, and by the way, it's a thoughtful presentation. I really appreciate it. You talk about the number of basis points. Again, we're talking about one-hundredths of 1 percent. Now, the shorter you are on the yield curve, one can assume that you wouldn't have a market impact. I think President Bullard's point is very good, and President Lacker raised a very good point. It's not clear what you can ascribe things to. The question is the effect over the longer term. I do believe we have suppressed the yield curve. I don't believe we've done it alone. It's happened in circumstances relative to what's happened elsewhere. We've seen additional oomph come from what's happened in Europe and our relative performance. But I think we have to be extremely careful. We might observe an event occurring, but ascribing it to what is said at this table, particularly with immediacy, may be reading too much into the data. The data are helpful, but at least for what it's worth, again, as a former market operator, you never know what moves the market, and I think we take too much credit for immediate reaction. It's what we do on a sustained basis over time that is impactful, and I do believe we send signals to the market, clearly, that we expect to repress any tightening of policy for a substantial period. That takes time to factor into the market. The explanation as to why we do it is, as pointed out earlier, also very critical. But I would urge the Committee, again, from one person's perspective, not to read too much into any immediate market reaction because on any one minute, any one second, any one day, the market reacts to a multiplicity of factors that none of us understand. That's the way markets work.

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. First of all, I want to say that I appreciate the staff's responsiveness to my questions from the last meeting and am very much looking forward to the fruits of their labor. I have a quick question about alternative A, which is about capacity constraints for those kinds of purchases. Alternative A talks about \$500 billion of purchases through, I think, January 2013, and I was wondering, if one wanted a more accommodative alternative A, how high could we go in terms of that number without impairing market function.

MR. ENGLISH. Do you want to respond, Brian?

MR. SACK. Purchasing \$500 billion through January involves purchasing at a pace of just over \$40 billion a month. We're comfortable that we could do that program through January of 2013 without significant market consequences, but we couldn't do it for a number of years. I think our best judgment is that sometime in the second year, we would become quite concerned about market functioning. At that point, our purchases would be outrunning the amount of gross supply, so we'd have to be extracting holdings from other holders. And the deeper we have to go there, the more significant types of market disruptions we think can occur. So I would say that if the Committee were intent on carrying that pace of purchases for a second year or beyond, we'd want to entertain the possibility of shifting some of the purchases into Treasury securities, in addition to MBS.

MR. EVANS. Brian, what do you mean by "market disruptions"?

MR. LACKER. Thanks, Chuck.

MR. SACK. I know President Lacker likes that question. [Laughter]

MR. EVANS. Well, it didn't seem to me as though going in and purchasing from somebody who owned the asset already would be a disruption. So we might have different interests here.

MR. SACK. I think when market participants talk about this, they confuse two issues that we want to separate very carefully. What we're not talking about is having a bigger market effect. I think that would be a positive development and presumably an intention of the program. What we're talking about is a loss of liquidity in the market itself, a loss of the ability of private agents to transact in the market, and we had an episode of this in the first round of mortgage purchases. We bought an awfully large portion of the gross issuance in certain coupons—fours, four-and-a-halves. At one point, we tried to buy an additional amount of higher coupons, five-and-a-halves, in which case we had to pull securities out of the stock. And even though we owned a much smaller fraction of that, that process actually led to significant disruptions in that coupon in terms of the liquidity of that coupon and in terms of our ability to settle the holdings. We discussed this at the time, and the Committee approved a coupon swap to let us, at the end of the program, not demand delivery of the five-and-a-halves and switch to a different coupon. So we do have some evidence that diving too far into the stock can cause these market difficulties.

MR. KOCHERLAKOTA. In terms of Treasuries, presumably we'd want to be buying longer-term Treasuries. What's our capacity look like on that dimension? My understanding from our discussion of the maturity extension program was, even there we have some capacity constraints.

MR. SACK. Right. In Treasuries, we currently own about 20 percent of the stock of coupon securities, and of course, our holdings are staying unchanged, whereas market supply is increasing. So over time, that would drift down. However, in longer securities, from 6 to

30 years, when we're done with the maturity extension program, our holdings will actually be 30 to 35 percent of the market in aggregate.

MR. KOCHERLAKOTA. That's a lot.

MR. SACK. So we're quite large there already. We believe we could push that further. As I said, if the Committee were interested in a larger or longer LSAP program, I do think we could shift some of the purchases into Treasuries comfortably and easily get to outcomes where this type of program could be carried on for two years or longer, but there, too, eventually there could be a limit.

MR. KOCHERLAKOTA. Thank you.

CHAIRMAN BERNANKE. Governor Duke, did you have a two-hander?

MS. DUKE. Well, actually I do now. [Laughter]

CHAIRMAN BERNANKE. Okay.

MS. DUKE. What was the total issuance this year? I thought it was just, like, \$900 billion or something—total new issuance of MBS.

MR. SACK. Gross issuance of mortgages?

MS. DUKE. Yes.

MR. SACK. What we project for 2012 is just over \$1 trillion of gross issuance for the year. So if we take a \$500 billion LSAP combined with about \$325 billion of reinvestments that we project, that gets us to two-thirds or a little bit higher of the gross as well.

MS. DUKE. Thank you.

CHAIRMAN BERNANKE. President Lacker, did you have a comment?

MR. LACKER. Yes. I'm always curious and yearning for more when I hear you say things like you did just now about liquidity. I think of liquidity as whether you can buy or sell an

asset, and you contrasted that with your effect on the price. You go in and you buy the 5 percent coupon. Presumably, that drives up the price. Presumably, people who can sell can sell it easier now. If you're trying to buy, presumably it's harder, but that's supply and demand, right? What do you mean by liquidity drying up in this context?

MR. SACK. I mean the ability to buy or sell at the market price no matter what the effect on the price is, wherever the market moves—the ability of other agents to transact in volume at something close to that price and actually receive delivery of the securities.

MR. LACKER. At what price?

MR. SACK. At whatever the market price becomes after our transaction.

MR. LACKER. What does the market price mean in this context if it's not what you can buy and sell at?

MR. SACK. In a liquid, well-functioning market, there will be a market price where private agents can transact, buy or sell, at something close to that price in volume.

VICE CHAIRMAN DUDLEY. If I could just interject, think about it as how much I would move the market for a given size of purchase or sale. As the market becomes more illiquid, I move the market by more for a purchase or sale of a given size. And the bid-asked premium might also widen. So that's how you think about illiquidity.

MR. LACKER. Okay, and that's different than affecting the price you get?

VICE CHAIRMAN DUDLEY. The price is determined where the supply equals demand, but illiquidity is how much I move the price for a given quantity of purchases or sales. That's how I define the difference.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. Can I just ask for one more information point? What are the equivalent figures for the MBS market in terms of our concentration?

MR. SACK. In aggregate, meaning our holdings relative to fixed-rate agency MBS outstanding in total, we are 18 to 19 percent of the market, but again, as with Treasuries, there are certain segments where our holdings are larger. In the 4 and 4½ percent coupons, our holdings are more in the 35 to 45 percent range of the market.

MR. FISHER. Thirty-five to 45. Thank you.

CHAIRMAN BERNANKE. President Rosengren.

MR. ROSENGREN. I had a question, again, on the language in paragraph 3. From alternative A at the last meeting to alternative B at this meeting, the language went through a substantial change. I looked at this language and thought about what the effect of a disruption on oil prices in the Mideast would be—where, over the short term, the inflation rate would go up quite substantially, and we'd probably, over the two-year period, move further away from our unemployment objective. When we go to a total measure but go to a short horizon, I wonder if various supply shocks become problematic with the threshold. If it was a horizon further out or if we used a core concept or talked about underlying inflation—there are a number of ways to change that language, either through the actual threshold or through actually what we're measuring or through the time period—the language would be less susceptible to a supply shock. Do you have that concern with this language? And it gets to the Chairman's comment that this is not binding, that it is conditional language, and there are circumstances where this language wouldn't necessarily be something that generated us to tighten. But just looking at the way the language was structured here, it seemed more susceptible than the language in alternative A at the last meeting.

MR. ENGLISH. Two thoughts on that. One is, the one-to-two-year horizon is supposed to say, yes, you could get an oil shock or whatever that would push inflation up, but if you see it coming down, say, year after next to something close to your objective, then that's okay. And the other is that, as you say, these are thresholds; they're not triggers. So the Committee could say, "Gee, we've had such a large shock that inflation will be away from our objective for a couple of years—it won't come back until, say, year three, but we're okay with that. And we'll not necessarily have to take any action to tighten policy given this language." That was our intent, in any case.

MR. ROSENGREN. Okay. Thank you.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Bill, I want to ask about your choice of 6½ percent in alternative A and what the thought process was. It could be just as simple as using B as a fulcrum. A adds more accommodation and C removes some accommodation, but an alternative interpretation might be that A implies a lower assumption of the NAIRU than B, or A implies a higher tolerance for inflation risk than B, or the unemployment rate is now serving as a proxy for a later liftoff. So could you elaborate further on the thought process of getting to a 6½ unemployment rate as a choice in A?

MR. ENGLISH. In A, what we were trying to suggest was that the Committee could try to provide a little more accommodation by, in effect, making it likelier that the Committee would wait longer before raising rates—or at least suggesting that to the public by having a lower threshold for the unemployment rate. In terms of the SEP contributions for members of the FOMC, four people had SEP contributions for the unemployment rate at the time of liftoff that were about 6½ or lower. That's including somebody at 6.6 percent. So it seemed a plausible

number given your SEP contributions. As I said in my briefing, if you were taking seriously the staff's optimal control exercises, you could conceivably wait considerably longer still, and we could conceivably have written down an even lower unemployment threshold in alternative A. But that seemed to get away from the SEP contributions.

MR. LOCKHART. So if you were to provide a whole spectrum of alternatives instead of five, basically, you could have said that A is essentially a 7 percent threshold, but 2015 or 2016.

MR. ENGLISH. That would be another way to do it.

MR. LOCKHART. Yes.

CHAIRMAN BERNANKE. I want to make the observation that there is a substantial amount of thinking in academia about the notion that in a liquidity trap, you might want to promise to keep rates lower longer than would be time-consistent. That is, you want to promise that even when inflation begins to pick up, you'll keep rates low. And if that promise is credible, which it may not be, that can produce more stimulus now and give overall better results. So if you interpret the SEP as being the time-consistent path of policy, there is an argument—I think a pretty reasonable argument—that one might consider going beyond that point in order to get further stimulus now. But that's just one additional way of thinking about this. Governor Duke.

MS. DUKE. My question has to do with the language and how you see the language evolving over time. When we did "mid-2013," the ink wasn't even dry before we started wringing our hands about whether that was the right date and whether we should move it or express it differently. So I'm happy to see that the "late 2014" is pretty consistent with the projections that we're going to publish, but I can see that over time, the projections might move. I was wondering how you thought about changing that guidance, if that guidance is in there—how often, how frequently, with what kinds of circumstances? And then similarly, is the

language on the unemployment rate or on inflation a transparency piece or new dials to turn? So sometimes in alternative A, the language is, “This is the next step in this process.” Would we think about the language in 3 as being another dial to be turned?

MR. ENGLISH. I think my intention would be that the date would have to be adjusted. It would need to be at least roughly consistent with the SEP contributions. If the Committee decided, as the Chairman said a moment ago, to go more in the direction of a commitment to keep rates lower for longer, then the 7 percent, for example, could change, the thresholds could change. If the Committee didn’t decide to go in that direction, I would expect that those wouldn’t necessarily change, although ultimately, if economic conditions change, of course they might have to. But you’d want to try to have these things be more or less squared up with the SEP contributions, though there can be some discussion by the Committee and agreement by the Committee to agree to things that aren’t necessarily exactly what’s in the SEP contributions.

MS. DUKE. Thank you.

CHAIRMAN BERNANKE. Other questions for Bill? [No response] If not, we’re ready for our go-round, and we’ll start with President Lacker.

MR. LACKER. Thank you, Mr. Chairman. Given the outlook for the economy, particularly the data that have come in over the last few months, I don’t see a reason to change the stance of monetary policy either way at this meeting. I do think there’s a substantial chance that an increase in our policy rates will be appropriate sooner than in the Tealbook’s baseline forecast and sooner than described in paragraph 3 of alternative B—or paragraph 3’, for that matter. If employment growth picks up by the end of 2013—and that doesn’t seem at all out of the question—then it seems to me that we’re going to need to raise rates around that time, even if

the unemployment rate hasn't made as much progress as we'd like and come down as much as we'd like.

There are good reasons to think about this in terms of a strong, positive link between interest rates and the rate of economic growth rather than the level of resource utilization. Indeed, that link is a key building block in the fundamental model, of which all models we use are extensions. The standard growth model links real interest rates to the rate of growth of consumption over time. All of our models are extensions of that model, so it's natural for there to be a link between growth rates and real interest rates, whatever else is going on in the model. In general, the rate of real growth and the level of unemployment can vary independently, even though, as I said yesterday, in some very simple models there are just two shocks. Given an inflation rate, the gap and the rate of growth are monotonically related in very simple models, but I think it's very easy to envision more general models where they vary independently. And we've seen that over time, where the growth rate can be high even if the unemployment rate is high. To the extent that they do vary independently, we need to think about how we respond to the two, and we need to be prepared to respond to growth as well as unemployment. We've been debating this going back to 2009, when we first started talking about our exit strategy. This is why I think it would be a mistake to link monetary policy explicitly to the unemployment rate, the way paragraph B(3) does. I don't think it's hard to envision plausible circumstances in which we would need to tighten policy with unemployment above 7. Indeed, nine of us believe that we would need to lift rates before the unemployment rate is below 7. For example, an acceleration of economic growth could bring a lot of discouraged workers back into the labor force, and that could keep the unemployment rate up for a while. President Pinalto mentioned this possibility yesterday. In that case, a pickup in economic growth could warrant raising real

interest rates even if unemployment is high. More broadly, given what we know about the natural rate of unemployment, or the natural rate of output, I don't think it's inconceivable that it's close to or even above 7 percent. I think that's something we learned in our discussions about the consensus statement over the last year. And if that's true, then promising to maintain accommodative policy whenever unemployment is above 7 percent risks accommodative policy when we're at the natural rate or even below it, and risks raising inflationary pressures.

Now, you might argue that the inflation language in B(3) takes care of this problem in the sense that if it were the case that inflation projections or inflation expectations rose, then the conditions of B(3) would no longer be satisfied, and it would not be inconsistent to tighten policy. The problem I see with this argument is that it would preclude tightening monetary policy preemptively. And doing that has been crucial to our behavior and our performance, maintaining our credibility in the past. For example, in February of 1994, we embarked on a tightening campaign despite the fact that inflation had not increased, and the unemployment rate was at 6.4 percent, according to the Greenbook at the time—and that was considered relatively high back then. In essence, the conditionality in B(3), the way the inflation threshold is framed, implies that as long as unemployment is above 7 percent, we won't tighten policy unless we've already lost some of our credibility. I think it's a dangerous strategy, because restoring credibility after we've lost it can be very costly. Our goal should be for it to always be the case that inflation is projected to be soon, sometime in the near future, close to 2 percent. And I don't think this is a radical notion. It would allow for substantial transitory fluctuations in inflation in response to oil price shocks, for example, as Bill English pointed out, and it's perfectly consistent with the notion of flexible inflation targeting that we discussed in the context of adopting our consensus statement. Moreover, that's how policy works in our standard models.

In our standard models, we write down a policy reaction function that has the property that inflation is always projected to return to 2 percent. I don't think we want to set up a situation where we're going to underachieve relative to those simple rules that embody a standard of credibility that we've been able to maintain for two decades, where inflation expectations have not materially deviated—one or two minor exceptions aside.

It's worth keeping in mind that we've just begun including the federal funds rate projection in the SEP, and it's worth really thinking hard about the relationship between the SEP disclosures and what we put in the statement. That provides detailed information, much more detailed than B(3) provides, about what monetary policy participants think is most likely to be appropriate over the next few years. And to me, that seems like the natural place to put our forward guidance. As I said, it shows that a majority of us believe interest rates will be exceptionally low through 2014, consistent with the characterization that B(3) attempts to provide. But on the other hand, it shows that nine of us think that we're going to raise rates before unemployment is below 7, and I think that disconnect is going to be a little tricky for the Chairman, even, to finesse in his statement. So what I'd like to see is that we just eliminate forward guidance. Take this opportunity, with the introduction of forward guidance in the SEP—now that we've got it in there in a careful way, a very rich way—to take it out of the statement, back away from it in the statement. We provide plenty of forward guidance in the SEP.

What the SEP will not provide, which the language in B(3) attempts to provide, is—as you put it, Mr. Chairman—a partial characterization of our reaction function. It's a characterization of the way in which monetary policy may vary with inflation and unemployment in the future. Now, today we're also releasing our consensus statement about our framework for

monetary policy, and I think we ought to think carefully about this unemployment language in B(3) and how it relates to our consensus statement. The hardest part of drafting that statement was dealing with the relationship between labor markets and monetary policy. We spent more than a year wrestling with that. We learned there's a wide range of views on the Committee, but we found a consensus view—we found a formulation, an articulation—that a broad working majority of us could support. And as I said, we learned over the course of that discussion that estimates of what you'd think of as the natural rate of unemployment are all over the map, ranging anywhere from 5 to as much as 8 percent or more. We took extraordinary efforts to craft a nuanced view of the relationship between employment, inflation, and monetary policy—one that isn't inconsistent with the views around the table. In the end, we decided there that it was not appropriate to articulate a numerical objective for employment or unemployment, because they're predominantly determined by a range of nonmonetary factors that are too hard to predict, and they're difficult to estimate. The language of B(3) strikes me as directly conflicting with this consensus statement. It introduces a numerical policy criterion for unemployment that seems to imply that mandate-consistent maximum employment corresponds to an unemployment rate somewhere below 7 percent. We'd be saying in the consensus statement that we don't know enough about maximum employment to write down a numerical objective. But in the meeting statement, we'd know enough to write down a particular unemployment rate as a threshold criterion for policymaking. This strikes me as awfully confusing.

A couple of other reasons that I oppose the language in B(3) are, first, that it elevates unemployment rather than employment or employment growth or real economic growth. I'm not sure that's a wise choice, if we're going to go down that road. Elevating unemployment risks undermining our credibility. As I've said before, the times we've lost our credibility have been

times when we were excessively solicitous of labor market conditions. In addition, B(3) represents an easing in some sense, given the data, market expectations, and what's in the SEP about what policy is expected to be. And I think that's a discordant step to take at a time period in which the data have come in along a firming trend. Even if it was firming the way we expected, that distinction, that subtlety is going to be lost in translation.

To summarize, I can't support alternative B as written. It seems to rule out preemptive tightening to thwart incipient inflation pressures that I think is important to the way we operate. It seems to rule out tightening in response to increases in economic growth rather than the level of unemployment. It provides forward guidance in a way that strikes me as very confusing relative to what's in the SEP, and the SEP would be a much better way to provide that forward guidance. And it's inconsistent with the spirit of the consensus statement we just adopted. Moreover, we're throwing a lot of new communications at the public at this meeting, between the consensus statement and the SEP. To throw in this dramatic of a change in our forward guidance seems like too much novelty at this point and a significant risk. I think this is the time to move forward with our guidance in the SEP; leave it at that. So if it were up to me, I would delete all but the first sentence in paragraph 3 of alternative B. And given that deletion, it would be natural to combine the remaining sentence with paragraph 4 to make a single paragraph. But I'm happy to yield to grammarians on that. The sentence about paying close attention to inflation—I was a little chagrined to see that deleted. I'm glad it's been added back as an option. It goes back to—you can call it Dudley's rule, Geithner's rule—if you make a change in the statement, how do you answer the question “Why are you making that change?” And does deleting it mean that we no longer pay close attention to inflation? I'm not sure that's a characterization we want to leave the public with. And finally, because A is one of the

alternatives, I'll mention again for the record that I'm strongly opposed to purchasing mortgage-backed securities. That would continue to channel credit to a specific sector and would conflict with our March 23, 2009, joint statement with the U.S. Treasury. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. President Lacker, did you say near the end—I didn't quite understand. Are you more comfortable with B(3')?

MR. LACKER. No, I don't think we should provide forward guidance at this meeting, either in the date form or in the contingent form, given what's in the SEP.

CHAIRMAN BERNANKE. Okay. Thank you. President Williams.

MR. WILLIAMS. Thank you, Mr. Chairman. Today I support alternative B with paragraph 3'. My own projection has the funds rate lifting off in late 2014, reaching 50 basis points at the end of 2014. That's consistent with the statement as written in 3'. I am uncomfortable with the threshold language in paragraph 3. Simple thresholds work fine in certain circumstances, such as the military command "Don't fire until you see the whites of their eyes." [Laughter] So much for no laughter. However, attempting to represent our monetary policy reaction function with such a simple threshold runs the risk of confusing the public about how we set monetary policy. And I think President Rosengren's comments actually illustrate that difficulty regarding an oil supply shock and how the language in this current version of 3 works. It could be misinterpreted as, if you have an oil price shock that pushes inflation up for a year or two, a signal to markets that we would be raising rates. Now, I recognize that this is a very difficult challenge to, in a couple of sentences, describe the Committee's reaction function. I actually think these efforts are very good efforts, but it's hard to get this right. I think that 2½ percent, which was in the earlier draft, also suffered from this issue of raising the question of whether that is somehow our medium-term target. So these illustrate some of the difficulties

with trying to describe our reaction function through thresholds in a couple of sentences. In fact, the appropriate setting of monetary policy depends on many variables. It depends on the path on which the economy is going; it also depends on the assessment of risks. And so I think, again, a simple threshold around the unemployment rate and/or the inflation rate, the way it's described in 3, is potentially confusing in terms of describing our reaction function. I'm also worried about how the communication of these thresholds would affect the market reaction. As the Tealbook notes, it's difficult to gauge what effect the thresholds in paragraph 3 would have on funds rate expectations going forward. And I, again, worry about that. The interaction of policy thresholds with diffuse and time-varying private-sector macroeconomic forecasts is hard to predict. So, again, I'd prefer paragraph 3'.

Looking forward beyond today, we may still have to provide more policy accommodation if the economy loses momentum or inflation remains well below the 2 percent objective. In these circumstances, I would support greater efforts to ease policy through the purchases of mortgage-backed securities. I am drawn to the flow-based approach described in paragraph 3' of alternative A that features an open-ended pace of purchases of, say, \$40 billion per month. I actually appreciated very much the staff memo that went through the different ways of approaching MBS purchases going forward. As I've said in the past, and as the staff memo points out, having this open-ended or flow-based approach is more consistent with the standard monetary policy reaction of adjusting policy as economic conditions change. I also recognize that, in my view, the effects of an MBS program depend on the expected stock and expected path of that program. So it would be appropriate, even with a flow-based approach, to provide some forward guidance saying that we expect to continue these purchases at least through the year-end or something like that. To my mind, the big advantage of the flow-based approach is that it

avoids this abrupt end of the purchase program either on a date or an amount. Now, I do recognize, as we discussed earlier, that there are some market function issues involved. It would be good to have more information about how long we could actually extend MBS purchases or Treasury purchases. Again, this discussion I've just had is about future policy, depending on how the economic circumstances change. But for today, I'm in favor of alternative B with the language in 3'.

In terms of the sentence in paragraph 2 "However, the Committee will continue to pay close attention to the evolution of inflation and inflation expectations," my understanding of that sentence was the same as Bill described—that that was a reflection of the fact that inflation was running above desired levels and that inflation risks were elevated somewhat at that time. And in fact, inflation has come down. I don't think we need that sentence anymore, given that the facts have changed. So I would strike that sentence from paragraph 2. Thank you.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I support alternative B today, but not surprisingly, like others, I would like to suggest some modifications to paragraph 3. As I stressed in the economic go-round yesterday, I see the outlook as largely unchanged from our last meeting, with a modest economic expansion, a slow decline in the unemployment rate, and an inflation rate that stays near 2 percent. My outlook supports continuing the maturity extension program and the reinvestment of mortgage-backed securities. And revealing that the anticipated period of low rates now stretches into 2014 will be seen as another action to support our objective for full employment and stable prices. While some might see an economic outlook like mine as reason to ease policy even further, I don't think any additional action is warranted today. One reason is that my projection for falling inflation is just a projection, and further

declines may not materialize. I would like to see more inflation data supporting my projection. Just as we were surprised by a rise in inflation last year, we could be surprised again this year or next. For example, as I indicated in my comments yesterday, we could be surprised by the strength of OER over the next year or two. If the inflation data come in weaker than my outlook, then that could be cause for further policy action. A second reason that I prefer to wait on further policy accommodation is that further easing of policy would have some other costs by potentially causing inflation expectations to become unanchored or causing distortions in the Treasury and MBS markets and further complicating our exit strategy. Based on these concerns, I favor holding off on more-aggressive action today.

Regarding paragraph 3, my first preference is to let the Committee speak through our SEP and not put specific guidance in our statement. We could phase in our communications and let the public digest the new information that we are providing through our policy strategy statement and our federal funds rate path projections in the SEP. I don't think we need to rush to give specific guidance at this meeting. However, given the choices offered in alternative B, I prefer paragraph 3 over 3' because paragraph 3 better ties our forward guidance to economic conditions. I am concerned with the rate of unemployment given in the paragraph. I prefer an unemployment rate threshold of 7½ percent. I think that the natural rate of unemployment is closer to 6, as I mentioned yesterday, than the 5½ percent that is used in the Tealbook's Taylor rule illustration of the rationale for 7 percent. My higher natural rate warrants a threshold greater than 7 percent. That said, I realize that the unemployment threshold needs to reflect the consensus projection of the SEP. And as President Lacker mentioned, nine of us believe that the unemployment rate will be above 7 percent at the first federal funds rate liftoff.

I also think our experience in the 2003–05 period warrants some caution in extending our policy guidance too far into the future. I recall very clearly that when I joined the FOMC in January of 2003, the optimal policy prescription from the FRB/US model called for significant rate reductions and an extended period of very low interest rates. Two years later, with inflation much higher than had been forecast, the optimal policy prescription called for an aggressive tightening of policy. While the optimal policy prescriptions at each point in time were certainly valid and very informative, they proved to be subject to considerable change. Based on this experience, I am inclined to be cautious in following the prescriptions of optimal policy calculations and to leave ourselves plenty of flexibility. The language in paragraph 3 should clarify our reaction function, but I also want to make sure that it gives us enough flexibility for us to act based on all available information. So I would be more comfortable with an unemployment rate of 7½ percent and a date of mid-2014 for the liftoff. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. I'll start by stating my support for alternative B, and then I'd like to discuss the distinction between paragraphs 3 and 3'. Before getting into that, let me make a couple of comments on how I'm thinking about the role of the statement versus the SEPs and the intended effect of forward guidance in the statement. It strikes me that, just based on the first three statements on the policy that have been made this afternoon, we will be introducing innovations that create potential confusion as to the coordination between the statement, the SEPs, and the consensus statement that we approved yesterday, and that more work is required for all of us to understand how those fit together. To my way of thinking, the post-FOMC statement is a policy tool, and the SEP is supplemental

information that communicates individual views of FOMC participants. I don't believe the SEPs can substitute for the statement of the Committee, because the projections do not represent a voted decision of the Committee or an actionable consensus of the Committee. I do see forward guidance as a policy instrument—that is, a tool to influence market expectations. And I think guidance needs to be expressed through the statement or the Chairman's testimony and other public comments. I see the choice now between paragraphs 3 and 3' as a question of, what's the simplest and most effective way to convey guidance attuned to the public's and the market's key concerns? And I think those concerns are the path of interest rates and the Fed's market activity using the balance sheet.

While I acknowledge some awkwardness in stating forward guidance in the form of a calendar date, I think it is still the more appropriate form for issuing official forward guidance regarding the policy outlook of the Committee. Paragraph 3 retains the calendar date, of course, while introducing the innovation of conditional thresholds based on macroeconomic outcomes. And the real innovation in this—one that the broad public may not be expecting—is an explicit macroeconomic threshold based on the unemployment rate. Even if introduced with the affirmation of a “balanced approach,” included in the statement of longer-run goals and policy strategy, this strikes me as opening a new chapter for the FOMC. And I have some misgivings about going down this road. Many of us have made the fairly obvious point of the difficulty of expressing the Committee's employment objective in terms of an unemployment rate as opposed to employment growth. In recent months, we've seen an unexpected drop in the unemployment rate, and there has been much discussion about the causes of that drop and whether it will stick. Attention has been rightly focused on how to interpret the nature of flows in and out of employment and the labor force. I worry that institutionalizing such an intense focus on a single

labor indicator—the unemployment rate—would actually confuse the public’s understanding of the employment mandate. I’m similarly uncomfortable with the asymmetry of specifying the unemployment threshold in terms of a realized outcome while the inflation threshold is expressed in terms of a forecast. While the unemployment threshold is based on observable data, the inflation threshold, by nature, is based on our forecasts—in a way, our guesses—about what will happen. And I worry that this could reinforce cynicism about our motives and has the potential to fuel an inference that the Committee’s true priorities have shifted rather profoundly in the direction of less commitment to low and stable inflation.

In addition to concerns about going down the path of putting economic conditionality into the statement, I’m leery of the 7 percent threshold in option B, and even more so of the 6½ percent threshold in option A. In my view, a 7 percent threshold is getting a little too close to reasonable estimates of the NAIRU. I think the criterion for an unemployment threshold, if we include one, should be that it is high enough that most people will see it as clearly consistent with price stability. This is especially true since the nature of the threshold is that policy is not expected to adjust until the stated threshold is crossed. Given the imprecision in estimating NAIRU, and our imperfect knowledge of the lags in monetary policy effects, a 7 percent threshold makes me a bit uncomfortable.

So I am concerned that by adding these conditional thresholds to our rate guidance, the Committee may, perhaps unwittingly, introduce a bias in the direction of the employment mandate. I think that interpretation is almost inevitable in some quarters and carries the risk of destabilizing inflation expectations. So I would prefer paragraph 3’ in alternative B. But now that I’m a voter, I’m not going to dissent over the language decision in the statement. If the consensus is going to go with the substance of paragraph 3, I strongly prefer 7½ percent. I think

this level is high enough to accommodate a wide range of views on the NAIRU or slack and gives the Committee more flexibility to exercise judgment in balancing these two objectives in varied circumstances. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. I support alternative B. I support using thresholds, including a 7 percent unemployment rate, but feel we need to rework the language before it is included in the statement. I was somewhat surprised that B does not include additional quantitative easing, given the direction that our discussion was heading at the last meeting and the modest deterioration in the Tealbook forecast since then. Given how far we are from both elements of the mandate both in the Tealbook and my own forecast, it is likely we will not be tightening until beyond 2014. To shorten the time period of exceptionally low rates would require either much faster growth than is currently predicted or more accommodative monetary and/or fiscal policy in the near term. If GDP growth is as slow as the Tealbook envisions, and we continue to experience large misses on our mandates, at the next meeting we should consider beginning a large mortgage purchase program to reduce the adjustment period. I support thresholds because they move us in the direction of a statement based on economic outcomes rather than a calendar date. That said, I am concerned that the latest version of the statement reduced the inflation threshold from 2½ to 2 percent. We will be announcing a 2 percent goal today, which should clear up any confusion about our longer-term goal. I am not in favor of language that might be interpreted as making 2 percent sound like a ceiling. Given our current and expected elevated unemployment rate, I believe we need the latitude to allow modest fluctuations of inflation around our longer-run goal, consistent with a quadratic loss function.

In addition, I would not support removing the calendar date from the statement now, for reasons just described by President Lockhart. The SEP, as of this meeting, reflects the expected funds rate path for all participants, with no distinction between voting and nonvoting members. The markets will price in the interest rate path that reflects the expected vote of the Committee. I believe paragraph 3, with a calendar date, maintains this distinction and better reflects the consensus of the Committee than a scatter diagram of our individual interest rate paths. Unless we change the SEP—for example, by distinguishing voters from nonvoters or identifying the submissions—the statement will remain our best way to communicate the consensus of the current voting members, which should include the likely date of liftoff and the economic conditions consistent with that liftoff. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. BULLARD. Mr. Chairman?

CHAIRMAN BERNANKE. Hold on. President Lacker, you have a two-hander?

MR. LACKER. Yes. When you say “voters,” do you mean this year’s voters or those in 2014 or 2013?

MR. ROSENGREN. The voters who would be appropriate for each year they would be voting.

MR. LACKER. Ah, okay. Interesting.

MR. BULLARD. That was my question. Thank you.

CHAIRMAN BERNANKE. Okay. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. As was evident in my memo before the meeting on the early drafts, I was disappointed in the initial drafts of the statements put before the Committee. I think the changes being suggested in alternatives A and B seem to set this

Committee on a path that could be very treacherous to navigate. As we've discussed in previous meetings, I do favor being more transparent about our reaction function, but giving simple triggers or thresholds on unemployment and inflation is not the way to do it. Saying that we'll not change interest rates with unemployment above 7 percent so long as inflation is projected to be close to 2 percent, as Bill English indicated, implicitly embeds a particular loss function and a policy rule into the statement. Yet Committee participants likely differ on their loss functions and their policy rules. I would welcome having a discussion about loss functions and policy rules to see if we could reach some consensus. This could help us decide on a more systematic approach to policy. Indeed, reaching such a consensus would eliminate the need for such thresholds and triggers because our entire reaction function would be better laid out. Until then, I find these thresholds or triggers very problematic. I also note, as President Lacker pointed out, that the language in alternative B appears to be at odds with the Committee's views in the SEP. As he said, nine participants see the funds rate liftoff occurring with the unemployment rate above 7 percent and the inflation rate at 2 percent or less.

But I want to focus my remarks on the recommendation to continue to include the calendar date "late 2014" in the statement. As I said back in August, I believe including calendar dates in the communication is poor communications. It's not well understood by the public. We believe that that calendar date is conditional, but in fact, I'm not sure the public does or fully appreciates the nature of that conditionality. All we have to do is refer to the public reactions and their focus on, would we change the calendar date and how much would we change it and what's going on? As President Lacker mentioned, even in the *Wall Street Journal* today, it talks about our commitment to 2013 or whenever. I think this poses severe difficulties for communications for this Committee.

What is the change since December that's now enticing us to move the forecast of tightening out by 18 months? Do we know the measurable effect of the difference between moving it out by 18 months or 12 months or 6 months or 24 months? How do we choose between these dates and effects? How will we choose to decide in the future when to change this? What are the criteria that we are using as a Committee to pick a date, whether it be mid-2014, late 2014, 2013, or 2016, for that matter? What are we using to judge that decision by? We haven't articulated that. We haven't told the public what's driving us to do that. And we have no measurable quantitative framework for actually even thinking about that, as far as I can tell. So how and when will we choose to change that forward guidance? By changing it at 18-month increments at this meeting, are we sending a signal to the public that somehow the increments by which we are going to change this forward guidance consist of 18 months? Does that mean that the next time we do it, it will have to be 18 months, or would it be 24 months? What's the expectation we're setting up by taking these actions? We're implicitly setting the public's expectations about how we'll behave—I think with a lack of a framework that's going to move it. What are the conditioning variables that are going to make us change it? Does the 18 months come from the SEP? Well, if it comes from the SEP, then we don't need to tell what it is in the statement. What will we need to see to change this? Since the last meeting, the economic outlook hasn't deteriorated that much, and indeed, the path for future unemployment is lower than it was in December. Growth rates of GDP are a little lower due to some of the projections that we have, but what are the criteria, then, that we're using between the last meeting and this meeting to change forward guidance by nearly two years? This is terrible communication. I don't think the public understands it. It's confusing, and it's really not a commitment—and yet we want it to be a commitment. I just think this is the wrong way to

communicate to the public about policy. Using the calendar dates was a bad decision, in my view, in August; I think it's still a bad decision. We've communicated very little about the criteria that we're using to change it, and I think it's confusing to the public. And that's independent of the SEPs.

Moreover, now that we're publishing the SEP projections of appropriate policy, what's the rationale for continuing to put it in the statement? The SEP would appear to dominate it in almost every dimension. It's clearer, it's richer, and it provides more clarity about the nature and the views of the Committee. It reveals more about the uncertainty that the Committee has about the nature of the timing of liftoff, reinforcing the notion that in fact it's not a commitment, and indeed it shouldn't be. Even more useful is that over time, the picture the SEP projections paint will evolve as the economy evolves, reinforcing the notion that there's conditionality of our policy. It will also move more incrementally. Now we're stuck in this mode where we have to shift the forward guidance by a year or more in huge hunks to make a difference, when in fact our views about policy are probably changing more incrementally. And indeed, looking at the distribution of the forward guidance as revealed by the SEP is going to be much more informative about our reaction function and about how our views are evolving over time. Indeed, one of the important elements of the whole SEP exercise on appropriate policy is to be more descriptive about our reaction functions, and it is much more informative than these discrete choices about moving things years in advance, for which we really don't commit. And our forecasts are certainly large enough that we should be careful about making commitments so far in advance. So I think the SEPs are a far superior method for revealing forward guidance than putting in discrete dates and having those discrete dates jump around at various points in time for reasons that we can't fully explain.

I think also that reporting dates in the statement and using the SEPs can present for us a very complicated communication problem. Today, we have the unique opportunity to substitute the SEP for the date in the statement. And indeed, for those who wish to send an easing statement, the SEP in fact reveals that the modal anticipation of many members on the Committee is not just 2014; it actually may be later than that. So for those who wish to send an easing signal, the message in the SEP is perhaps even more favorable in that regard than trying to pick late 2014. The second thing is that if we continue to use both signals, I think it creates even greater problems for us. Suppose, on the other side, that by April or June, the SEP forecasts begin to pull back on the appropriate policy, and it begins to shade back more toward sooner rather than later. How are we going to change the statement? Are we going to say, “Well, no, we’re not going to change the statement because we’re not ready to move it by a year”? How would we explain the differences between the information being conveyed in the SEPs and the statement? We might have to resort to saying, “Well, it’s the voting members who are in the statement, and the nonvoting members are in the SEP.” That just sets up a game where we’re communicating to the public that who is on the Committee matters a lot, and they have to start guessing who are the voters and who are not the voters, because their forecasts may send different messages. That just creates another communication headache for this Committee that will not be productive and will misdirect public interest and public attention away from the messages we want to send and toward confusion about who’s voting and who’s not. And it’s just very bad communications and will cause us untold headaches down the road.

I could go on about the problems this creates, but I think my message is clear. For today, I actually prefer the language of alternative C. For one thing, it conveys a more balanced assessment of the outlook, in my view, than alternative B does. I’m afraid alternative B is going

to be read by the public as a modest downgrade in our outlook despite the fact that the unemployment rate projections are lower. And so I'm very worried that we will be sending a negative signal to the markets if we send a statement that is represented as a downgrade to our forecast. Whatever increases in sentiment that many of us around the table have detected—heaven forbid that I use the words “green shoots”—will surely be choked off at a moment's notice. I think it's time for patience. Patience is appropriate at this point. I would not want to advocate at this meeting for a reduction in the maturity extension programs, as suggested in C, so I would take that part out. I could imagine doing that at some future point, but not today.

And that brings me to the last point about alternative C, which I think is a better view of the economy, and it gets rid of the calendar date. Book B of the Tealbook and Bill English's discussion suggest that alternative C would be a great surprise to the market and represent a tightening. I would point out that in the dealer survey, a number of the respondents expressed the expectation that we would remove the calendar date from guidance in the statement, because it was redundant to the SEP. So I don't believe that removing the calendar date is going to be a surprise or a disruption to the market. And thus, since I'm not advocating suspending the MEP, I think writing up the statement as alternative C, leaving in the MEP but taking out the date, would not be a surprise to the market. And indeed, the SEP would reveal a motivation of this Committee to extend the dates out further, and it actually would be a much more effective statement. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Because I'm in my normal spot today, as opposed to President Fisher's spot, I'm going to return to my normal incoherence. So I apologize for that. My hair is not on fire, but President Evans has got a match pretty close to it.

[Laughter] I'm going to argue pretty strenuously on three points, and probably most strenuously on the first point. I do not think that simply citing high unemployment and low inflation indicates that more should be done. I've argued this before, and I'll try to be more aggressive today on that point. Then I'll discuss thresholds in the statement. I agree with many of the previous speakers that this is potentially quite confusing, both for the Committee and for financial markets. And then I'll discuss calendar dates in the statement, which I have opposed in the past, and with the SEP now, it's not clear that a date in the forecast really means anything compared with the SEP. I've already suggested a qualitative statement that lets the SEP do the talking, and I'll come to that at the end. I have provided language in a memo.

So let me start on the first point, and let me characterize what some of the argument around the table is. This is a characterization—I'm overdoing it a little bit to make a point: “Unemployment is high. Inflation is near target. That can't possibly be the optimal policy, and therefore we must do more.” That's what I'm hearing. Let me make the point that if you look at the memo from Jean-Philippe Laforte, this is patently false. Let's consider the optimal policy exercises that are included in Laforte's memo. This is in the Tealbook. It's called “Uncertainty about the Tealbook Forecast and Alternative Simulations,” and it's the standard memo that we always get. In particular, figure 2 in the memo shows how unemployment and inflation would evolve, according to the model, under fully optimal commitment strategy for the Committee. So at least if you're willing to accept the model, you can't do better than that. I'll come back to the assumptions under the model, but if you accept the model, you can't do better. This is the full commitment solution. In that scenario, unemployment would remain high, and inflation would be about 2.1 percent a year from now. So you would get to 2013, and you'd have inflation pretty close to target, and you'd have pretty high unemployment. If you accept the model and accept

that the Committee was able to pursue the full commitment strategy, then these are the values that would obtain in 2013. And yet, as I am interpreting the argument around the table, many of you would come back to the Committee and say, “Well, we’ve got high unemployment, inflation is essentially at target, and that suggests more should be done.” But that would be a wrong statement in my view, because the most that can be done is already being done, according to that exercise. In that circumstance, in fact, doing more would be making things worse by knocking the economy off the optimal path that’s been calculated. So the point is that simply citing high unemployment and low inflation is not enough to determine whether the Committee is doing as much as possible or not.

CHAIRMAN BERNANKE. President Bullard, people are looking for the memo that you’re citing. Could you tell us where to find it?

MR. BULLARD. This is “Uncertainty about the Tealbook Forecast and Alternative Simulations,” which is the standard memo that we get. It has the scenarios about a lost decade.

CHAIRMAN BERNANKE. I’m looking at the unconstrained monetary policy, optimal control on page 3 of Tealbook, Book B, and it has PCE inflation rising above 2 percent.

MR. EVANS. Yes.

MR. BULLARD. Are you talking about Laforte’s memo?

MR. EVANS. No—talking about the Bluebook.

MR. BULLARD. No—Laforte’s memo.

MR. EVANS. That was only for research directors.

CHAIRMAN BERNANKE. Mr. Wilcox is going to adjudicate. What is the difference?

MR. WILCOX. Okay. Bill, help me out here. I think the closest analog that you should all have in front of you is shown in Book B, on page 3, which shows the constrained optimal

control trajectory. The difference in what is shown in Jean-Philippe's memo is that it also plots the Tealbook baseline, and Jean-Philippe's memo compares the optimal policy trajectory under commitment and under discretion. So what the version that President Bullard is referring to shows is that, compared with the Tealbook baseline, the optimal policy under commitment, which is the same one that's shown on page 3 of Book B, holds the funds rate at the current target range longer—through, it looks like, about mid-2016—whereas the liftoff under the Tealbook baseline, which is driven by the outcome-based rule, has liftoff occurring in late 2014.

CHAIRMAN BERNANKE. Right. So all optimal policies imply inflation above 2 percent. Only the rule-based—am I right?

MR. BULLARD. Okay. I'm looking at this picture, "PCE inflation." In 2013, it's about 2 percent.

CHAIRMAN BERNANKE. Right. But it doesn't project inflation below 2 percent indefinitely.

MR. BULLARD. I'm coming to that.

CHAIRMAN BERNANKE. Okay.

MR. BULLARD. But first of all, to talk about tenths of 1 percentage point on the inflation rate is ridiculous. It's close to target. That's the message of the graph. The basic story is that you're going to observe high unemployment and inflation close to target even under optimal policy. So citing those numbers as a way to say we should do more is obviously not right, in my view. Now, that is not all. Most would say that there are limits to the commitments this Committee can make far into the future. If you try to go out several years, it's unclear how credible you can really be, and even if you try to make those commitments, you make tentative commitments. They may not be credible with financial markets. So the full commitment

solution is not really a feasible outcome, I would say. The best we can do is to approximate that outcome with perhaps optimal discretionary policy or behavior according to a Taylor-type policy rule. If we go to the optimal discretionary policy line in the Laforde chart, there you'll see that inflation is slightly below target for a long period of time. And that's because you can't get the full commitment solution, so you get something that approximates the full commitment solution with the optimal discretionary solution. Again, you'd have the same story. You'd be saying, "Gosh, unemployment is high. Inflation is near target or a little bit below target. This can't be the optimal thing." But it is the optimal discretionary solution. And then again, you might say, "Well, we're not completely optimal here. We've got a Committee." We've got a lot of views. So we're not actually doing that, either. And you just look at the baseline in the Laforde picture, and it has inflation a little bit lower than that.

The good news about these lines is they're not all that different. So even if you're somewhat off the fully optimal rule, you're not that far off of optimal policy. But they all have the characterization that inflation hangs around pretty close to target, within a few tenths of target, whether it's below or above, and unemployment comes down only very slowly. Why is this? What's going on here? Well, in models, you might be able to offset shocks completely with monetary policy, and then you might be able to pull the economy right back to the balanced growth path right when you want to, like next year. But in the real world, you can't do that. There's a lot of inertia, and it takes a long time. So you're always going to be observing this long, slow decline in unemployment and, simultaneously—even under optimal policy, I think—inflation pretty close to target. Again, arguing in those circumstances that we should be doing more, then, would be knocking the economy off from something that's either fully optimal or nearly optimal and getting a worse outcome—from the perspective of the model, anyway. But

that's not all. The same memo also looks at alternative scenarios under an appropriate baseline policy, and as President Evans pointed out yesterday, all of those alternatives involve inflation quite close to target. None of them have inflation going up over 3 or 4 percent. Even if some of these dramatic tail events happen in the economy, we still wouldn't expect inflation to get very far from target, according to those simulations. So I'm trying to state as forcefully as I can that I don't think it's valid to just cite high unemployment and low inflation as evidence that the Committee is way off from where we should be.

Now, there are clear caveats to this argument, but I do not think they invalidate the main point. Of course, the model may be a poor approximation to reality, and in fact, I have often argued that we've got the wrong models and we've got the wrong way to look at the world. That's a fine argument to make, but a lot of the arguments for doing more are actually citing Tealbook forecasts and saying that a reason for doing more is that we're just dissatisfied with Tealbook forecasts, and I think you have to say more than that. You have to say what's wrong with the Tealbook exercise, if you want to make that case.

In addition, as has been mentioned by President Kocherlakota at past meetings, the optimal control exercise involves an objective function, and one might have a different objective function than the one that's used in the optimal control exercise. In particular, you might have different weights on different variables, and that would change what the path looked like, absolutely, and one thing the staff could do is to show how those kinds of calculations differ. I think it's fairly simple to change the weights in the objective function. You could show how those differ. I will say about objective functions, however, that they are not really a free good. In my opinion, or where I come from, you can't just choose your own objective function. You should be choosing the objective function that somehow represents the households that are

supposed to be behind all of this analysis, and what the households would really want. In the New Keynesian literature, you actually do that. You start with the households, and then you build up to an approximate quadratic objective function that takes into account what the households would really want. You have the right objective function if you do it that way. I don't think we should just be willy-nilly going around choosing different objective functions. You should be able to relate them back to the people whom we're supposed to be doing all of this policy for and to the households that are actually in the model. And when you do that, you get objective functions, I think, that are close to the ones the staff is using, but we could argue about that, I agree. But I think that the basic point is that this scenario of high unemployment and low inflation does not mean that it's obvious that we need to do more.

Now, let me turn to the second point—the thresholds in the statement. I advise against doing this, as many have argued here. We're doing a lot at this meeting. We've got our statement of longer-term objectives, which I think is important and will not change things dramatically, but the markets have to get used to that and have to absorb that. We're also putting out the SEP with a policy forecast. That is a pretty significant move on the part of this Committee. Adding thresholds at this juncture is potentially confusing. I've argued strenuously in the past, as strenuously as I can, that connecting monetary policy directly and numerically to unemployment is potentially a colossal error for American monetary policy. Hysteresis in unemployment and structural labor market problems could pull monetary policy off course for a generation, and stunningly, hysteresis is actually what's basically being predicted at this meeting and in this Tealbook, with the unemployment rate coming down only about three-tenths over the next two years. So I'm very concerned that we somehow manage that risk, that we not box ourselves in and never get off zero. Europe has not been below 7 percent unemployment for two

decades—not that I want to go there, but if we go there, I don't want both structural labor market problems and monetary policy problems. If we end up going in that direction, let's work on the structural labor market problems independently of our monetary policy. I'm very concerned about that possibility. We have not experienced unemployment at this level in the United States for a long time. It's not going well, as many of you have stated. I'm just saying we should not tie ourselves numerically to that. I'm not saying we shouldn't pay attention to the labor markets; of course, we're going to pay attention to the labor markets. I'm just saying, don't tie our fate to what happens in labor markets, because we don't know what's going to happen, and the experience has been bad in the G-7 over the last two decades.

Let me put on my dovish hat for a minute, as I sometimes do. From the dovish viewpoint, I'm not clear what the 2 percent threshold will mean. I think that could easily be interpreted as President Rosengren has said: "Gee, anytime inflation is above 2 percent, the Committee has to take a more hawkish position." That does argue that we need to think this through a lot more before we go with these thresholds. I'm not sure what the answer is. I've not been a fan of this threshold argument. I don't think it pops out of anything that I'm aware of. It's an incomplete way to describe our reaction function. We should think about it more and think about more complete ways. Ironically, we have a more complete way, which is the SEP, and so let's let the SEP do the talking for this meeting. That makes me not in favor of alternative B, paragraph 3. As far as 3' is concerned, it's okay, except it still has the calendar date in there, and I've argued against the calendar date as well. To me, this meeting is the opportunity to get rid of the calendar date in the statement and get rid of the problems that many people around the Committee have talked about—how cumbersome it is to put in a calendar date, have the data change on you over the next two meetings, and then be in a quandary about whether you should

try to change the date again or leave it where it is. If you leave it where it is, you look as though you're not paying attention to the data. If you move it around, people aren't quite sure what to make of it. So I think it makes it cumbersome. This is a great chance to get rid of the calendar date, in my view, and again, let the SEP speak. You've got a rich description of the views on the Committee. You've got a clear median. You've got some nutcases like me who put in other things, but you've got a clear median there, and I think markets will appreciate the description.

I support none of the listed alternatives. For me, they didn't span the space of the possibilities here. I did suggest my own alternative, which does look like alternative B. It's B(3), but it takes out the thresholds and replaces them with the following language for the second part of B(3)—this is in the memo that I distributed to the Committee. The language says that this “exceptionally low range for the federal funds rate will be appropriate at least as long as unemployment remains elevated, the projected inflation rate (as measured by the price index for personal consumption expenditures) remains subdued, and longer-term inflation expectations continue to be well anchored.” And I think that that's a big enough tent to get a lot of people under the tent. “Elevated,” then, would be a topic for debate among the Committee—what does “elevated” really mean? “Near-target” or “subdued” inflation? But you'd have the SEP, which would give the various members' views on that. So that's my suggestion for today, Mr. Chairman. Thank you very much.

CHAIRMAN BERNANKE. Okay. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. As I said yesterday, many workhorse models say that real rates should be substantially lower, and your comment earlier with regard to liquidity traps is just another example of that. We can certainly quibble over every single analysis of those models, but the broad implication across these economic analyses is clear,

certainly to me. With resource slack substantial and inflation projections well contained and below 2 percent, I favor more accommodation today.

It's not out of character for us all to do what I'm about to do here. I'll start with my wish list first. My preference would be to substantially improve our forward guidance with more economic thresholds. I've talked about this at length, and it's well beyond what is contained in the alternatives today. Something like 7 percent on the unemployment rate—frankly, even 6½ percent—with an inflation safeguard seems quite fine. I would prefer 3 percent as the safeguard threshold for total PCE inflation over a three-year projection period—that's medium term. Now, you may say that's problematic given that the SEPs were just put out, and they don't encompass that at all. There's a very nice chart in there that shows—here's our liftoff date, here's what the unemployment rate is, and here's where the inflation rate is—that a substantial number of participants have liftoff with higher unemployment rates and lower inflation rates. Well, actually, that's just fine. This would then be interpreted as more accommodation. It would be a choice by the Committee, if it were undertaken, as more forward guidance, more accommodation. Then, given that the Committee takes on board that true guidance, it would be the setting for the projections in the next set of SEPs. I think that it would be completely in keeping with what we do for our SEPs, and it's another way that this could be a very useful tool. It's workable. It's clear.

But clearly, there are no takers here. I've made this offer before, and since that better course is not likely to be embraced, today I would favor more large-scale asset purchases. We talked about commitment problems. I think that this is another way to demonstrate commitment, and frankly, I would do it in a substantial fashion, in a way that is in accordance more with the type of forward guidance that I think is appropriate. I'd be thinking more along the lines of

\$600 billion of asset purchases over the next six months. If we can't do that all with MBS, then part of it could be Treasuries, but something that indicates that we are committed to providing more accommodation—and a clearer indication that more is coming on a meeting-to-meeting basis after that if things aren't actually improving. I would provide an indication of what we mean by “improvement” as well as some indication that if the one- to three-year inflation projections modestly exceed our upper tolerance, then that would be a reason for pulling back and changing direction. I think we need some type of safeguard like that. Almost as an aside, I really think we cannot much longer avoid describing our attitudes toward inflation rates above 2 percent. We are somehow going to have to describe what we think if our inflation projections are  $2\frac{1}{4}$ ,  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ . I think that a lot of the difficulties we are running into concern what “near 2 percent” means, and we have to describe that. President Bullard and others mentioned that we're not very good at forecasting and so one-tenth, two-tenths doesn't make much of a difference. Let me assure you, if we come in with inflation forecasts of 2.3 percent, people will be talking about that. In terms of those projections, a couple of tenths matters.

With regard to the conditioning statements in alternatives A and B, I prefer the 3' that uses the calendar date for late 2014. The current language on conditioning just isn't ready, in my judgment. It's certainly not close enough to anything that I like. As it reads now, in fact, I fear that it would be interpreted as an implicit policy tightening. I agree with President Rosengren's concerns that just mentioning a one-year horizon—even if you're also thinking it's got a long horizon in there, too—allows people to be concerned about incorporating oil price projections in there. For reasons that are a bit idiosyncratic to the way that we've conducted our communications, I'm also bothered by this language of inflation projections “below or close to 2 percent.” That could be interpreted as setting 2 percent as a ceiling. I think it's a focal point,

and the framing for that is going to be the Chairman's language in the past that our objective is "2 percent or a bit less." The actual language may be different than that, but I think that is the frame that people will bring to it. It mentions "below" 2 percent, which seems obvious to me, so I'm not quite sure why that would even have to be mentioned. I think we really need to somehow be able to formulate a construction like "as long as inflation"—we would get out of this "if inflation was above some threshold X," whatever that number is. That's why I think we need a better discussion about our attitudes toward inflation. And then, frankly, I don't think the unemployment rate guidance is helpful here, since we have such a currently low inflation projection threshold. Seven percent is a pretty high number, and 7½ percent is very high. What if our inflation projection were 1.8 percent; and what if we changed it and said, "As long as the unemployment rate is above 7½ percent?" And then suppose we found ourselves with a 7¼ percent unemployment rate and inflation projections of 1.8 percent. I understand it's a threshold; it's not a trigger. I understand that there are other conditioning statements involved, but frankly, I think people would jump all over that. It risks giving the appearance that we somehow dislike employment. It just is bothersome to me.

Again, I think the focus needs to be on the inflation projection and expectations, and that we're going to continue to provide accommodation until economic growth is strong enough, until unemployment and resource slack are lower. So for myself, to my way of thinking, keep pumping accommodation until resource slack falls dramatically or we know inflation is gaining momentum and rising to an upper tolerance range. We used to talk about inflation in the 1½ to 2½ percent range, when we'd centered our expectation on 2, but once we started talking about our explicit objectives and whatnot, we dropped that upper part of the range, and I think that that's unhelpful.

Finally, on our communications rollout, I think our SEPs make clear, as I said yesterday, that we're undershooting our employment mandate for a long time, and inflation is undershooting our inflation goal. That greatly bothers me. I think the "balanced approach" language in our framework statement clearly contemplates overshooting. We didn't discuss at any length Governor Tarullo's language on overshooting. I personally thought that that was perfectly good language, but I know from our discussions that that's not something that many members wanted to put into that statement. But I thought it was implicitly pretty well understood that that was the case. For example, we know that if our inflation projections were 3 percent and the unemployment rate was 4½ percent, we would be willing to raise the funds rate quite a lot and allow unemployment to go well above 5 percent, or whatever we think the natural rate of unemployment is, in order to get inflation down. We contemplate overshooting on that margin all the time, and we greatly admire Chairman Volcker for being willing to do that under very difficult circumstances. I think that's what "balance" means. So I'm kind of flummoxed that we don't think about this the same way in terms of overshooting inflation when our real-side mandate is not doing very well at all. I frankly do not know how to explain what "balanced approach" means relative to the SEP projections that we are going to publish in just a few hours, and Mr. Chairman, I think we need somebody to explain to us, to explain to me, how to explain that without causing a lot of confusion. I need some help on that. And you said something yesterday, which—maybe that's the right answer. I don't know if anybody is willing to say that, but the question to me is, is this balance? And if it's not, is it because we're unwilling to do that? Or do we think we're powerless? If we don't have the tools to do it, I think somehow we have to explain that to people, but I think that we have to continue to try as hard as we possibly can. Thank you.

CHAIRMAN BERNANKE. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. Because I view the outlook as largely unchanged over the last few meetings, I see no need for the additional accommodation through our balance sheet as described in alternative A or for the further easing through the date extension in alternative B. In addition, now that we are providing projections for the path of the federal funds rate, I, like others, think we should use this opportunity to revisit the nature of our forward guidance from the FOMC statement. In particular, I would prefer that policy not be tied to the calendar or to specific thresholds for unemployment and inflation. Rather, we should set policy as described in our consensus statement based on our longer-run goals, our medium-term outlook, and our assessment of the balance of risk, including risk to the financial system. This strategy necessarily involves consideration of broader factors than suggested by language that emphasizes a date or threshold levels for unemployment and inflation. With respect to the thresholds, I am particularly concerned about establishing a threshold for unemployment. We simply do not have reliable estimates of the extent to which unemployment is structural versus cyclical today, much less several years into the future. Finally, I continue to believe that our problems are not readily amenable to further monetary policy solutions without potential tradeoffs for low and stable inflation down the road. I expect that the current softness in inflation will be short lived and that by the end of next year, we'll see readings closer to 2 percent. I also continue to worry that additional action intended to speed improvement in the housing and labor markets could have unintended consequences in the longer run. Thank you.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Mr. Chairman, I am in complete accord with President Evans but also with President Williams and with President Plosser and President Bullard and President Lacker.

[Laughter]. I'm in accord with President Evans and President Williams because I do disagree with the conditionality that is stated in B(3).

First, let me just quickly summarize that in terms of alternative A, I would be against additional purchases, and I think we would create a firestorm in terms of those who scrutinize us politically. I don't think it's necessary economically, and it would be unwise, particularly given that, if I counted correctly yesterday, eight of the interlocutors who spoke pointed out that conditions were a little bit better in the economy than they had been before. One was neutral—that is, Vice Chairman Dudley was somewhat in between. So we had, if not a majority, certainly a fairly even count. That indicates to me that things are not worse than they were before. We all have concerns. I thought there were some very eloquent statements by Governor Tarullo and by you, Mr. Chairman, with regard to “beware of false dawns.” We've seen them before, and we must be wary. But I would say, on balance, that it would be a mistake to add to our portfolio at this juncture.

With regard to alternative B, I agree with the suggestion that the wording in the first paragraph of alternative C is much more appropriate in describing how I see the economy. Unless we have some good information about a new impending shock—we are all on the balls of our feet, perhaps, expecting one—we have no new information about the economic conditions in Europe. I worry that option B as it's written would unintentionally talk the economy down, just as businesses—as we heard through not only anecdotal evidence, but also from the eight people who summarized their views of the economy—appear to be becoming slightly—and I stress the word “slightly”—more confident. My concern with this whole exercise, however, is message management. We're doing a lot of things at once. I want to correct one misimpression I think you have, Mr. Chairman. You were very kind yesterday to mention my reference to forward

guidance as viewed in the corporate community. Of course you plan, of course you forecast. The issue is making it public and what traps that creates.

Having said all that, we are going to make public our projections, our SEP. I may not value that as much as others at this table, but it is an exercise we're undergoing. I believe that should substitute for the conditionality and for the date that we place in our statements in terms of our policy alternatives. I also think there are concerns about contradictions with our long-term goals and policy strategy statement if we get into the specifics that others from a different viewpoint have expressed concern over. We do talk about a 2 percent longer-term rate, and I had suggested some language, were I to go along with statement B, that might soften the way it's currently written so we don't get locked into the short term. But we also say in paragraph 4 of our longer-run goals and policy strategy, "It would not be appropriate to specify a fixed goal for employment," and yet in paragraph 3 of alternative B, what are we doing? Laying out a specific number—7, 7½ percent for the unemployment rate, which is just the mirror image of employment. So I think you could create confusion in the marketplace here. I'm worried about simple message management.

We have taken significant steps with the statement of goals and policy strategy. Not 100 percent of us are on board there. I was somewhat sympathetic to the arguments Governor Tarullo made, but that's the decision that was made. Laying out our strategic goals helps frame our actions and expectations overall. And now we're going to release the new SEP. I think that's big news. I think it indicates, as I like to call them, the best guesses—forecasts are guesses—of the Committee as to when we think we'll have a takeoff point. I think these two exercises give markets and others plenty to discuss and to digest and can set the stage for any tactical adjustments for policy at our next meeting in March. At that point, we'll have much

more information about whether the recovery is proceeding as some of us perceive, whether or not the situation in Europe is worse or becoming dire, or whether we need to react to some financial event that we should, as central bankers, react to.

So, Mr. Chairman, I would advocate, if I had a vote, taking the language of the first paragraph of alternative C, not referring to the date in 3', but utilizing 3'; and I would also, as a footnote, always include that "the Committee will continue to pay close attention to the evolution of inflation and inflation expectations." I think that to take that out now doesn't get us very much. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. In my role as an adviser and provider of input to the voting members of the Committee, I am going to offer some comments on alternative B. The first comment—and this builds on President Bullard's remarks—is about the mapping between the forecast and the need for accommodation. And if we go to page 3 of Tealbook B—I haven't read the Laforte memo, but I'm sure my research director has [laughter]—and you look at the path for the constrained optimal solution that has the unemployment rate greater than or equal to 5 percent through 2016 or so, and inflation really always around 2, never larger than 2.3 percent, you might well come to this and say that it's unconscionable that unemployment be as high as this for so long, and that the Committee should be doing something more about it. But this is what's optimal. And why is it that this is what's optimal? Generating more inflation later on in the decade is not really going to be helpful in terms of lowering unemployment today, within the context of this model. There might be other models where it would be helpful, and we should have a discussion about which model we like. But just looking at the forecast alone, saying that we're going to be near target in terms of

inflation and that unemployment is going to be well above target—that doesn't tell you enough. You also have to have some notion of what the mechanism is that's going to be generating the tradeoff between more inflation and how much is that going to buy in terms of reductions in the unemployment rate in the current environment.

I was asking Brian about capacity constraints, and this ties back to my remarks yesterday about longer-run deflation risk. I think that that's something we should be keeping in mind. Do we really want to be maxing out on accommodation? Now, what does "maxing out" mean? You can always push out the interest rate further. You can promise to keep it low until mid-2014 or late 2014. It could be late 2020, I guess. But there's a point where you start to feel as though you're hitting diminishing returns on that. And I think Brian gave a very nice description of the capacity constraints that we are facing on purchase programs. He was careful not to give a hard number, and it was appropriate he did not. But I would translate what he said into, something on the order of \$1 trillion at a pace of \$40 billion a month represents something like how much we have left to do on that front.

Those are just some broad statements about how we should be thinking about accommodation. So let me get slightly more concrete—I'm going to talk about the thresholds in the statement and in paragraph B(3). I've gone back and forth about this. I'm very much in favor of our communicating something about our reaction function, but I feel that the thresholds really aren't saying very much. We have done simulations in Minneapolis, and I think this was confirmed by work done here at the Board: The impact of the thresholds depends critically on what happens after they're hit. It's going to depend on whether President Plosser or President Evans gets to pull the levers at that moment in time. We have to do a better job. What we should be communicating is really about our reaction function as a whole, not about these bits

and pieces. So I think we should be working toward forming a more holistic view of this issue—what sort of loss function do we want to use, and what does that imply about our reaction function? And we should be thinking about what's the best way to communicate that reaction function to the public. The benefit of the statement, as I'll talk about in a second, is that it is a vote by the Committee of what policy should be. The problem with the statement is that it's pretty compressed. It's a little hard to communicate as effectively as we might like about the full range of our reaction function. But I hope we can start to try to work on what the right way to solve that problem might be. We can certainly offer more guidance in the minutes, for example, about what our reaction function might look like. So I would say that for now, between B(3) and B(3'), I'd prefer B(3') because I think the thresholds say so little about the policy, about how much stimulus we're really offering, and they don't tell us very much about what the Committee is planning to do once we get there.

So now let me close by talking about the Summary of Economic Projections. I was actually pretty concerned to hear a number of the remarks being offered about this—that the Summary of Economic Projections can be a replacement for the statement. This was actually a concern I had about releasing the projections, and I was not in favor of releasing the projections of the federal funds rate in their current form. I don't think it serves us well to be trying to communicate in this way about our separate views on what we would do if we happened to be in charge of monetary policy over the next four years or into the long run. What forward guidance should be about is a policy decision by the Committee, the voting members of the Committee, on what's the likely path of policy going forward. I don't think the SEP is that, and that's not what the SEP is about at all. So in fact, I would argue almost the exact opposite as some people around the Committee have offered. I think that having the fed funds rate projections in the

Summary of Economic Projections means we have to have a date in the statement, because otherwise, people will be confused about the SEP actually being a policy statement, which it cannot be because it has not been voted upon by the Committee. So I would say we have to have a date in there. I'm not a voter, as I said. I would actually advise saying "mid-2014" as opposed to "late." And one reason for that is simply, it comes back to this issue about what we're going to do when we hit the thresholds. If you say "late 2014," it looks as though the Committee is planning to raise rates relatively rapidly when you hit the thresholds, because the median is something like 75 basis points at the end of 2014. So you're actually raising rates fairly rapidly once you start to raise rates. If you put that into models and think about that, people are going to be thinking that as soon as you hit these thresholds, you're going to raise rates rapidly—that's actually cutting back on the amount of accommodation you're providing. That's a delicacy; it's not something I'm hung up on. But I do think we have to provide some formal guidance in terms of dates. I would prefer, as I've argued before at the meeting, for durations. I would prefer to be saying—let me see where we are: late 2014, three years. That's something like 11 to 12 quarters. I think a quarter is something we could adjust as we go on. It corresponds to what we usually do—the setting of our policy stance is adjusted to what economic conditions are. Now what's happening is, we set a date, we keep it fixed, and then we're automatically tightening as we go forward. If we were to keep a duration fixed, then we're not automatically tightening as we go forward, and I think that would be preferable. But I've been told this is a losing battle, so I won't spend any more time on it. Thank you.

CHAIRMAN BERNANKE. That's a good example of giving up a losing battle, because most people don't follow that. Governor Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I support alternative B, and for reasons I'll explain, today I prefer version 3', the simple extension of the calendar date, to version 3, the threshold approach. I indicated in the economic go-round that I project unemployment to still exceed NAIRU by around 2 percentage points at the end of 2014 and inflation to run persistently below our 2 percent target over the entire forecast horizon. Based on optimal policy simulations and the recommendations of a variety of rules, I conclude that the outlook plainly justifies additional policy accommodation. And hence, I support the inclusion of language indicating that policy is likely to remain highly accommodative at least through late 2014. We talked yesterday about the large uncertainty surrounding our forecast. "Late 2014" isn't an ironclad promise. So if the economy recovers very quickly, we will retain the option to tighten policy sooner if we think it appropriate. Nonetheless, I would note that, as shown on page 86 of Tealbook A, the 70 percent confidence interval for the unemployment rate generated by FRB/US simulations is 6.5 to 9.1 percent. In other words, that confidence interval lies well above the entire range of Committee participants' estimates of the longer-run normal unemployment rate. Put another way, this confidence interval suggests only a very slim chance that the economy will grow rapidly enough to close the unemployment gap over the next three years.

In the projection that I submitted, I deemed it appropriate to hold the funds rate at zero until late 2015, when I anticipate that the unemployment rate will decline to about 6½ percent and inflation will still be under 2 percent. My projection also incorporates a program of MBS purchases along the lines of alternative A. I will not advocate moving in that direction today, but I do think such a program deserves serious consideration in the coming months unless the outlook improves. And if we move in that direction, I am open to either of the approaches in alternative A, but I see significant advantages, given the uncertainties pertaining to the outlook,

in the open-ended, or Bullard, approach. Holding the funds rate at zero until the unemployment rate has declined below 7 percent, under the assumption that inflation remains under or near our 2 percent target, is, as I mentioned, a strategy I judge appropriate in light of policy rules, optimal policy simulations, and research concerning the appropriate response of monetary policy to the constraints posed by the zero lower bound. As Bill noted, such thresholds for policy tightening are only slightly more accommodative than those implied by Taylor's 1999 rule, with a NAIRU of 5½ percent and an equilibrium funds rate of 2. These thresholds are less accommodative than the ones implied by the optimal policy path in the Tealbook. In my view, additional stimulus over and beyond that called for by the Taylor(1999) benchmark is appropriate when monetary policy has been so long constrained by the zero lower bound. Substituting future policy accommodation for the easing that would have occurred in the absence of the lower bound is a strategy that was studied by Reifschneider and Williams, and I believe it's appropriate to promote a somewhat stronger recovery, and I think it's also called for in response to the asymmetric downside risk to the forecast.

Any outward shift in market expectations concerning the date of funds rate liftoff will very likely be accompanied by a shift in expectations about the path of the Fed's balance sheet. In particular, our exit strategy statement indicates that asset sales will not commence until sometime after we start raising the target funds rate. Thus, if market participants push out their expectations concerning the liftoff date, they should also anticipate that our balance sheet will stay larger for longer. That mechanism will tend to amplify the overall benefits of modifying our forward guidance to provide more-accommodative financial conditions. For example, if the Committee adopts alternative B, the expectation of policy firming in the first quarter of 2015 would be about six quarters later than investors had been anticipating just a few months ago, and

the corresponding postponement of balance sheet normalization could reduce the term premium by around 6 to 12 basis points. This effect is only a bit smaller than the estimated impact of the maturity extension program. And this influence would be worth even more in gauging the difference between alternatives B and C.

I said that of the options on the table today, I support alternative B, with option 3' rather than 3—a preference that may seem surprising in light of my previous comments and past support for the threshold approach in 3. So I do want to emphasize that I continue to support very strongly the threshold approach—I agree entirely with President Evans's comments on this—and I hope very much that we will be able to work on this. I do think it's important for us to provide insight about the economic conditions and our reaction function that would govern our conduct of monetary policy in the future. I think it's clear that the language we have today in 3, given all of the concerns that have been expressed about it, is something we need to think more about and work on and discuss in future meetings. So I conclude that for today, the wisest course is to keep things simple by pushing out the calendar date from at least mid-2013 to at least late 2014. Option 3' does provide additional monetary accommodation. Expectations of such a change may be partly embedded in market expectations already, but late 2014 may be a bit later than markets now anticipate. My preference for 3' rather than 3 today also reflects a recognition that the communications challenges we will confront, if we adopt a formulation along the lines of 3, are formidable. Market participants would need to understand the distinction between thresholds and triggers, the meaning of the phrase “below or close to 2 percent,” and how that threshold relates to the 2 percent inflation target. They would need to reconcile the forward guidance in the statement with the SEP projections and the consensus statement, and I think this is a bridge too far for today. I would not want to threaten the success of our other important

communications initiatives. But adopting B(3') today should not preclude our elaborating forward guidance at a future meeting.

Finally, I want to say that with respect to the approach embodied in option C of simply eliminating any forward guidance in the statement in favor of allowing market participants to draw inferences just based on the SEP, I want to associate myself very strongly with the comments of Presidents Lockhart and Kocherlakota. I have supported publicly supplying policy projections in the SEP to provide greater transparency about the diversity of views in the Committee as well as the assumptions that underlie the economic projections that we've long been providing to the public. But I feel it is incumbent on the Committee members to form a collective policy judgment and to communicate that judgment to the public. And I think that that's something that we absolutely have to do in the statement, and the SEP is absolutely no substitute for that. I would point out that often in the statement, we do make statements about the Committee's views on the evolution of unemployment or inflation, and they may differ from what people would see in the SEP as well. So to me, a poll of all participants is simply no substitute for a collective Committee judgment, and that's an approach I could not support.

With respect to B(2) and the bracketed language, I would prefer to eliminate it on the grounds I think it's no longer needed.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I support alternative B with paragraph 3'. And for the most part, I agree with President Lockhart and, in the interest of time, won't repeat all of his points. But I think the one where he said that the statement is policy, which is subject to a vote, and that the SEP is supplemental information is a very important point and does bear repeating. With paragraph 3, when I originally read it, I was concerned that the simultaneous

publication of this statement, along with the consensus statement, and having originally 2 percent inflation in one document and 2½ in another document, and then having a range for unemployment and then another number for unemployment, all in the same day, seemed likely to me to create quite a bit of confusion as to what we were actually talking about. So I came in here thinking “not yet” for the conditional threshold language. After listening to the discussion, I now believe that “not yet” is “not possible”—that it’s not possible to find agreement on this language and possibly not worth all of the disagreements over both language and levels in here. The Chairman raised yesterday a question of whether we are now powerless, and I don’t think we’re out of tools, but certainly our arsenal is greatly diminished. Because it’s so diminished, I think we have to get maximum effectiveness out of every tool we decide to deploy. And if communication is going to be a tool that we’re going to use, then the simplicity, clarity, and consistency of that message is, I think, key to its effectiveness.

On the other potential tool, which is additional purchases of MBS, I’m not opposed to them as a tool to be deployed, but before we start an MBS program, we need to think about how we can time it to maximize its effectiveness. We’re already seeing some effect just from the expectations that we may at some point in the future resume MBS purchases, and I think we should get the maximum effectiveness out of that. Also, there may come a point where the data are more obviously disappointing than they are today. And if so, then the purchases also have a signaling value in that they signal our determination to act to further ease policy. And then finally, while I appreciated all of the analysis of the possible effect of MBS purchases, it didn’t include any mention of the current obstacles to transmission of low rates in the mortgage market. Tight credit conditions are still a problem. Limited origination capacity might not be enough to accommodate newly eligible borrowers who want to refinance, as well as others who want to

refinance again, and new purchasers. So I think we need to pay attention not only to the spread between Treasuries and MBS, but also to the spread between MBS and actual mortgage rates in the marketplace. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I'm tempted, in going through my points, to just indicate by reference the colleague who already made the point. And so I can do that with Governor Duke on communication and MBS, President Kocherlakota on collective versus individual, and a whole plethora of you on the issue of the conditionality in paragraph 3.

I'm not really happy with any of the alternatives that are before us. I should start by saying that I wish what we had had today, and even yesterday, was a discussion, as Betsy was just suggesting, of MBS—or, for that matter, Treasury purchases—with, before us, the kind of information that Narayana was suggesting in his questions to Brian earlier and an assessment of efficacy. Is this really a case in which we need to understand ourselves as not having considerable optionality going forward, but having to make some choices that don't really have returns? As Betsy was just suggesting, I wish we had been able to discuss the intersection between the action we take and nonconventional monetary policy transmission mechanisms—which is to say, how the mortgage market is or is not operating right now. I'm not saying necessarily that we'd have been in a position to take action even if we had that discussion, but we didn't. I hope we're going to be in a position to do that in the next meeting or two, and I guess it is incumbent on us, as well as the staff, to prepare for that.

With respect to what we've got in front of us, we put ourselves in a bit of a box here with the initial date. It was not only predictable, it was predicted—that we were going to create this issue for ourselves later on as to what we do about that. So I guess since Narayana gave up,

there's not much point in my agreeing with him, but I agree with him anyway on the use of quarters and that the time to do it, of course, would be when you have to make a change anyway. But I guess we're not doing that. We do need to do something, it seems to me. I think we are implicitly tightening right now, although since the markets expect a change, we're probably not seeing that in reality. But if we go very much longer without making a change, it will be a tightening. So I would favor 3' in alternative B as the best of a not particularly appealing set of options right now.

I did want to say one more word on the projections issue. Narayana and Dennis made the points, I thought, very well, but I did want to add the fact that for other central banks that use projections, and where projections become at least a complementary form of forward guidance, there is a collective process. And we have no collective process at all here. And so Dennis's point about that, which Narayana echoed, is that a collective decision is very important ultimately. However, even in the projections, we don't have the kind of discussion that makes people try to align themselves around one or two or, I guess in some cases, three different options. Instead, we have a scatter point analysis now, which provides some information, but I don't know how useful it is as a matter of understanding where the Committee may go in the future.

Finally, on communication—again, Betsy made the point, but I would just say I think the aim here is effective communication, not maximum information. And I do fear right now that we are drifting toward this notion that somehow more information of whatever sort is always better. I don't think it's a question of transparency or not, but it's the same phenomenon that we all experience with the Internet. Does one feel better informed because one has a massive amount of information available to you, which is unfiltered, and no one has tried to put it

together and distill it and figure out what, in some sense, is actually going on? And I fear we're drifting a bit in that direction. That's why I would have, at the very least, delayed a consensus statement. And I must say, the discussion today makes me wonder about the concept of consensus behind that statement that you all voted on yesterday. But I would have at least delayed it so that there's an ability to gauge the reaction to the SEP, to make adjustments, perhaps—again, in line with questions Narayana has been asking about it—over time, and then, in a step-by-step fashion, to try to provide additional information.

I'm going to end with a plea, which I know is a plea that will be made in vain, that people not take the opportunity of the vague language of the consensus statement to immediately go out and offer their own interpretations of what it means, because this is what I fear has happened all along, and I've already seen some of it—the speeches that have been given even before the statement was adopted. I was asked by someone—and I couldn't answer because it's something within the FOMC—“You guys have multiple statements that you're considering right now?” And that's what the three different speeches reflected—three different statements. I do fear that that is just going to complicate the communication efforts even further. So again, with a plea that I know is in vain, it would be good if we could let the Chairman initially try to provide some elaboration and maybe let markets and analysts and others try to figure out what it all means. And maybe, if we're lucky, they will come to the conclusion that this does illuminate somewhat what we're doing. But if we all go out and say what we think, it's going to sound like the conditionality discussion here, and that does not suggest there's any consensus whatsoever.

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Raskin.

MS. RASKIN. Thank you, Mr. Chairman. Before I would be ready to take any contractionary steps, I'd like to see more-sustained improvement in the fundamental drivers of economic growth. As I noted yesterday, one fundamental driver that particularly concerns me is real disposable income, which actually edged down in the second and third quarters, not up. These weak income data suggest that the growth in consumption that we have seen will have to be supported by credit growth, and without large jumps in consumer confidence or household wealth, I think rapidly rising credit would not be particularly desirable or sustainable. So consumption and growth could sputter out. Until we move away from a sputter-out possibility, I'm not inclined to begin contractionary steps.

In terms of more Treasury purchases or purchases of mortgage-backed securities, they may be necessary to push the economy onto a more durable recovery path. My issue with employing them now has less to do with whether the economic outlook is sufficiently gloomy for us to decide on such steps and more to do with whether our analytical rationale is sufficiently capable of explaining to a suspicious public how such a program will promote economic growth. I want to be careful about being glib about this hurdle. We are not in the realm of the conventional. We are in the realm of the unconventional, and the unconventional means that we have to be as absolutely precise in our understanding of the transmission channels as we possibly can be, and we must figure out the best ways to describe to average people how these transmission channels work when we engage in unconventional action. For example, in the realm of MBS purchases, where there are a variety of securities that could be purchased with different coupon rates, we want to be very clear among ourselves what the various propensities to refinance are at various coupon rates. Then we would want to think about how we trace these findings into both the sequencing of the purchases and the description of the purchases so that

the homeowner whom we are ultimately hoping will react will, in fact, react in a way that promotes a better alignment toward our intent in engaging in MBS purchases.

For now, I support alternative B. While I support paragraph 3' for this meeting, I think a structure similar to the first version of paragraph 3 has some desirable features that should not be overlooked as we continue to consider the use of our tools. First, I think that the three conditions that have been articulated are probably the closest we can get to the correct conditions to focus on: the unemployment rate, the inflation rate, and the state of long-term inflation expectations. The first two conditions line up—not perfectly, but as close as we can get—with our statutory mandate. Including inflation expectations also seems important if we're going to say that inflation should remain close to, say, 2 percent rather than below 2 percent. I like the flexibility that the “close to” language allows, because I think we should be open to allowing inflation to temporarily and modestly be above the number we choose, but including well-anchored inflation expectations makes it clear we would not tolerate much more than that. I also like that the clarity of the conditionality would encourage an automatic response in market participants' expectations. In other words, as conditions change, the markets have instant and contemporaneous information about whether the federal funds rate path is likely to change. Determining the correct numbers is a serious question, but one that I think would be worth our effort to continue to consider.

Finally, I want to briefly address any move afoot to make the SEP substitute for any elaboration of forward communication in our FOMC statement. It's worth noting that from a governance perspective, it would be misleading, if not statutorily prohibited, to permit the lines between voters and nonvoters to become fuzzy. As noted by President Lockhart and President Rosengren, President Kocherlakota, and Governors Yellen and Duke, the SEP is prepared by all,

but the FOMC statement is not. Equally fundamentally, forward guidance is a tool, and it belongs in the FOMC statement. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. I favor alternative B. Within that alternative, I would be more inclined to paragraph 3 than paragraph 3' because paragraph 3 gives guidance on the types of conditions that would need to be in place before we likely consider raising the federal funds rate. Having those threshold conditions then forms the basis for the date of liftoff, late 2014 in this particular case, and I'm going to explain why I think that's a better way to go. That said, I recognize that B(3) is not going to happen at this meeting, and as Governor Duke has expressed, it may not happen at any meeting. I think there are four problems that have been identified with the approach in B(3). One, the language isn't clear enough about whether these are thresholds or triggers, and so people are uncomfortable with that. Two, the thresholds are an incomplete description of the parameters that would actually define the Fed's reaction function. Three, there's disagreement about what the parameter value should be—7½ percent versus 7 percent for the unemployment rate, for example. And, four, there are some people who just don't like the emphasis on the unemployment rate as a threshold, in any case. So I'm not sure if we can get there or not. If we can get there, that would be a good thing. If we can't get there, though, we need to explore other ways of communicating this information because this is useful information.

Relying just on a date, I think, is inadequate in terms of how we communicate to the market, and there are three sets of problems. One, relying just on a date raises questions. Where did the date come from? What's the basis for this choice? You're basically forcing people to figure out what the thresholds are themselves, when in fact we could provide more clarity by

providing some guidance there. Two, communicating thresholds makes the process more dynamic. If the data are strong and this makes it more likely that the unemployment rate is going to fall more sharply or that inflation is projected to climb above 2 percent more quickly, then market participants will change their assessment of the likely timing of liftoff, and we'll do the same thing as our projections change. I think this is good because it makes the date more fluid. It changes as the outlook changes. This makes us less locked into the date than we are currently. I note that the date has not been fluid under our current approach. We've been operating with the middle of 2013 since August, and I'm uncomfortable with the fact that we're going from the middle of 2013 to late 2014 all in one jump. It seems to me that as our outlook changed, that should have been a more continuous adjustment. Three, I also think providing information about our reaction functions is important in terms of the benefits of reducing uncertainty and risk premiums. Of course, there's still the uncertainty about the economy's trajectory, but to the extent we can make it less uncertain about how we're likely to react to the economy as it evolves, that has to be viewed as a positive outcome. So we should still work on this, see if it's actually possible to put in the statement.

If it's not possible to put in the statement, we should try to find other means of communicating this same thing because this is something that the markets want to understand, and I don't think the SEP is a substitute for this. As people have said, one problem is that it represents participants, not voters, but there's another problem with the SEP. We're not actually providing forecasts in the SEP. We're just providing a collection of unemployment projections, GDP projections, and interest rate projections that are amalgamated in this very odd way, which also makes me uncomfortable with using the SEP. Second of all, the SEP is not a Committee

view. It's a collection of individual forecasts, and I think the Committee needs to come to a consensus about what its view is, with everyone giving a little bit around the edges.

I want to talk a little bit about agency MBS. There is a logic to actually doing more agency MBS purchases. In fact, there's a logic to even doing it at this meeting. We are far away from achieving our objectives, and the SEP projections and the extension of the date to late 2014 certainly underscore that. That said, I don't think the costs of waiting a bit longer are very great. First, as the primary dealer survey made clear, market participants do not expect an agency MBS program to be embarked on at this meeting, but in fact, they think that there's a reasonably high probability—I think about 55 percent probability—that something is going to happen sometime later this year. So my view is, as long as we don't jostle those expectations about, what's likely going forward, we could actually maintain most of the benefits from doing an LSAP at this meeting without incurring yet any significant cost. Second, I think waiting a bit allows us to gather more information about the outlook. Is the acceleration in growth in the fourth quarter temporary or more persistent? Are the improvements in financial conditions and in the mood about Europe sustainable or not? In a sense, we currently own an option on the agency MBS program. One could argue that this option has value that we would lose if we embarked on such a program immediately. At the same time, I don't think we want to change the current market expectations that this is 55 percent probability. So in terms of how we communicate it's very important that we make it clear that we're prepared to do more if economic conditions warrant. It's very important in how the Chairman communicates, and how we all communicate, that we don't take this off the table. There is a risk today that people will look at what we're doing as, "Oh, they've run out of ammunition. They're extending the date. There's no further action. The

Fed is out of ammunition.” That would actually be quite harmful because I don’t think we really as a group think we have yet. So it’s very important to keep that option alive and open.

As far as the language of removing the last sentence of paragraph B(2)—“However, the Committee will continue to pay close attention to the evolution of inflation and inflation expectations”—I’m slightly inclined to taking it out. I think the idea of taking it out was, one, we don’t have a similar sentence for unemployment, and, two, we’re becoming more comfortable with the inflation outlook than we were before—inflation seems to be coming down. The view was, at least for me, that it makes sense to take this out now to indicate that we feel more comfortable with the inflation outlook. To keep it in creates asymmetry in terms of how we’re thinking about inflation versus how we’re thinking about unemployment. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you very much. Thanks, everyone, for your comments, which not only illuminate today’s conversation, but also provide some guidance for our future meetings and future discussions. I listened very carefully, made a lot of notes. I do continue to believe that alternative B is the right approach for today. There was a lot of very interesting discussion on the conditional policy, B(3). But some people had difficulties with the general approach, others had difficulties with the numbers, and others raised the possibility of, for example, giving more information about the reaction function more broadly. There are a number of different ways to proceed here. It’s an informative and potentially useful approach, but I don’t think I sensed a great deal of support for this language as written today. So I recommend continuing to study this and related approaches going forward. I therefore would suggest B(3’).

On the question of the date, I have to associate myself with those who argue that the SEP is not a substitute for the Committee. There are basic governance problems here. It's not just a question of voters versus nonvoters, although that is an issue, but more than that, our policies are not made by us individually through some kind of voting process. It's really a collective decision where we meet and discuss and come to some consensus. We certainly wouldn't want to set the federal funds rate in normal times by having everybody submit a vote before the meeting and then just tallying the results. We have a discussion, and clearly, the outcome of that discussion is the official decision of this Committee. I have agreed throughout that a simple date is far from perfect. However, the SEP does provide useful information about the reasons for the date. It does give the public a sense of what the views of the Committee are and what the projections are. I think it does actually provide very good support for the particular choice that was put into the statement. And although I don't think we should move it willy-nilly, we should be prepared, if we do keep it this way in the future, to change the date. If there's a significant change in the SEP and in the views of the Committee, then even a change of a quarter would be perfectly appropriate in either direction. Also, I think putting the date in here is important for clarity because there are not very many people who are willing to go through the details of the SEP to try to infer what the Committee might do, and providing some overview of the collective judgment of the Committee is important. So I would strongly support and strongly urge us to accept the date, understanding that this is a work in progress. We'll get more information about how the SEP is received. We'll continue to look at alternative ways to characterize our reaction function or to have rules. So this is not a stopping point, as far as I'm concerned.

A number of people talked about future policy actions, and we need to continue to work on those. I accept President Bullard's approach that a policy outcome or an economic forecast

that has inflation below target for a time is not necessarily suboptimal. However, I would argue that a projection of inflation below target for a considerable period, beyond the normal lags in monetary policy, in most cases would be suboptimal, and I would ask each of you individually, as you look at your own rate projections and your policy analysis, to ask whether you are assuming that rates will be such that inflation remains below target not just for a year or two, but for a very long period. For instance, I note that the Tealbook—of course, not everyone agrees with the Tealbook—has inflation about 1.5 percent out through 2016. I doubt very much that you can construct a balanced approach, which means weight on both sides of the objective of the dual mandate, that would give you that kind of result. Of course, we have only projections. We need to get some more evidence about what's happening in the economy, but if it comes in indicating that inflation is well below target and likely even to fall and that unemployment remains stubbornly high, then I think that we would need to take that evidence into account as we consider alternative future actions. And of course, the staff should be looking at some of these details relating to alternatives that we might at least want to consider at our next meeting.

Going back to the language, I heard preference for B(3'). I think we ought to keep the date there. I didn't hear any discussion of B(4). On the beginning of the statement, there were a few people who thought that the description of the economy was a little bit pessimistic. We have as usual the slight conflict that our SEP projections relate to the last time we supplied those, which was in November, and there has been some downgrade since November. At the same time, the statement is from meeting to meeting, and since December, there hasn't been much change in the outlook. So a question I would raise for the group is not so much about paragraph B(1), which seems to me reasonably balanced. It notes "further improvement in overall labor market conditions," for example. I guess the question I would raise is about B(2), which I think

modestly downgrades the outlook by saying that economic growth is going to be “modest” rather than “moderate” and that unemployment, instead of “will decline only gradually,” “will make only slow progress.” I wonder if we want to do that or if we would prefer to return to the December language there. Does anyone have a comment on that? President Fisher.

MR. FISHER. It may be only my personal preference, Mr. Chairman, but I didn’t hear anything at the table yesterday other than concerns. But in terms of the reporting that took place, as I mentioned in my summary, at least eight people at this table reported that things were a little bit better presently than they were at the last meeting. So with your having opened that door, I would suggest we keep the language and not change it, because in a sense we’re going from a moderate pace of economic recovery. I would just point out that talking about economic growth being “modest” and “making only slow progress on unemployment” shifts it slightly downward, but there was no supporting evidence at the table other than some real fears and concern, which all of us share; but there was no documentary proof, as it were.

CHAIRMAN BERNANKE. Are there others who’d like to take either side of that question? President Lacker.

MR. LACKER. Are you referring to “decline only gradually”?

CHAIRMAN BERNANKE. Yes. I’m referring to B(2)—to simply go back to the December language.

MR. LACKER. I’d support that, particularly about “make only slow progress” versus “decline only gradually.”

CHAIRMAN BERNANKE. Anyone else?

MS. DUKE. I would be happier with the December language.

MR. TARULLO. I’d be against it, but I can see where we’re going here.

MS. YELLEN. I think if you look at the range of evidence the Tealbook has given us, there clearly has been negative news on income, on the global outlook, and on other things that justifies this change in the language.

MR. TARULLO. Mr. Chairman, just to reinforce a point that many people have made before, paragraph 1 is backward looking, and paragraph 2 is forward looking. So we don't need documentary evidence of anything for 2 other than whatever indicia we look at to try to form our own projections of where we're going to be going forward.

MR. FISHER. Can I make a point, Mr. Chairman, as to Governor Yellen's point? We do have a sentence that says, "Strains in global financial markets continue to pose significant downside risks to the economic outlook." That's still true. We have no evidence that it's worse. We worry that it may be worse.

MS. YELLEN. The Tealbook outlook has been downgraded, and my outlook has been downgraded.

MR. FISHER. Yours has, the Tealbook's has, but I didn't hear that around the table.

CHAIRMAN BERNANKE. Since December.

MS. YELLEN. Since December, yes.

MR. LACKER. Excuse me. The unemployment rate projection in the Tealbook has changed one-tenth in two quarters—it's virtually identical.

MR. TARULLO. Actually, Jeff, to be honest, I'm not sure I can tell the difference between "decline only gradually" and "make only slow progress." It's the first change that I'm actually more concerned with.

CHAIRMAN BERNANKE. Expects economic growth "to be modest"?

MR. TARULLO. Yes.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. It seems to me that we might be able to give an indication of some continuity with the fourth quarter, and so I actually favored going back to a version of the December language that might say something like, “The Committee expects a continuation of a moderate pace of growth” or “continued moderate growth”—and then dropping the word “only” in front of “slow progress.”

CHAIRMAN BERNANKE. That’s the opposite of what Governor Tarullo was looking for.

MR. TARULLO. Yes.

CHAIRMAN BERNANKE. Vice Chair.

VICE CHAIRMAN DUDLEY. I agree with Governor Tarullo on the “decline only gradually,” making “only slow progress”—I don’t know which one is which. So I think we should just go back to the original there because, why make the change unless we’re trying to communicate something?

MR. LACKER. I just assumed the new one was gloomier.

MR. FISHER. So wait—Bill, your point is, don’t change it, leave it as it was.

VICE CHAIRMAN DUDLEY. I mean on that point, I think that we should just agree that the words are not clear about which direction it is. So if we can’t be clear on what the direction is of that change, then why don’t we just keep it the way it was? The “modest” versus “moderate” one, I think, is a more substantive issue, and that’s a question of whether the Committee wants to downgrade its economic growth forecast. And the issue is whether the change in the growth outlook meets that threshold to make that change.

CHAIRMAN BERNANKE. Okay. I don't want to pursue this longer than necessary. How about if we keep, along the lines of what Governor Tarullo said—"The Committee expects economic growth over coming quarters to be modest"—but then change back to "consequently anticipates that the unemployment rate will decline only gradually," since the unemployment trajectory looks about the same?

MR. TARULLO. I'm fine with that.

MR. LOCKHART. Could you repeat that please?

CHAIRMAN BERNANKE. So we will keep the first change—"The Committee expects economic growth over coming quarters to be modest"—as it's written there—"and consequently anticipates that the unemployment rate"—now going back to the old language—"will decline only gradually toward levels." Then make the change below about inflation—I think the word "settle" is actually not the word we want because it suggests permanent low levels.

VICE CHAIRMAN DUDLEY. And the last sentence, the bracketed language?

CHAIRMAN BERNANKE. Okay, I was going to come back to that. So is what we just said okay?

MR. LACKER. Should we make a note for future meetings that 2.3 percent is moderate and 2.1 percent is modest?

CHAIRMAN BERNANKE. What happens if it's 2.2? [Laughter]

MR. LACKER. That'll be a real dilemma.

CHAIRMAN BERNANKE. All right. Let me ask the Committee now about the bracketed language. Preferences?

MS. YELLEN. I'd prefer to eliminate it.

CHAIRMAN BERNANKE. Eliminate.

MS. DUKE. I don't care.

CHAIRMAN BERNANKE. Don't care.

MR. TARULLO. Indifferent.

CHAIRMAN BERNANKE. Indifferent. Governor Raskin?

MS. RASKIN. Indifferent.

CHAIRMAN BERNANKE. Indifferent. Okay.

VICE CHAIRMAN DUDLEY. Eliminate.

CHAIRMAN BERNANKE. Eliminate. Two.

MR. LACKER. I said we should keep it.

MS. PIANALTO. Indifferent.

CHAIRMAN BERNANKE. Okay.

MS. PIANALTO. I'll say keep it, then.

CHAIRMAN BERNANKE. You'll say keep it.

MS. PIANALTO. I lean toward keeping it.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. I'd eliminate it.

CHAIRMAN BERNANKE. All right. President Williams?

MR. WILLIAMS. Eliminate it.

CHAIRMAN BERNANKE. All right. I'm getting a slight tilt toward elimination here.

Again, there's obviously nothing here saying that we're going to go hog-wild on inflation. It's simply that when inflation was very high and was not coming down and we were concerned, the original purpose of the sentence was to reassure the public that we would, of course, continue to

pay close attention and implicitly respond if our projection didn't come true. Further comments?

[No response] Okay. Will you read what we have?

MS. DANKER. Yes. This is a vote on alternative B from the handout and the associated directive, with paragraph 2 adjusted as follows. The second sentence now reads, "The Committee expects economic growth over coming quarters to be modest and consequently anticipates that the unemployment rate will decline only gradually toward levels that the Committee judges to be consistent with its dual mandate." The bracketed sentence is dropped from the end of that paragraph, and the statement includes paragraph 3', not 3.

CHAIRMAN BERNANKE. All right.

MS. DANKER.

Chairman Bernanke	Yes
Vice Chairman Dudley	Yes
Governor Duke	Yes
President Lacker	No
President Lockhart	Yes
President Pianalto	Yes
Governor Raskin	Yes
Governor Tarullo	Yes
President Williams	Yes
Governor Yellen	Yes

CHAIRMAN BERNANKE. Okay. Thank you. A few announcements. I will be trying to explain all of this to the public [laughter] at 2:15 at the press conference. I'm going to cover today's action, and I'll talk about the consensus statement, the outlook, and the policy projections. And I'll do what I can with the questions. There will be a screen in the Special Library for those of you who have nothing better to do. And I have a question from President Lacker.

MR. LACKER. Yes, about the press conference—I realize you have some time to prepare to give this more thought.

CHAIRMAN BERNANKE. Yes.

MR. LACKER. But I'm really curious as to how you would respond if asked about the fact that 11 out of 17 SEP projections have us increasing rates before the end of 2014, leaving only six—

CHAIRMAN BERNANKE. I would respond that we changed it from “end of” to “late” for exactly that reason, since 11 of 17 have rates at the end of 2014 at 1 percent or less. Again, I will say that the Committee takes the SEP projections as useful input, but of course it's going to make a judgment.

MR. LACKER. The other thing I'm really curious about—we debated commitment, the extent to which there's commitment, and it's still sort of murky to me.

CHAIRMAN BERNANKE. Well, in my introductory statement, I have a sentence saying that this is not a commitment—underline “not.”

MR. LACKER. If I could make just one comment about governance and point out the obvious thing that, to the extent that it was a commitment or a forecast, it's about future Committee members who are now participants. So the division between voters and participants is not so bright a line.

CHAIRMAN BERNANKE. Of course, and that's why we show all of them.

MR. LACKER. And why we do things the way we do things.

CHAIRMAN BERNANKE. That's why we're putting all of the 17 participant projections into the SEP and not identifying.

MR. LACKER. Right.

CHAIRMAN BERNANKE. Anyway, if you are so inclined, there will be a screen in the Special Library, if you want to watch the press conference. There's coffee available now; lunch

will also be available. So you can indulge your preferences, I guess. If you have not turned in your projections, please do it. And our next meeting is Tuesday, March 13. Thank you.

END OF MEETING