

**Meeting of the Federal Open Market Committee on  
April 27–28, 2010**

A joint meeting of the Federal Open Market Committee and the Board of Governors of the Federal Reserve System was held in the offices of the Board of Governors in Washington, D.C., on Tuesday, April 27, 2010, at 2:00 p.m., and continued on Wednesday, April 28, 2010, at 9:00 a.m. Those present were the following:

Ben Bernanke, Chairman  
William C. Dudley, Vice Chairman  
James Bullard  
Elizabeth Duke  
Thomas M. Hoenig  
Donald L. Kohn  
Sandra Pianalto  
Eric Rosengren  
Daniel K. Tarullo  
Kevin Warsh

Christine Cumming, Charles L. Evans, Narayana Kocherlakota, and Charles I. Plosser,  
Alternate Members of the Federal Open Market Committee

Jeffrey M. Lacker, Dennis P. Lockhart, and Janet L. Yellen, Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, respectively

Helen E. Holcomb, First Vice President, Federal Reserve Bank of Dallas

Brian F. Madigan, Secretary and Economist  
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  
Nathan Sheets, Economist  
David J. Stockton, Economist

Alan D. Barkema, Thomas A. Connors, William B. English, Jeff Fuhrer, Steven B. Kamin, Simon Potter, Lawrence Slifman, Mark S. Sniderman, Christopher J. Waller, and David W. Wilcox, Associate Economists

Brian Sack, Manager, System Open Market Account

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

Patrick M. Parkinson, Director, Division of Bank Supervision and Regulation, Board of Governors

Robert deV. Frierson,<sup>1</sup> Deputy Secretary, Office of the Secretary, Board of Governors

Charles S. Struckmeyer, Deputy Staff Director, Office of the Staff Director for Management, 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

William Nelson, Senior Associate Director, Division of Monetary Affairs, Board of Governors; Nellie Liang, Dave Reifschneider, and William Wascher, Senior Associate Directors, Division of Research and Statistics, Board of Governors

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

Christopher J. Erceg, Deputy Associate Director, Division of International Finance, Board of Governors; Egon Zakrajšek, Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Brian J. Gross, Special Assistant to the Board, Office of Board Members, Board of Governors

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

Jennifer E. Roush, Senior Economist, Division of Monetary Affairs, Board of Governors

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

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

Kimberley E. Braun, Records Project Manager, Division of Monetary Affairs, Board of Governors

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

Esther L. George, First Vice President, Federal Reserve Bank of Kansas City

Loretta J. Mester, Harvey Rosenblum, and John C. Williams, Executive Vice Presidents, Federal Reserve Banks of Philadelphia, Dallas, and San Francisco, respectively

David Altig, Richard P. Dzina, Daniel G. Sullivan, and John A. Weinberg, Senior Vice Presidents, Federal Reserve Banks of Atlanta, New York, Chicago, and Richmond, respectively

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

Warren Weber, Senior Research Officer, Federal Reserve Bank of Minneapolis

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**April 27—Afternoon Session**

CHAIRMAN BERNANKE. Good afternoon, everybody. First Vice President Holcomb will be sitting in for President Fisher today—welcome, Helen.

Before I begin the formal part of the meeting, I think we ought to acknowledge an epochal event in the history of the Federal Reserve. Today is Don Kohn’s last FOMC meeting, assuming, of course, that he retires as he plans. [Laughter] That’s always a risk.

MR. LACKER. Don’t worry, Don. You’re going. [Laughter]

CHAIRMAN BERNANKE. I think it should be noted that since 1981 Don has attended 221 FOMC meetings, in a range of capacities, and missed only eight meetings in the past 30 years. So I wonder about those eight meetings. [Laughter and applause] We will have an informal opportunity to say good-bye to Don and to thank him and honor him for all of his enormous contributions. But I just wanted to take say how much we appreciate what you’ve done and, personally, how much I owe you and the institution owes you for your contributions over many years, and particularly over the last couple of years.

MR. KOHN. Thank you.

CHAIRMAN BERNANKE. I need a motion to close the Board meeting.

MR. KOHN. So moved.

CHAIRMAN BERNANKE. Well done.

MR. KOHN. I got that. You need to know when to say, “So moved.” [Laughter]

CHAIRMAN BERNANKE. Governor Kohn is a little punchy today, I think.

All right. Our first item of business is our briefing on financial developments, open market operations, and system facilities. Let me turn first to Brian Sack.

MR. SACK.<sup>1</sup> Thank you, Mr. Chairman. Investors continued to become more confident in the economic recovery over the intermeeting period, prompting a further rise in asset prices that will, in turn, provide additional support for the economy. The gains in the equity market were sharp, with the S&P 500 index advancing by more than 5 percent, as shown in the upper left panel. In addition to greater optimism about the economy, equity prices were supported by earnings releases for the first quarter that have generally exceeded analyst expectations. Despite the ongoing appreciation of equity prices, the staff's measure of the equity premium remains sizable, as shown in the upper right.

Corporate bond spreads, shown in the middle left panel, narrowed further over the intermeeting period, owing to the same factors pushing equity prices higher. Expectations for corporate defaults continued to decline, as corporations have healthy balance sheets and ample access to markets.

Securitized credit markets also showed signs of improvement. Spreads on outstanding asset-backed securities generally narrowed, and issuance of ABS has been decent across several sectors, despite the expiration of the TALF for most asset types. Spreads on CMBS, shown to the right, narrowed sharply over the intermeeting period, as investors sought higher yields and felt that the stress in the commercial real estate sector may be less severe than previously anticipated.

Even the new-issue market for securities related to real estate has shown signs of life. A multi-borrower new-issue CMBS was brought to the market, the first since 2008, and several large banks are reportedly preparing deals for the second and third quarters. In addition, the first non-agency RMBS issue since 2007 was brought to the market. Both of these deals were heavily oversubscribed, though it should be noted that they were relatively small, had very high-quality loans as collateral, and had simple structures. If I had to make up a term for it, I might call these deals "greenshoots." [Laughter] Note that the CMBS deal did not seek TALF support because it was priced well in the market. Even though the TALF remains open for new-issue CMBS through June, it is very unlikely that we will have any new deals coming to the program.

Prospects for financial institutions also generally improved, though a number of risks surround this sector. Nearly 75 percent of financial institutions reported first-quarter earnings that beat expectations, reflecting strong capital market and trading results and lower than expected loan loss provisions. As shown in the bottom left panel, equity prices for both the largest institutions and regional banks gained sharply through mid-April. However, the SEC's announcement on April 16 of legal action against Goldman Sachs took a toll on the share prices of that firm and other institutions that investors felt could face similar questions. In addition, this sector is subject to considerable uncertainty related to pending legislation on financial regulation.

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<sup>1</sup> The materials used by Mr. Sack are appended to this transcript (appendix 1).

Another area of concern among investors is the situation in Greece, which was a key focal point of financial markets over the intermeeting period. Nathan Sheets will cover in detail recent developments regarding the possibility of an economic support package for Greece from the EU and the IMF. Uncertainty about whether such a package would be available and about the feasibility of the longer-run fiscal adjustments that are needed caused a significant widening of Greek bond spreads over the intermeeting period, as shown in the bottom right panel, which shows data only through yesterday. Moreover, the concerns about Greece have spilled over into other debt markets in peripheral Europe, with yield spreads in Portugal and Ireland increasing notably. While the chart shows data through yesterday, the situation took a turn for the worse today, with S&P's decision to downgrade its sovereign credit ratings of Greece and Portugal. Markets came under pressure in response, with the yield spread on Greek debt jumping more than 200 basis points and the yield spread for Portugal increasing over 100 basis points today. These developments have contributed to a further weakening of the euro relative to the dollar. However, through yesterday at least, we had not seen any broader spillover from the pressure on those European debt markets to U.S. financial markets.

As shown in the upper left panel of exhibit 2, the greater optimism about the economic outlook did not cause a shift in near-term expectations of monetary policy. The stability of policy expectations likely owed in part to the retention of the “extended period” language in the March FOMC statement and in other communications. The current configuration of rates suggests that policy tightening is not expected to commence until late this year or early 2011. The responses from the Desk's recent survey of primary dealers and buy-side market participants were largely consistent with that outlook. As shown to the right, respondents placed the highest probabilities on the first tightening occurring in either the second half of this year or the first half of next year.

Even though near-term policy expectations remained steady, Treasury yields moved higher, as shown in the middle left panel. The 10-year yield at one point touched 4 percent before retracing in recent weeks. On balance, most Treasury coupon yields increased 10 to 20 basis points over the intermeeting period.

While the greater optimism about the economic outlook contributed to the rise in Treasury yields, it also appeared that supply pressures were pushing rates higher at times. One sign of the effects of supply comes from the behavior of swap spreads. Those spreads, shown to the right, have reached unusually tight levels by historical standards, perhaps reflecting some upward pressure on Treasury yields. Such pressure could also be reflected in the upward drift in the term premium, shown in the bottom left panel, which remains higher than its levels in recent years.

Given these and other indications of supply concerns, the Treasury is anxious to begin reducing the sizes of its coupon offerings. The Treasury is likely to announce that it is starting that process in its quarterly refunding statement next week. Of course, the Treasury's debt management strategy would have to take into account any

decisions by the FOMC to redeem its maturing holdings of Treasury securities. A decision to redeem our holdings would presumably lead the Treasury to issue more coupon debt to the public over time than would otherwise be the case, although the size of that effect is small relative to the potential swings in funding needs from other sources.

Redeeming Treasury holdings over the near term would come as a surprise to the markets. As indicated to the right, the responses to the Desk's survey indicate that only a minority of market participants expect the FOMC to move in that direction over the near term.

Your next exhibit focuses on the adjustment of financial markets to the end of the large-scale asset purchase programs and some potential issues surrounding asset sales. The Desk completed the purchases of agency debt and MBS at the end of March, with purchases following the tapering pattern shown in the upper left panel. Our MBS purchases fell 61 cents short of the \$1.25 trillion target. I figured it would make President Lacker happy to note that we did not, in fact, go all the way to the target. [Laughter]

MR. LACKER. I know we said "up to."

MR. SACK. On the agency debt side, purchases fell about \$3 billion short of the target level of \$175 billion.

The Fed's purchases of \$1.7 trillion of assets over the last 16 months likely represent the most rapid accumulation of assets by a single entity in the history of financial markets. To achieve that outcome, the Desk conducted 128 discrete operations to purchase Treasury and agency debt and managed 310 trading days on which either it or its investment managers acquired MBS. The design and execution of those programs seem to have been successful in achieving policy objectives while respecting the functioning of markets as much as possible.

Moreover, the exit from the purchase programs has been smooth. As shown to the right, trading volume in the MBS market has remained healthy as the Fed's participation has declined, and other metrics also show no material change in MBS market liquidity. The Fed's withdrawal from the market does seem to have had some effect on market prices, but only a modest one. As shown in the middle left panel, option-adjusted spreads for MBS have moved higher from the very low levels reached in late 2009, suggesting that a portion of the effect of the purchase program on MBS rates has unwound. A similar story emerged from the Desk's survey. As shown to the right, respondents put the maximum effect of the asset purchases on the MBS rate at nearly 100 basis points. The respondents believe that, at this time, about 30 basis points of that effect has unwound and that the effect will continue to unwind to some degree over the next six months, even in the absence of sales.

Given the policy options being discussed by the FOMC at this meeting, our attention has turned towards asset sales. Indeed, within two weeks of completing our final MBS purchase, the Desk staff held our first meeting to discuss potential methods for selling them. We really appreciated the two-week break. [Laughter]

The operational challenges of selling our MBS holdings are quite different from those associated with buying MBS. For example, we purchased relatively liquid, homogeneous assets, because we operated in the TBA market. Almost all of the purchases fell into 33 individual TBA securities, which differed only by the coupon and maturity of the security and the GSE that securitized it. However, we were delivered a large set of individual securities that met the TBA requirements. As a result, we now own a complicated portfolio of securities, with over 40,000 individual CUSIPs on our books. If the FOMC were to move in the direction of selling assets, we would most likely want to aggregate those CUSIPs into fewer, larger securities, a practice that is common in the market. We would also need to determine other dimensions of the method for selling these securities—for example whether to use external investment managers or conduct auctions—should the FOMC move in this direction.

In addition, we have been focused on how the market may react to a decision to sell MBS. The bottom two panels present some information on this issue from the Desk's recent survey. As can be seen to the left, investors put larger odds on sales of MBS than on sales of Treasury debt. However, even for MBS, they do not put high odds on sales beginning within two years. As shown to the right, participants believe that a decision to begin selling MBS would put upward pressure on Treasury yields and, particularly, on the MBS rate. The effect was seen as quite sizable for more rapid sales of \$300 billion per year.

Exhibit 4 covers recent developments in money markets. As shown in the upper left panel, overnight interest rates have firmed since the beginning of March, with the effective federal funds rate moving up to around 20 basis points, compared with its typical level of 12 to 15 basis points before then. A similar firming has taken place in repo rates and other overnight interest rates.

The rise in the effective funds rate has occurred even though the aggregate level of reserve balances has remained above \$1 trillion. As shown to the right, this pattern is clearly anomalous relative to the relationship between rates and reserve balances that had been observed since the beginning of 2009. The earlier experience had suggested that the aggregate reserve demand schedule had a relatively simple shape, sloping downward as reserves increased towards \$1 trillion and flattening out as reserves pushed above that level. The recent observations for the effective funds rate have been well above what would have been expected from that earlier pattern.

Moreover, investors apparently expect this deviation from past patterns to persist. As shown in the lower left panel, the rates on federal funds futures contracts through May have all shifted higher to levels around 20 basis points.



Market participants have suggested several factors that might explain the recent firmness of the federal funds rate. These factors were also indicated in the Desk's survey, as shown in the middle right panel. First, market participants have pointed to increases in SFP issuance, and in the supply of Treasury collateral more broadly, as an important factor, presumably because increased Treasury supply puts upward pressure on repo rates that then passes through to the federal funds rate. Second, they have pointed to the decline in reserves in recent months. And third, they have pointed to recent declines in GSE lending in the federal funds market, including the decline in lending that accompanied the GSE's buyouts of delinquent loans.

In our view, it is not obvious that any of these factors fully explains the recent patterns. It could be that a complicated combination of these factors is at play or that some other consideration has led to the recent firming of rates. Because we do not fully understand the recent firming, we cannot effectively predict whether it will persist, revert, or intensify going forward. If the effective federal funds rate were to drift up to the upper end of the target range, we would have to make a decision about how to respond.

More generally, this recent experience suggests that the aggregate reserve demand schedule is more complicated, and perhaps less stable, than we had previously thought. That conclusion highlights the uncertainty that we face regarding the possible responses of market rates and market activity to the use of reserve-draining tools.

Finally, on a topic unrelated to the earlier material, I would like to request a vote to renew our long-standing bilateral swap lines of \$2 billion with Canada and \$3 billion with Mexico. Ahead of the meeting, Nathan Sheets and I sent the Committee a memo recommending renewal of the lines at this time. Our proposal is to keep the swap lines in their current form. At some point the FOMC may want to give further consideration to the size and structure of these swap lines, but such a review would best be conducted in the context of a broader discussion of the role of swap facilities across central banks—a discussion that the Committee has postponed for the time being. Thank you. Brian Madigan will now continue our presentation.

MR. MADIGAN. Thank you. Brian and I would like to update the Committee on the progress the staff has made developing reserve management tools, first covering the term deposit facility and then reverse repurchase agreements. Last week, the Board approved revisions to Regulation D that will allow Reserve Banks to issue term deposits and that will also allow policymakers flexibility about the details of a TDF and how it may be used. We anticipate that the Board will issue a press release later this week announcing the changes to Regulation D and indicating that the Federal Reserve will provide additional information at a later date.

In the next few days, the staff plans to recommend that the Board formally approve an initial structure for a TDF that will be nearly identical to the one described

in the memo distributed to Reserve Bank presidents and Board members in advance of the March FOMC meeting. As envisioned, the Federal Reserve will offer term deposits primarily through single-price auctions. Term deposits would be simple fixed-rate instruments, similar to most other money market instruments.

Initially, the maximum bid rate at each auction would be set equal to the primary credit rate, so that institutions that are eligible to hold term deposits have no opportunity to arbitrage the discount window and so that, consistent with a statutory requirement, the auction stop-out rate does not exceed the general level of short-term interest rates. Early withdrawals would not be allowed, but term deposits could be pledged as collateral at the discount window. In response to public comments, the TDF would allow correspondents to bid on behalf of respondents. In addition, the TDF would incorporate a noncompetitive tender feature that will ensure access to term deposits for small institutions. Moreover, the minimum bid amount in the competitive auction would be set at a very low level so as to enable participation by institutions of all sizes.

The staff plans to propose that the Board authorize small-value offerings of term deposits beginning in June. These operations would allow the Federal Reserve to test all aspects of TDF operations and would let depository institutions gain familiarity with the TDF. The staff also plans to recommend that the Board delegate to the Chairman the authority to determine the schedule and amounts for the small-value TDF operations. Once the Board approves the TDF structure, perhaps next week, it would issue a press release outlining the general structure of the program and announcing plans to conduct small-value offerings. The press release would include a link to a newly developed TDF website that contains all the information that depository institutions will need to register as TDF participants.

If policymakers decide to utilize the TDF in the future to drain significant quantities of reserve balances, an appropriate governance structure will be needed. The staff, with input from policymakers, expects to propose a governance structure that will provide for appropriate review and policy input by the FOMC regarding TDF operations. For example, in view of the function of the TDF as a tool facilitating the implementation of monetary policy, the staff could propose that the Manager of the Open Market Desk and the Director of the Division of Monetary Affairs jointly develop a plan for TDF operations over each intermeeting period that is coordinated with all other aspects of short-run monetary policy implementation, including any use of reverse repo agreements. These plans would be reviewed by the Board and the FOMC at each FOMC meeting and revised as appropriate based on the input of policymakers. The Board would then formally approve the plans for TDF operations over the intermeeting period. The Board might wish to provide some latitude to the Chairman to adjust amounts to be auctioned and other auction parameters over the intermeeting period. We are happy to receive input on these matters, but we are not asking the Board or the FOMC for any decisions at this time.

The second topic for this briefing is reverse repurchase agreements. Staff at the New York Fed continue to develop the reverse repo program. The Trading Desk has finalized the process for using agency MBS as collateral in those operations. Once the legal documents related to custodial arrangements are in place, the Desk will conduct small-scale operations to ensure its ability to use MBS collateral. We expect those operations to take place in May.

The Desk continues to work on adding counterparties for reverse repurchase agreements. The Desk received applications representing 28 individual money market mutual funds following the publication of criteria for eligibility in March. Of these funds, 26 were invited to submit the more detailed second part of the application. The Desk expects to complete the review of the applications and to announce the accepted counterparties by the end of June.

Progress has also been made on the operational requirements for transacting with an expanded counterparty list. Arrangements have been made with the clearing banks to support the transactions, and an Internet version of FedTrade, the Desk's proprietary trading platform, has been developed to accommodate a larger set of counterparties. The Desk expects to conduct small-scale transactions with the wider set of counterparties in June or July.

The Desk's tentative plan for the next step in expanding the set of counterparties for reverse repo operations is to include Fannie Mae and Freddie Mac. Under this plan, we would not focus on a wider set of housing-related agencies for now, partly because none of the other agencies currently participates to a significant extent in the triparty repo market. As for the subsequent step for adding counterparties, the Desk is considering including a broader set of money market mutual funds.

That concludes our prepared remarks. Brian and I would be happy to address your questions.

CHAIRMAN BERNANKE. Before we go to Q&A, I just want to reiterate what Brian said about governance. The Board and the FOMC have been working very closely and cooperatively together on these monetary policy issues, as evidenced by the fact that this is a joint Board–FOMC meeting. So even though the reverse repurchase agreements are technically an FOMC responsibility and the TDF is technically a Board responsibility, we should work together to make sure that they operate together in a seamless fashion, and I give you my assurances that that will be the case.

Starting with questions, I'd like to kick things off quickly. Brian, if Greece defaults or restructures, have you thought about potential contagion effects on the U.S. financial system or economy?

MR. SACK. We have. I think the most immediate consequences would be to other countries and institutions in Europe, which have greater exposure to Greek debt, and, of course, to the Greek banks themselves, which are relying on posting Greek sovereign debt to the ECB for liquidity needs.

In terms of spillover to the U.S., our sense is that the risk of direct spillovers from these securities to U.S. financial institutions is relatively limited. But that still leaves open a lot of channels of contagion. Of course, if the contagion spreads throughout Europe, then the potential exposure to the U.S. institutions could be larger. There's also the contagion coming from the prices of risk and how risk premiums behave. Would the markets build in a premium for U.S. institutions? Would dollar funding markets dry up? Would investors become concerned about sovereign credit risk, even in the U.S.? I think we are certainly aware of all of those risks. To date, as I said, we think the evidence of those spillover channels has been limited, and it's quite reasonable to expect them to continue to be limited, but we're certainly watching closely, given the risks.

CHAIRMAN BERNANKE. Thanks. Any questions for our colleagues? President Lockhart.

MR. LOCKHART. Brian, on the reverse repo report, we have made progress with the agency MBS as collateral. But the primary collateral will continue to be Treasuries, is that correct?

MR. MADIGAN. Brian, do you want to take that?

MR. SACK. At the moment, we are simply trying to get the systems in place to have the ability to use the MBS collateral. No decisions have been made in terms of which collateral type would be used first and in what size. We're starting to weigh the options and to think through the advantages and disadvantages of each, but we'd certainly come back to you with a broader dialogue on that before we moved forward.

There are tradeoffs. The Treasury collateral is simpler, it's cheaper to use, and for some market participants, such as the dealers, it's much more valuable for them to take in as opposed to MBS collateral. On the other hand, for money funds and other lenders outside of the dealer community, there's really not a strong preference for the type of collateral—they're much more interested in us as the counterparty as opposed to the collateral we provide them. So we're trying to take all of that into account in developing a proposal for how to run the operations and allocate the collateral.

MR. LOCKHART. But it's conceivable that, as we approach draining, we would have a tradeoff between the use of Treasuries and a fairly substantial initial portfolio of MBS.

MR. SACK. That's right. We will have the ability to use all types of assets as collateral. I should note that the current constraint on the size of operations would be the counterparty list, not the collateral. As we have discussed before, we think the capacity through the primary dealers is probably somewhere between \$100 and \$200 billion. We have much more Treasury holdings than that, and we have much more MBS holdings than that, so we could do those operations with either. So, really, the constraint on total size right now is the counterparty list, which is why we're trying to push forward with the money funds and with other firms.

CHAIRMAN BERNANKE. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. This probably was in the March memo and I missed it. What's the maturity of the term deposit facilities that's being considered?

MR. MADIGAN. Generally, probably no more than several months—28 days might be a typical maturity, and as much as 84 days.

MR. KOCHERLAKOTA. Thank you.

CHAIRMAN BERNANKE. President Rosengren.

MR. ROSENGREN. I just want to follow up on the Greek question. Do we have a sense of which organizations have written the credit default swaps and whether that is a source of contagion? Are we connected with the Europeans? Somebody has to have a net exposure—not everybody can be hedged. I'm just curious, given the magnitude, about whether that could end up being in some respects as important as the total loans—I know in the international section we had a description of the total loans. But I don't know how many of those loans are hedged or unhedged, so the other part of that market that we need is the credit default swaps. Are we monitoring it? Are the Europeans monitoring it? When you think of financial stability, some kind of a coordinated effort to monitor would seem like the approach we'd want to take.

VICE CHAIRMAN DUDLEY. We have looked at it. The notional credit default swap market for the government sector is very small relative to the outstanding supply of debt, unlike the corporate sector, where the credit default swaps can be many magnitudes. That does not look like a big, independent source of risk.

MR. SHEETS. The number that I've seen is around \$90 billion for the gross CDS outstanding. The net is only about a tenth of that, from what we hear. It's hard to get a comprehensive accounting of that, but it doesn't seem, on either a gross or a net basis, to be a first-order concern. It looks like roughly a third of the CDS were written by U.S. institutions,

and I guess that a sizable share was written by Europeans. We understand that the Greek banks themselves have sold some CDS exposure, but we don't have a comprehensive accounting of that.

CHAIRMAN BERNANKE. Other questions? [No response.] All right, seeing no questions, we need a vote to ratify domestic open market operations.

MR. KOHN. So moved.

CHAIRMAN BERNANKE. Without objection. The other piece of business is the swaps for Canada and Mexico. As you remember, we have discussed the possibility of a broader swaps program, including a range of central bank counterparties, but we agreed to put that off for some time, until we get a clearer sense of where financial regulatory reform is, and so on. But we have been renewing these relatively small North American swaps for some time. Does anyone want to discuss or raise questions about this proposal? [No response.] If not, we need a vote.

MR. KOHN. So moved.

CHAIRMAN BERNANKE. Is there anyone who would like to vote against it? [No response.] All right, seeing none, we'll accept that proposal.

The next item is a briefing on asset sales and redemptions. I want to congratulate the staff on a really very, very helpful and thorough set of memoranda. It was an awful lot of work and extremely informative, so thank you for that. Let me now turn to Brian Madigan to lead that briefing.

MR. MADIGAN.<sup>2</sup> Thank you, Mr. Chairman. I'll be referring to the package labeled "Material for Briefing on Strategies for Asset Sales and Redemptions." Last week the staff provided you with three memos that analyzed five possible approaches for normalizing the balance sheet over time. The options are summarized in Table 1. At one end of the spectrum, under option 1, you would continue to allow agency debt and mortgage-backed securities to run off as they mature or prepay, but you would not redeem Treasury securities and you would not engage in asset sales. At the other

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

end, under option 5, you would redeem all maturing securities, including Treasuries, and you would begin to sell agency-related securities soon; this strategy would return the System Open Market Account (SOMA) to an all-Treasuries composition after three years.

Under options 2, 3, and 4, the Committee would redeem all securities starting soon and would sell agency-related securities over periods of approximately five years, but the options differ with respect to when sales would begin and the extent to which the starting date and pace of sales would depend on economic and financial market developments. Under option 2, sales would commence some time after you had begun increasing your target for the federal funds rate and would proceed along a schedule that could be varied to some extent in response to economic and financial developments. Under option 3, asset holdings would be highly state-dependent. Gradual sales would begin when economic conditions warranted a reduction in monetary policy accommodation but before an increase in the target funds rate. The pace at which assets were sold subsequently would be determined largely by evolving conditions in financial markets and the economy, and if the outlook weakened sufficiently, asset purchases could even be resumed. Under option 4, sales would follow a “reverse taper,” under which sales would start at a date that was announced in advance and would be conducted more or less according to a fixed schedule, with significant deviations only in response to major unexpected events.

By increasing the supply of longer-term debt in private hands more quickly than anticipated by market participants, all the strategies that entail asset sales and Treasury redemptions would put upward pressure on longer-term interest rates. The staff estimates that an announcement of option 2, 3, or 4, which sell the agency-related securities over five years, would increase yields on longer-term Treasury securities by 25 to 35 basis points, while the announcement of option 5, with more rapid sales over three years, would push rates up 35 to 50 basis points. For a variety of reasons, all of these estimates are very uncertain. One particular concern is that rapid sales could be relatively disruptive and at least temporarily drive up interest rates more than predicted.

The staff estimates that, relative to option 1, the higher interest rates associated with the rapid sales in option 5 would result in annual GDP growth that would be about ½ percentage point slower in 2011 and 2012, leaving the unemployment rate close to ½ percentage point higher by the end of 2013. While the estimated macroeconomic consequences are relatively modest, given either the Blue Chip or the Greenbook economic baseline they would tend to move unemployment and inflation further from the levels that most FOMC participants view as consistent with the dual mandate.

Moreover, these modest consequences depend importantly on the FOMC compensating for the upward pressure on longer-term rates by firming short-term rates more gradually than in option 1, and also on investors understanding that the FOMC will do so. If market participants did not understand that policy would be



more accommodative, then the market reaction would be larger and would create more risk that the economic recovery would falter; conditions would be weaker yet if the FOMC did not, in fact, adjust the stance of conventional monetary policy. These risks from rapid asset sales could be magnified in circumstances in which the economic recovery proves more anemic than currently anticipated. On the other hand, under Greenbook and Blue Chip economic conditions, in principle the FOMC could achieve macroeconomic results close to those of option 1 by credibly indicating an intention to follow a more accommodative policy than would be indicated by the Taylor rule.

Another macroeconomic risk that concerns some of you is that the elevated size of the Federal Reserve's balance sheet might cause inflation expectations to become unmoored. If there is a link between inflation expectations and the size of the Federal Reserve's balance sheet, the macroeconomic outcomes in the middle of the decade might be best under option 5, in which the FOMC engages in rapid asset sales, thereby helping to keep inflation expectations well-anchored.

The different asset management strategies have consequences for the Federal Reserve's income and balance sheet. If, as expected by the staff and by market participants, longer-term interest rates rise over the next several years, there will be mark-to-market losses on the FOMC's portfolio. Strategies that entail asset sales or redemptions would likely push rates up further, adding to those losses, and sales of the assets would cause the Federal Reserve to realize the losses, reducing its income and remittances to Treasury. However, the extent of realized losses depends importantly on the path of long-term interest rates. Losses would be considerably lower under the Greenbook outlook for the real economy, a scenario in which long-term rates rise relatively gradually, than under the Blue Chip outlook for the real economy, in which rates rise more rapidly and to a higher level. Under the Greenbook outlook and the moderate sales options, that is, options 2 through 4, remittances remain high this year and next but fall below their recent annual averages several years ahead. Under the Blue Chip-based path for interest rates, remittances drop more steeply over the next several years. Under the rapid sales option, remittances are very low or even zero while the sales occur.

A potential disadvantage of holding on to the securities, as under option 1, is the possibility of large, albeit unrealized, mark-to-market losses. The staff estimates that if the economy evolves along the lines of the Blue Chip scenario, under option 1 the Federal Reserve would have unrealized capital losses in its portfolio of about \$190 billion at the end of 2013. By contrast, under the rapid sales option, the Federal Reserve would have sold all of its agency-related securities by that time and would have an unrealized loss of less than \$30 billion on its Treasury securities.

At least from an ex ante perspective, the three options that entail sales over five years would have broadly similar consequences for the economy and for the Federal Reserve's balance sheet and income, so you might choose among them based on considerations other than expected outcomes. You may see as an advantage of

option 2 that, while committing the FOMC to returning to an all-Treasuries portfolio in the intermediate term, sales of agency debt and MBS would begin only after the FOMC first raises its target for the funds rate, at a point when the economic recovery was well established. By contrast, some of you might consider it an advantage of option 3 that asset sales would precede any interest rate hikes, because you would prefer to unwind at least part of the unconventional policy stimulus before commencing conventional policy firming. Some might also view the responsiveness of the pace of asset sales to economic and financial conditions in option 3 to be an advantage, while recognizing that it might simultaneously pose the greatest communication challenges. By contrast, others might prefer the firm commitment to sales at a pre-announced date and pace under option 4, because it could reduce market uncertainty and keep inflation expectations well-anchored.

In addition to your choice among asset management strategies, you will also have to decide when and how to communicate any decision. One possible approach would be to describe the strategy in the statement released following an FOMC meeting. You may see such a communication strategy as providing a relatively high degree of transparency about the FOMC's plans for managing its asset holdings over time and as offering the public a relatively clear commitment to the identified approach. The minutes could then provide a more complete discussion of the strategy as well as the range of participants' views and the reasons for them. If participants wished to convey the broad outlines of a strategy but judged it to be premature to make and announce a decision about a specific asset management plan, a general description of an approach could be included in the statement or minutes, with additional details provided over time as they are agreed upon and implemented.

Obviously, the Committee faces a potentially complex, multidimensional problem in designing a strategy for managing its assets and eventually withdrawing conventional policy accommodation. To keep our analysis manageable, the staff compressed the dimensionality of the problem in several respects, but, as President Lacker suggested in his memo last week, the Committee, of course, could choose any of a large set of combinations of ways to use its policy tools. Among other possibilities, the Committee could decouple a decision to redeem Treasury securities from a decision to sell assets.

For example, if the Committee intended to sell mortgage-backed securities, it might decide that it is appropriate to roll over its holdings of Treasury securities; such an approach would limit the increase in duration that the market needed to absorb and would help make progress toward a balance sheet consisting solely of Treasury securities. On the other hand, this approach would not reduce the size of the System's balance sheet and the quantity of reserve balances as quickly as a strategy also employing redemptions, and thus would increase the probability that the System would need to rely on reserve management tools, such as reverse repos and term deposits, when it comes time to engage in conventional policy firming.

Conversely, the Committee might decide not to sell assets in the near term but to redeem all Treasury securities and continue not to reinvest principal and interest payments from agency-related securities. The Committee might judge that, by avoiding outright sales, this approach is less likely to be disruptive to markets but would still make greater progress than option 1 in reducing the size of the System's balance sheet and the quantity of reserves. Such a strategy was not analyzed in the memos we sent you last week, but projections under such a redemptions-only approach are provided in the final two exhibits. These projections were prepared under the Greenbook-consistent baseline.

As shown by the solid black line in the top left panel of exhibit 2, full redemptions without any sales—labeled here as option 6—would return the size of the SOMA portfolio to its trend level around the end of 2014, nearly three years sooner than under option 1, but at least a year later than under options 2 through 4. However, as illustrated in the upper right-hand panel, the SOMA portfolio would continue to include mortgage-backed securities for many years, since such securities would not be sold. As shown in the lower right-hand panel, the trajectory of reserve balances under option 6 is quite close to that under options 2 through 4 over the next few years, but slightly less steep in 2013, when those options entail significant asset sales as well as redemptions.

As plotted in the upper right-hand panel of exhibit 3, under the staff's assumptions regarding the effects of changes in the SOMA portfolio, the announcement of full Treasury redemptions would cause an immediate increase in the 10-year Treasury yield of 10 to 15 basis points relative to option 1—a smaller effect than under options 2 through 4 (of those, only option 2 is plotted here). As shown in the lower left-hand panel, the result would be an unemployment rate about 15 basis points higher than under option 1 by 2013.

Because under option 6 the Federal Reserve would have no realized capital losses on asset sales, Federal Reserve income and remittances to the Treasury over the next few years would be broadly similar to those under option 1.

A final word on the timing of Treasury redemptions: In the memos we provided last week, and in the Bluebook as well, we assumed that, if the Committee so chose, redemptions would begin on May 3. However, it seems likely that the Federal Reserve would want to allow some time for consultation with the Treasury and to give the Treasury and market participants some time to adjust to the change, perhaps suggesting a somewhat later date for the start of Treasury redemptions, say, by several weeks. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Are there questions for the staff? [No response.] If no questions, I'd like to take comments from participants on this broad set of

issues—Treasuries, agencies, and the exit strategy overall. Let me briefly try to frame the discussion and lay out some of the issues I think we need to resolve.

First of all, even though the staff simulations, except for the first, all assume Treasury redemptions, I just want to make sure we all agree or understand that this is in fact a quite consequential decision. There are some obvious advantages to Treasury redemptions. It would be an easy way, relatively speaking, to shed duration and begin to shrink the balance sheet and reduce excess reserves. To give you an idea of the magnitude here, if we began doing redemptions on May 3, we would be able to shed about \$60 billion from the balance sheet in the rest of 2010, about \$70 billion in 2011, and about \$140 billion in 2012. So, by the end of 2012, we would be able to lower our Treasury holdings by about \$270 billion, which is obviously consequential.

At the same time, while that has its advantages, of course, it would be a tightening of policy, and one that's not widely anticipated at this point. I think one of the contributions of the staff analysis was to make us think about the general equilibrium implications of these decisions. In particular, if we were to tighten policy via Treasury redemptions, then the envelope theorem (or something) would tell you that you have to adjust appropriately on other dimensions. Another issue to consider with doing Treasury redemptions is that it may or may not complicate the path from where we are now to the ultimate desired composition of our balance sheet, including not just all-Treasuries but also the maturity structure that we hope to have.

There are a number of issues involved, and I would like your considered views on Treasury redemptions. If we decide to do Treasury redemptions—and the same is true with the other issues, for example agency sales—we don't necessarily have to do it at this meeting. We

can, obviously, communicate in various ways and make a decision at the next meeting. But this is, I think, a very important issue.

Another issue, most obviously, is when and how to sell some of our agency securities. My sense from previous discussions is that most people would like to sell at some point, because the implication otherwise is that we would be holding MBS for a very long time. Nevertheless, there are important questions of timing. Should it be done after rates rise or at a fixed time? How far in the future? How quickly? How conditional on the economy? And how should we communicate that? I think, broadly speaking, that the issues related to agency MBS tie very closely to the general question of what our appropriate sequencing should be. I also do think it's important to keep in mind that we could, of course, make provisional decisions at any point, or decide how we're going to proceed to a certain point, and then leave flexibility at a later point. Again, in the spirit of what Brian said, there are a lot of different degrees of freedom here.

There is one thing I want to achieve today. I don't by any means think we need to come to a full and final set of decisions, particularly quantitative decisions, today about the exit strategy or the sales strategy. But it would be very helpful if we could refine our strategy sufficiently that we collectively, in the minutes and so on, can begin to reduce to some extent the uncertainty in the market about how we're going to be proceeding. So if we set that not-too-ambitious objective, meeting it would be a very useful accomplishment for this meeting. Let me stop there and begin a discussion. I had first on the list President Lacker.

MR. LACKER. Thank you, Mr. Chairman. What's striking to me about the analysis—which I also think deserves the glowing praise you heaped on it earlier this afternoon, it was very, very helpful—is how small the effects are on the macroeconomy and on interest rates. As I

recall, in the most aggressive strategy you described, the effect is 35 to 50 basis points on longer-term yields.

The memo also mentions a 15 basis point additional effect on the MBS–Treasury spread, which has increased by about that much in the last couple of months anyway. To me, this makes a very aggressive and fairly rapidly commenced strategy pretty attractive. So I’m attracted to option 5. In fact, I like to refer to it as the “centennial strategy,” because it is the only one that gets us out of MBS before the Federal Reserve System centennial. [Laughter] I think that has some independent benefit.

One drawback someone might articulate regarding an aggressive program is that it withdraws monetary policy stimulus too rapidly. That’s what the letter that I distributed last Friday was really aimed at addressing. It’s just to point out that our security holdings fall in two categories—it gives us two variables—which means we can make the sum do something different from the total of our MBS holdings. As I read the staff’s analysis, their belief is that the sum of our security holdings is what is responsible for the effect on long-term yields, and I am seeing Mr. Reifschneider nodding his head in assent. So it suggests that what we could do is commit to a brisk pace, pretty soon, of getting the composition of our portfolio back to Treasuries-only pretty rapidly, and then think separately about monetary policy, that is, think separately about stimulus. We could use our decision about redemptions and our decision about our overall holdings of Treasuries to calibrate how much monetary stimulus we’re withdrawing and at what pace. We can then craft our language accordingly, so that the unwinding of our special intervention in the MBS market is viewed much like our getting out of these special programs.

This would have the advantage of addressing the tension that was evident the last time we spoke of this between the desire to comfort the MBS market about the expected pace of our sales—to provide some surety, some confidence in how we’re going to proceed—and the desire to retain the contingent nature of monetary policy; we could commit to making monetary policy contingent on incoming data on economic and financial conditions. This would do that by taking those two apart, saying to the MBS market, which is not as deep as the Treasury market, “We can give you some surety,” while at the same time saying to the deep and liquid Treasury market, “This is where our intervention, the size of our holdings, is going to be contingent on incoming information.” The broader point I was trying to make is that it doesn’t make sense to oppose rapid MBS sales on the basis that it would withdraw monetary policy stimulus too rapidly. That’s what I wanted to disentangle.

Now, don’t get me wrong, I do think asset sales should commence fairly soon. A June announcement wouldn’t be too soon in my book, and a summertime commencement wouldn’t be too soon in my book. If it were up to me, I don’t think I would add in Treasury purchases. I don’t think we need to do that, but I just offer that up as an option for those who might otherwise be attracted to an aggressive pace of sales but fear too rapid a monetary policy stimulus reduction.

I don’t think we should decide on redemptions until we’ve figured out asset sales. I don’t think it makes sense for us to sign up for redeeming Treasuries and then go down the road to the next meeting and look at a situation where we would say, “Oh, to sell MBS would be withdrawing too much stimulus.” I think it makes sense to consider these in the context of one decision, one crafted strategy about our portfolio going forward. Those are my remarks, Mr. Chairman. Thank you.

CHAIRMAN BERNANKE. Thank you, President Lacker. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I want to commend the staff. The memos by Brian Madigan and Bill Nelson, Ihrig, et al., Carpenter et al., were excellent, really excellent, and I really appreciate them—all very well done, all very useful.

I'm going to speak in support of option 3 in the memos. I'm going to make five comments, so if you lose track of what I'm saying, here's what the comments are. First, I think we've had a lot of success in removing emergency measures one by one. Second, I think there are a lot of advantages to conditionality. Third, I think we have two tools, and we should use both tools to get the optimal policy. Fourth, I'm going to make some comments on communication; I think concerns about communication can be overdone. And, fifth, I'm going to make some comments about the problem with staying on our option 1 path.

Let me begin with number 1, which is the success of removing emergency measures one by one. I think this has worked very well for the Committee. Over the last six months or longer, it has sent clear signals to the market that extraordinary conditions have passed. Markets have clearly adapted to and understood this policy, and I see asset sales as an extension of this strategy. We built up our balance sheet after we encountered the zero lower bound, and we'd be saying that now we plan to unwind that action gradually over time, as the economy improves. So I see this as a natural next step, which starts before moving off of the near zero interest rate policy. Removing extraordinary measures one by one—the LIFO policy, last in first out—has worked very well for the Committee, and I advocate that.

Let me talk for a minute about the advantages of conditionality. I think conditionality not only manages the risk of shocks, but it also allows the Committee to return to a more normal balance sheet in a reasonable amount of time. I prefer this to some of the more rigid alternatives



that were mapped out in the memos. The optimal policy should specify fairly clearly that the Committee plans to respond to economic developments by adjusting the sales program, possibly even purchasing in extremely adverse conditions. There's nothing optimal, in my mind, about the rigid programs that lay out a particular path as in, say, option 1 or option 5. It's true that you would create certainty in markets, but that's sort of creating certainty at the expense of adopting a suboptimal policy. You could call this "the Titanic policy." They set the optimal path to New York City, but then did not adjust—[laughter]—to the shocks as they occurred.

My third point is that we have two instruments, so we should use both to try to map out an optimal policy. The other instrument is conventional interest rate policy. But with the federal funds rate near zero, of course, it's hard to make adjustments along that dimension, except by varying the expected date of a rate increase. So I think it's reasonable to use both tools—asset sales and the expected date of the rate increase. We can offset the macroeconomic effects of sales—which, I agree with President Lacker, look minor, certainly well within all of the uncertainty around these estimates; if you put confidence bounds around these estimates, they'd be very wide—by moving back the expected date of conventional tightening if that were something the Committee desired to do. Financial markets are currently expecting an earlier date of conventional tightening than our staff model seemed to indicate, so this might actually better align those market expectations with what our staff analysis, and possibly our Committee as well, desires.

Some say that the relative uncertainty of the effects of the two instruments is a key consideration, perhaps citing Brainard's famous 1967 paper. I don't think this is right. Comparing the LSAP program with conventional interest rate policy, we certainly know a lot more about conventional interest rate policy, in the sense that there have been lots of data and

lots of studies on it over time. But conventional interest rate policy is not really on the table at this point. What we have instead is the adjustment of the date of moving off the lower bound and what effects that might have on the economy. And I would submit to you that we know very little about the macroeconomic effects of that. I would say that the effects of adjusting that date are about as uncertain as the effects of a managed balance sheet policy. So you have two tools on the table. The effects of both are equally uncertain. Because they're both uncertain, I think that counsels a "go slow" approach, tracking what is happening, and adjusting as you go along.

Let me make some comments on communication, the fourth area I wanted to comment on. Communication is certainly a challenge, but the challenge can be overstated. The spirit should be: identify the optimal policy first, then figure out how to communicate it. There is, believe it or not, learning in financial markets. Any initial communication problems may cause some disturbances, but eventually those would be unwound as markets come to understand the policy, and the Committee would then obtain the benefits of adopting the optimal policy. The alternative is to adopt a suboptimal policy on the grounds that it's easy to communicate, even though it's suboptimal. That seems unpalatable to me, so I think we should choose the optimal policy first, then think about ways to communicate it.

My final comment concerns the problems with option 1. I think the main risk here is that we don't know what the effects of the large balance sheet really are. Certainly, the large balance sheet looks inflationary by conventional monetary theory. And I'm sure if Milton Friedman were still alive he'd be warning us that inflation is just around the corner. I think we should put some weight on that possible outcome. If inflation and inflation expectations begin to get out of control, we may be forced to sell at a time when we would have to realize substantial capital losses. That would be very damaging to the Fed. Alternatively, we can pay billions of dollars in

interest on reserves, term deposits, and reverse repos. I find that also unpalatable in the current environment. So, for this reason, I think we should begin to return to a more normal balance sheet very soon. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. I think Milton Friedman was concerned about the reduction in excess reserves in 1937 and 1938, so I don't want you to take his name in vain.

MR. BULLARD. He was?

CHAIRMAN BERNANKE. I think so. But I actually have a substantive question for you. I was listening very carefully, and I didn't hear anything that clarified for me whether you thought the Treasury redemptions issue was something that should be delayed or part of the broader strategy.

MR. BULLARD. I'm a little ambivalent on Treasury redemptions. I'm going to talk tomorrow in favor of it, but I'm not strongly in favor.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. The memos on options were extremely useful. I think the memos highlight several important facts we need to consider. First, the size and composition of our balance sheet, like short-term interest rates, are not the goals of policy. They are the instruments used to achieve our goals of full employment and price stability. Second, asset sales are a tightening of monetary policy; while the magnitude is uncertain, the direction is not. And, third, under all the options, we will not achieve either element of our mandate over the period we usually forecast, that is, by the end of 2011. In fact, we will be far away if the Greenbook is right. So if I were to have a centennial option, it would probably be to reach our mandate by the centennial rather than to get our balance sheet of mortgage-backed securities to zero by the centennial. That highlights the point that, in my own estimation, we are

very far from attaining either element of our mandate. That implies that both the onset of conventional policy tightening and the need to sell assets are quite a ways off. In addition, there is considerable uncertainty about how the economy will evolve in terms of both employment and inflation. So I would strongly prefer to maintain a high degree of flexibility and conditionality in whatever program we adopt. With that in mind, I feel that the more extreme options, such as option 5, take an unacceptably long time to achieve either element of our mandate and fail to embody the conditionality that I think is critical at this time.

Consistent with these overarching principles, I would prefer an option that facilitates reaching our dual mandate within a reasonable horizon but that shrinks our balance sheet when and as needed so that we can be confident that we can raise rates when that becomes necessary. The closest option to achieving that goal would be a variant of option 2. Other things equal, I would prefer not to sell assets until after, possibly well after, we begin tightening. I would also prefer to make asset sales or purchases conditional on economic and financial conditions. I hope that such a conditional plan would soften much of the announcement effect that could result in a tightening of financial conditions when a tightening is not at all what the economy requires at present.

Given my economic outlook, I would prefer currently to replace maturing Treasury securities with short-term Treasury bills that could run off as we approach our first tightening. When tightening is appropriate, these Treasury securities would roll off so that we can reduce our excess reserves. This takes out some insurance against the risk that the large stock of reserves could complicate further tightening or be seen as inflationary, though I view both of these risks as remote.

In terms of communication, I would prefer to use the minutes rather than the statement to convey the sense of the Committee and only say at this time that there are no plans to sell assets until after we begin raising short-term interest rates. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Yellen.

MS. YELLEN. Thank you, Mr. Chairman. The issues of asset sales and Treasury redemptions present the Committee with difficult policy and communications issues. I found the Board's staff memos also very helpful in clarifying the key issues and quantifying the potential effects of the various options.

I want to emphasize at the outset that, like President Rosengren, I feel, given the outlook for economic activity and inflation, that there is no case at present to tighten monetary policy, and asset sales and even the announcement of future asset sales will entail some policy tightening. The Board memo shows this clearly. For this reason I don't share the urgency to initiate asset sales any time soon. I'm not at all convinced that the size of our balance sheet creates unacceptable inflation risks through an impact on inflation expectations, and I don't see a compelling need to shift the composition of our portfolio back toward Treasuries-only on an extremely rapid time table.

Nonetheless, I do recognize the concerns around this table about our balance sheet, and for that reason, I'm open to strategies involving asset sales and Treasury redemptions to shrink our balance sheet more rapidly than the staff's option 1 and to shift its composition more quickly toward Treasuries if we can do that without having a significant negative impact on macro performance.

If we do plan to sell assets, I think the memo makes a compelling case for conditionality as in options 2 and 3, namely, waiting to initiate any asset sales until after the time arrives when

we want to remove monetary policy accommodation. Between these I strongly favor option 2, although I'll admit that, on paper, option 3 is the more attractive of the two strategies. By initiating policy tightening through asset sales rather than an increase in the IOER rate, option 3 brings down our MBS portfolio more rapidly. Conditioning the pace of future sales on economic and financial developments and allowing future purchases if economic conditions deteriorate creates the possibility of improved macro performance, especially if downside risks materialize.

But, in practice, I'm fearful that the implementation of option 3 presents insurmountable communications challenges. First of all, logically, a decision to sell off assets before we raise the IOER rate implies an even longer period of exceptionally low rates and a more gradual pace of tightening once the IOER rate is raised than markets now anticipate. I worry that an announcement now of the intent to sell assets prior to raising short-term rates would have exactly the opposite impact on market expectations. Second, we would have to communicate that we are entirely open to further purchases when many Committee members are actively voicing concerns about our holdings, and even those who are supportive have indicated that the bar for further purchases would be very high. With respect to interest rates, there's a long track record upon which the public can base expectations, but for asset sales we have no such track record, and market participants would be constantly guessing about our new asset sales reaction function. I fear that such an approach would create greater market volatility and uncertainty as markets react—and almost invariably overreact—to every word we say. So unfortunately, I think these communications problems outweigh the potential benefits of this approach.

Although I do not see an economic case to tighten policy now—and the announcement of future asset sales will tighten policy—I could still support a plan to sell assets structured along the lines of option 2. If we agree to this plan, our communications could be either in the minutes

or in the FOMC statement, and I'm open to both approaches. If we were to decide to include it in the statement, the illustrative language in the staff memo for option 2 provides a way to do it, but I would be quite concerned about including as much detail about quantities and timing. I think that's quite premature, and intervening economic developments could cause us to change our plans about quantities and timing. So I would be inclined, if we include something in the statement, to say only something like this: "The Committee anticipates that some time after raising its interest rate target it will initiate gradual sales of agency debt and MBS," and then go on to say that "the Committee will adjust the timing and sequencing of these steps as necessary to promote economic recovery and price stability."

On the issue of redeeming Treasuries, I see this potentially as another way to address concerns around the table about the size of our balance sheet, and for that reason I could support a decision to redeem Treasuries. It would, I think, demonstrate to markets that the FOMC is committed to shrinking our balance sheet over time, and it would mitigate some of the interest rate risk we face.

But I also have concerns about a decision to redeem Treasuries, and I see no urgency at all to move on this today or tomorrow. I said at our last meeting that I view Treasury redemptions as a modest tightening of policy in terms of its effects on interest rates. More important, it would be an unexpected shift in policy, and it could move forward market expectations about the timing of asset sales and an increase in the target funds rate. Redeeming Treasuries doesn't help move the composition of the SOMA away from agencies, it's unlikely to obviate the need to deploy reserve-draining tools, and it probably isn't the strategy we would adopt if we wanted to rebalance the duration structure of our Treasury holdings.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. I want to add again to the praise of the staff for the excellent job they did on the three memos—they were just outstanding.

So these are the questions: Shall we shrink our balance sheet by selling, as in options 2 to 5, or should we wait until 2025 or later as in option 1, or should we sell MBS and buy Treasuries, as in President Lacker's memo? It seems clear to me that the answer lies somewhere in options 2 to 5. If we want to get back to an all-Treasury portfolio in the long run, we also want that portfolio to be considerably smaller in terms of excess reserves.

Why do we want a smaller portfolio? I think figure 7 in the memo by Jane Ihrig and her co-authors shows why. In that figure, the large balance sheet unmoors inflationary expectations with deleterious macroeconomic consequences by mid-decade. There are reasons to be concerned that this may end up being more than just a thought experiment. As I'll discuss in my later remarks, the 10-year, 10-year forward break-even inflation rate has risen by 65 basis points in the past seven months, rather steadily, and now stands at nearly 3 percent.

It is true that sales will have contractionary effects, and the Ihrig memo provides us with estimates of their magnitude. The memo rightly describes its baseline estimates as modest, but there are a couple of reasons why I believe that even these modest baseline estimates overstate the true effects by at least a factor of two.

First, the memo's calculations are based on an estimate from a working paper by Gagnon et. al.—apologies to Brian—that the LSAP program lowered bond premiums by 80 basis points. However, the Gagnon paper finds such a large effect of the LSAPs only if it ignores duration heterogeneity. The more sophisticated estimates of the paper are more along the lines of 30 to 40 basis points. These lower estimates are also basically the same as the ones that I reported to you earlier from different New York Fed research by Raskin and Sheets and by Kimbrough and



Madar. But even those estimates strike me as being too high, because it seems likely the current market prices already reflect expectations that the Fed will use sales paths at least like those in options 2 to 4, probably not 5. In Minneapolis, we did the simple event study of the one-day effect of FOMC speeches, testimony, and minutes on MBS prices over the past six months. The biggest move came on March 25, when Chairman Bernanke's exit strategy testimony made clear that the Fed would need to engage in gradual sales at some point. His testimony is associated with a change in MBS prices of six basis points. My own speech on April 6 had an effect on MBS prices of exactly zero basis points. But I admit that this is a result that is consistent with multiple interpretations. [Laughter]

To me, the benefits of avoiding the possibility of inflation scenarios like the one depicted in figure 7 are worth the costs described earlier in the Ihrig memo. This is especially so given that the true costs are, as I have argued, likely to be significantly smaller than the memo's estimates. So I strongly prefer options 2 to 5 with plans that don't shrink the balance sheet in the immediate future. I view the choice among options 2 through 5 to be second or even third order, and I think that's consistent with the results we have seen in the Ihrig memo. Nonetheless, I will offer my views on that question. To oversimplify, we have two tools: assets sales and the fed funds rate. I think the first tool is new, and the second is familiar. To me this argues that we should use gradual, noncontingent sales to get our balance sheet and longer-run inflationary expectations under control. We can then rely on the fed funds rate to do the final work of shaping the macroeconomy.

Along the same lines, my preferred communication plan would be to divorce balance sheet normalization from our traditional fed funds rate choices, and I would also, I think, allow for a fair amount of future flexibility. I would like to indicate relatively soon in the statement

that “the Committee’s goal is to normalize the Fed’s balance sheet both in terms of scale and composition within the next five to ten years. In keeping with this objective, the Committee will initiate gradual sales in early 2011, if economic conditions are appropriate.” I’m open to other kinds of details in this communication, for example, saying we will initiate gradual sales shortly after raising rates. The details of this communication would, of course, then depend on our desired sales strategy. But I think the more important point for me is that we soon provide some form of forward guidance about balance sheet normalization, because I think markets are longing for that.

I, too, was planning to speak about Treasury redemptions tomorrow, but, to sum up, I want to shrink the balance sheet. This seems like a relatively fast way to do it. It is going to lead to a contractionary increase in interest rates, but the Bluebook argues, and I think it is right, that these effects are likely to be small, especially because I think there are more expectations built into the market than even what’s in the Bluebook. Having said that, it’s critical, I think, given where we are in terms of current unemployment and inflation, to use language to isolate this move from any decision to increase the fed funds rate. But I’m pretty happy with the language in alternative B in the Bluebook along these lines. So I’d be in favor of going ahead with redemptions now.

CHAIRMAN BERNANKE. Okay. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. I join the others in congratulating and thanking the staff. I’m glad I am on this side of the table rather than that side of the table on the exit strategy stuff [laughter].

MR. WARSH: Not for long.

MR. KOHN. Or not at the table at all! I'm in favor of agency and MBS sales at some point. It will help reduce reserves, return the portfolio to better configuration, and reduce whatever risk there is of the size of the portfolio contributing to inflation expectations. I don't think that risk is high, but it's not zero.

The question in my mind is when to start. It's clear to me that selling assets would raise interest rates, but it isn't clear how much they would raise interest rates. I think there will be some supply effect, even if it were a gradual slow feeding of assets in the markets, because the markets bring future sales to the present, and I wouldn't be surprised if, as President Kocherlakota was just saying, that type of effect were less than the models in the staff memo suggest.

But I think more of the effect of initiating asset sales will come from communicating what the Committee is intending. It would be the beginning of tightening, and I think the markets would see the initiation of sales as the first step in a series of tightening actions. So I wouldn't be surprised to see interest rates rise by even more than the staff memo indicates. I agree that the communication could be ameliorated by retaining "extended period," but not entirely, and I think there is a huge amount of uncertainty about what the effect of this announcement would be. I see the strategy that President Bullard was talking about—selling securities, but stretching out the communication about how long we'll keep interest rates low—as being very complicated and difficult. I wouldn't start selling until the forecast said we needed to tighten monetary policy, and I expect that not to be for a very extended period, as we'll discuss tomorrow.

And even when we need to tighten, I'd start with our policy rate rather than with sales of assets. I'd like to shift the focus back to our policy rate. I think it would simplify decision

making and communication with the market. Starting with the asset sales implies a longer extended period, and both our holdings of assets and the extended period language can distort asset values, a point that a number of people around the table have mentioned as a matter of concern. But I suspect that over long periods of time, holding the short rate at zero and doing it for longer than otherwise will be more distortive than holding a bunch of agency MBS on our balance sheet. Raising the short rate itself will have an unpredictable effect on longer-term rates—we can just remember 1994 and the reaction to the initial rise then. But we and the markets do have some experience with this sort of policy action; we have no experience with assets sales and the announcement effects there, which are going to be even harder to predict. So I'd prefer to start with short-term rates and see what the effect of that increase is before beginning sales of agencies and mortgage-backed securities. If we are selling securities and raising short-term rates at the same time, it seems to me it could have quite an uncertain effect on markets.

In my mind another important reason for starting with the short-term rate is that it will be easier to reverse if economic activity and inflation turn out to be much less than anticipated. That's the difficult risk to deal with. We can always raise rates by more if the economy is strong or inflation is high, but reversing from sales to purchases, I think, will be much harder with much less certain effects. So, in my mind, risk management argues for starting with the short rate rather than with these asset sales. As I said, I don't see a lot of evidence, at least so far, that the size of the balance sheet is raising inflation expectations.

So my order here would be—and I'll come back to redemptions—the reserve drain, interest on reserves, and then sales, which kind of puts me in the option 2 category. I think that's consistent with making the short rate the key Committee decision variable. When we do sell, I

would pre-announce a path for sales, not make it supersensitive to incoming data unless there was a very substantial downward deviation from what we expected in terms of the economy. I think that our interests and the markets' interests would be best served by a predictable path for sales. To be sure, sales could incur capital losses and reduce remittances to the Treasury, but sales also reduce risk, and I wouldn't allow the concern about the capital losses and remittances to deter us from taking the right action. But it will require careful communication.

I think it would be good—I agree with you, Mr. Chairman—to find some center of gravity to the Committee today and communicate that to the market. There are just a lot of disparate voices out there, but I wouldn't pre-commit really firmly, because you cannot tell what will happen. So my temptation would be to keep it out of the announcement, have a good discussion in the minutes, and use that for our communication device. I think it's a much more flexible and subtle device than the announcement.

On redemption of Treasuries, I think announcing that we're redeeming Treasuries would raise rates a little, especially because it's not expected. Also, like the sales, because it would be the first small tightening of policy and signal that we're initiating steps in that direction. I wouldn't expect a big effect. In my mind, it's very different from closing these liquidity facilities, which we were already winding down. People weren't using them. Closing those facilities didn't affect the cost of funds to households and businesses, but redemptions and, even more, sales would have an effect on financial conditions for borrowers. I think there are reasons to do it. It would absorb reserves to make the reverse RPs and term deposit facility more effective. It would reduce our interest rate risk. On balance, I'd prefer to postpone the redemptions until the tightening need was more apparent or coming closer, but I don't feel that strongly about that. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. First Vice President Holcomb.

MS. HOLCOMB. Thank you, Mr. Chairman. I will attempt to speak on behalf of President Fisher without really having had an opportunity to speak with him specifically about his views. If Richard were here, I believe that he'd argue for an approach that leaves the Committee with greater flexibility to determine the best pace for asset sales as economic conditions warrant. In addition, as he has stated, he is in favor of moving expeditiously to return the balance sheet to normal. I am not sure that there is an option on the table that is fully consistent with his views, but option 3 seems to come the closest.

We are sensitive not only to the need to allow the Committee flexibility to gauge its approach to changing conditions, but also to the need to understand better the implications of shrinking and changing the composition of the balance sheet. Given the unprecedented nature of the current situation, until greater experience has been gained, these implications are largely unknown, and it will remain difficult to determine the optimum speed at which to shrink the balance sheet, therefore arguing for greater flexibility.

Finally, Richard has been concerned about the institution of rigid rules to determine the Committee's actions, even if the rules have contingency wording built in. I believe he would want to avoid making strong commitments at this point. So, given the desire to preserve conditionality for the Committee, yet move forward forthwith, I believe that option 3 is closest to or perhaps I should say least far from, our views. Thank you.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. Thank you. I have to add my thanks to the staff. This really was a very helpful set of options, and thanks to Brian for such a great presentation.

Let me start by saying that, while I certainly realize that monetary policy is scheduled for discussion tomorrow, it is hard, I think, to avoid touching on some aspects of policy as we discuss these options today. But I won't stray very far, I hope.

I assume that, for the purposes of this discussion, our overall objective is to normalize monetary policy within five years, the period during which we would expect the economy and the financial markets to have returned to a more normal set of circumstances themselves. Included in this objective is the goal of restoring the size and composition of the balance sheet to normal and raising the nominal fed funds rate closer to neutral, depending on inflation expectations and inflation itself, of course.

In considering the five options, I do judge option 2, asset sales after an increase in the target, to be the closest to my preferred approach. Under this option, we eliminate agency debt and MBS within five years from when we first increase the fed funds rate, depending on economic and financial conditions. I believe this approach will be the most favorable to the economy and financial markets as we move through this transition.

While option 2 is close to my preferred approach, I do have some important differences that may not surprise you. Importantly, as I will suggest during tomorrow's go-around, I believe we should begin to consider raising the fed funds rate towards 1 percent as early as this summer and into September, and we need to do it in more than a quarter-point step, which would only give the market the impression that we have this series of quarter-point steps into, it seems, infinity. I'd also say that, after we get to 1 percent, we would pause and take stock of the emerging economic and financial conditions. We would look then to determine whether and at what pace the rate should increase beyond that, thus letting the markets know where we are headed and that we will take conditionality into consideration. This would then also allow us, I

think, to redeem Treasuries along the way. As the fed funds rate rises above 1 percent, we can then begin to dispose of the mortgage-backed securities and judge at what pace this might occur in a pretty careful way.

Finally, let me turn to the issue of how we communicate our asset sales strategy. Once a decision is made, I would disclose it in the statement following the meeting with additional details included in the minutes. If this isn't acceptable, perhaps we could do it through testimony or other remarks, but I think we can do it following the meeting. Therefore, I generally support the illustrative language in option 2 described in table 2 of the staff memo, subject to the differences I have mentioned here. I also appreciate that the statement includes a general description of the overall exit strategy that I think would be important to the market. Thank you.

CHAIRMAN BERNANKE. Thank you. Can I take from your remarks that you are okay on redemptions?

MR. HOENIG. Yes, I think this allows us to do Treasury redemptions at this point because we are thinking of raising the rate along the way.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. I will join the chorus of praise for the staff. This is a fascinating set of memos. I learned a lot, and it has stimulated a lot of thinking about different things.

My view is a kind of linear combination of perhaps 2, but probably 3 and 5. One of the things that struck me about this memo, which has already been said, was the rather modest effects of very rapid sales on the economy—not zero, but moderate—which leads me to have more confidence that we can exit from this unusually large balance sheet perhaps more rapidly than we might have thought. I say that because, again, my objective, like that of many others, is



to reduce the size of the balance sheet and get its composition back to all-Treasuries. The question then arises of what the pace should be and how we would go about doing that. I think one of the debates about this relates particularly to the relationship between when we raise rates and when we start selling assets, whenever that may be. I guess I would stress that we don't really know very much about how policy and the economy will respond as we raise the IOER rate when we have a balance sheet with a trillion dollars of excess reserves.

Our confidence in how monetary policy is going to work in that environment is highly uncertain. So I think it behooves us to take seriously the option of trying to get the balance sheet somewhat more in control before we begin to rely only on moving the funds rate target. That could protect us from finding ourselves in a position somewhere down the road where we may decide that we have to raise rates very rapidly, and shrink the balance sheet very rapidly, and deal with all of the concomitant complications that that may pose for us. I think a more prudent policy would be to begin earlier, so that we have more confidence in our ability to execute both a funds rate policy and a shrinking of the balance sheet policy.

I guess my views are partly a linear combination of President Kocherlakota's, President Bullard's, and President Lacker's. I am sympathetic to the notion that it's a good idea to have some conditionality in our ability to shrink the balance sheet. In particular, committing for five years that this is the pace of our sales and then sticking with it seems to me to be perhaps unwise, particularly when we don't know the consequences of our funds rate policy in hitting our monetary policy targets. I also think that if we have to raise interest rates very high, with high excess reserves, we end up paying lots of money to the banking system in the short run, and I'm not sure politically that's going to look very good, either. I think there are good arguments for not sequencing these things. I think you may have to take them jointly as we move forward.

I like the idea of committing to sell assets perhaps for an intermeeting period, or maybe three months or so, and then having the option to reevaluate the pace at which we sell those assets. But I would prefer, as in option 5, to make that pace more aggressive early. And if we need to slow it down, we could choose to do that.

I would also add that, in talk about the tightening of policy, I think we have to understand that, as the economy continues to grow—whether or not we have met our dual mandate, which I think it's important to achieve—if we leave the funds rate where it is, we will actually be creating more accommodative policy relative to where we were. So I think we have to be a little careful in how we interpret our behavior here.

Mr. Chairman, the last question was about both communications and redemptions. On communication, I think it is very important that at this meeting, either in the minutes or maybe preferably in the statement, we make it clear that asset sales are in fact on the table, that they are a tool of policy, that we desire to shrink the balance sheet over time and to return to an all-Treasuries portfolio, and that at subsequent meetings this Committee will be further considering the timing and pace of such sales. I think it's very important that we make that as clear as we possibly can.

On Treasury redemptions, I'm somewhat ambivalent here. I would like to see Treasury redemptions simply because it furthers my goal of shrinking the balance sheet. But I also have some sympathy for the view that if we didn't want to shrink the balance sheet quite as fast, then I would prefer, as President Lacker suggested, that we roll non-Treasury redemptions over into short-term Treasury bills, which would give us more flexibility going forward. I would be amenable to such a strategy. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. I think I can assure you this will be in the minutes, we're in good shape on that score. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Let me add to everyone else's praise of the staff and thanks for the memo that framed a complex subject very well.

First, I'd like to weigh in in support of what President Rosengren said. I'm trying to frame my thinking by, first, starting with the end goal, which, I think, is the achievement of the mandates and nurturing a positive path for the economy, not, strictly speaking, the balance sheet size.

Second, preliminary to commenting on the specific issues, I think we have to keep in mind a context here. The first context is the state of the economy as it is today, which we will discuss later. But also, as others have commented, we are in new territory regarding monetary policy, and a lot is not known or understood. We have a lot to learn, such as, the market reaction to monetary policy actions taken prior to changes in interest rates, the behavior of the fed funds rate in the presence of high reserves, the ability to use the interest on reserves as the policy rate, the effectiveness of reverse repos and term deposits, and the optimal balance sheet size. The point is that there are simply a lot of things that we're going to learn along the way, and I think the best approach is to recognize what we don't know and to maximize flexibility through the process, and not to jump to what I would consider less reversible measures before we have clarity, that is, I'd take an approach that takes a step and assesses, and then takes another step and assesses.

That said, the approach that I would take has elements of 2 through 4, perhaps even 1 through 4. I would not initiate sales immediately or early. I would do that after a conscious decision to tighten, which, in my mind, is not necessarily a rate move but is the commencement

of draining, and conceivably the dropping of language. I would not redeem Treasuries. I would reinvest them biased toward bills. I see a relatively small gain from the redeeming of Treasuries in terms of the reduction of the balance sheet. I think there is something to be said for preserving ammunition for the reverse repo activities. And I think I'd like to avoid the later need to purchase Treasuries to fill in after we have sold them or redeemed them early in the process. I see sales as, in effect, a permanent step in reduction of the balance sheet, and I would sequence things to let the impermanent measures precede the permanent, meaning the use of reverse repos and term deposits. Then, as we know better the optimal size of the balance sheet, the success of the draining tools, and what's needed to affect the fed funds rate, we could begin to let the permanent measure, which would be the asset sales, take over for the impermanent measures.

Regarding communications, I would communicate that the sales program is conditional, and I would accelerate it if market conditions allow. I favor an announced program, in effect a kind of reverse of the LSAP program that communicates that it is conditional, as in option 3. And I am open to the reverse taper idea in option 4 that basically communicates a clear framework that, again, is qualified as being conditional on the course of the economy and market conditions. Those are my thoughts, Mr. Chairman. Thank you very much.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I'm sure I recall Governor Kohn saying at one meeting—it was a meeting where there was a lot of diversity of opinion, and people had very strong views on those diverse opinions—that the Committee participants should come to the meeting with more of an open mind than sometimes we do. I don't think he was asking that we be wishy-washy in coming in with our views. I think he meant that we should be thoughtful, and

today, at best, I think I am going to offer some thoughts. I'm not quite sure I'm going to offer any golden nuggets.

My first reaction is that we need accommodative monetary policy. That's going to be important, and I think it's going to be important for quite some time. We need to follow our dual mandate and respond to our objectives to keep the unemployment rate lower and inflation at our guidelines. So I wouldn't push for asset sales, if I thought that they would harm the economy or our achievement of these objectives. But I will say—and these are the thoughts—that, like President Kocherlakota, I fear asset sales less than some of the estimates in the Gagnon, Sack, et al., paper and some of the FRB/US estimates. I think the work was really good, and I think that the nature of this type of work leads to a lot of uncertainty. A lot of research requires a tremendous amount of vetting, and at best we're at a very early stage, I think, of this.

To give you my preferences, I, not surprisingly, agree with Governor Kohn in preferring option 2. After we begin to raise interest rates, then we embark upon asset sales. I would like to state with some clarity and explicitness what the sales plan would be at that point—"at x dollars per month pace"—where we review that every six months. I think that that plan is going to be an important element of that.

Having said that, let me just express some of the discomforts I have with the issues that we're facing here. First is the perceptions problem that I think we face. I've talked with an awful lot of financial economists and macroeconomists at very good universities about our large-scale asset purchases and the issues that we face. They're highly respected, and I would say that many of them have balanced views going into the discussion. It's not the usual crank suspects that one might run into. [Laughter] I talked to a wide variety. And it is surprising to me the number of people who mention that the size of our balance sheet is very large, and that that could

likely lead to problems, and that the composition is veering way towards credit allocation, and that could be a big problem. It leaves the impression on these people's minds that there's a bias towards inflation. I always try to explain to them that, at the point when the banks begin to lend out the excess reserves, that's when we might run into a problem. But they continue to believe that we are set up to fail on our inflation objectives. And I think communication and education are unlikely to change this, because they start off knowing an awful lot about these issues. So I think we have to deal with this in a risk-management framework. The perceptions are going to be out there, and it's going to be difficult to budge smart people off of that, no matter how much we disagree. To me, that means that we need strong discipline and an explicit plan with respect to the asset sales. That's why I emphasized "when we do it." It might be later than a lot of people would think, but when we do it, we should be very clear, and we should stick to it, which should help mitigate some of this risk.

I've also got some comments on our willingness to counter such perception risks by selling assets. It might depend on the cost of the sales if we were to embark on them. If we do begin to sell assets, how large will the increase in yields be? And would that lead us to want to defer these sales longer than we really ought to? So what is the size of the term premium if we were to increase sales? I think the answer is debatable. I think that the Gagnon, Sack, et al. paper lays that out with many, many good estimates, but there's very wide range there. I really think this is an important issue. This might be in the top five of all of the critical decisions the Bernanke FOMC makes in your entire tenure, that is, the large-scale asset purchases. Hard to imagine, right? So many different possibilities for a list like that. Are we facing a 1937-style risk if we go too soon? Or are we facing a 1970s-style risk for inflation going up when the unemployment rate remains higher than we would like? I want to know a lot more about the

kinds of estimates that Joe and Brian came up with and what alternate views are from a critical vetting perspective, as we would get at conferences and journals. I think that's really going to be fundamental, because at some point, when we actually face this, we're still going to be tempted to put this off. The initial estimate for the term premium was 80 basis points. Then, the discounting of that gets us down to the 30 or 35. But that's a big number, and it sort of leads you to want to think about inaction. I could go into some reasons why I'd like to think about some different numbers there, but I think my estimates are that they might be a little lower.

Having said that, I think we're facing complexity risk with everything that we're doing. At a minimum, I think that any reasonable observer of the following issues would agree that the FOMC faces remarkably complex issues with respect to large-scale asset sales. One, there's a wide disparity in academic and expert views, as I just mentioned, with respect to the implications of these asset purchases. Two, there are highly technical econometric and theoretical arguments about why the term premium size would be a certain size, when it goes up, and when it goes down. Three, I agree with President Kocherlakota. I think these are new arguments with respect to the second tool of monetary policy being large-scale asset purchases and open market operations. We haven't been talking about that in this Committee. The premise of the paper is that it's a bona fide tool at any point in time. Why haven't we been using that, if it's really effective? I think we should evaluate that more carefully.

I think complexity suggests the reluctance, again, to push back on some of these issues, so that we might think, "These are big effects; let's be careful, let's go very slowly." And I agree that we might need to do more. I think this leads us to your envelope theorem comment, Mr. Chairman, meaning that, if there's an inaction bias, the corollary is that it ups the ante on the

importance of getting the funds rate and all of the other tools right. Again, I do favor option 2. I think there are all of these issues that are going to cause us discomfort later on.

You asked for comments on Treasury redemptions. I'm completely ambivalent about that. On the one hand, I'd like to get started—yes, do it. On the other hand, it's tightening—no, that's probably not the right thing to do. I'll leave that up to others.

Did you ask whether or not we should make a statement in the minutes or the FOMC statement?

CHAIRMAN BERNANKE. Well, it will be in the minutes, obviously.

MR. EVANS. Okay.

CHAIRMAN BERNANKE. We can discuss that tomorrow.

MR. EVANS. Okay. If we say too much, it could be a bombshell, if it's in the minutes rather than the statement.

CHAIRMAN BERNANKE. Well, the minutes will reflect the variety and the depth of the discussion. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I also would like to compliment the staff for providing a very useful set of memos that organize the many complex issues associated with potential asset sales into a workable set of options.

After examining the staff analysis of the options and the different objectives that they seek to accomplish, I found myself looking for the best way to attain several objectives. First, I would like to return the SOMA to an all-Treasuries composition in the intermediate term, but I would initiate asset sales only when the economic recovery is well established. Second, I would like to minimize market disruptions. Third, I would like to avoid having to purchase any additional MBS down the road. Fourth, I would like to rely as much as possible on the federal



funds rate or other short-term policy rates as the primary signal of monetary policy. And finally, I think the realized or unrealized losses on the SOMA portfolio should be a second-order consideration and should not drive our decisions.

Comparing the five policy options in the staff memo against these objectives, I find options 1, 3, and 5 to be less appealing than options 2 and 4. Option 1 doesn't get us back to an all-Treasury SOMA quickly enough. Option 3 puts the sales and potential purchase of assets in the policy forefront rather than the interest on excess reserves or the federal funds rate. Option 5 poses the risk of market disruptions, and if the economy starts to deteriorate, it could be difficult for us to provide the necessary monetary policy stimulus due to the zero lower bound.

Option 4 is attractive to me because it returns us to a Treasuries-only SOMA within five years and places the emphasis of monetary control on short-term policy rates. By starting with relatively small quantities of sales and then scaling up over time, we could likely minimize disruptions to mortgage markets and the broader economy, and, of course, by having to announce asset sales only once, we could reduce uncertainty over at least one aspect of monetary policy.

I am concerned, however, about the extent of pre-commitment embodied in option 4, which, I realize, is meant to be its inherent strength. I am very uncertain about what economic and financial conditions will prevail three years or so out, and if we go down the path of this pre-commitment strategy, it might be that as we're ramping up these sales, we could face a situation with an economy that is deteriorating, and that would make it very difficult for us to provide accommodation. It would also cause us to deviate from our preannounced path and then, perhaps, cause us to lose some of our credibility.

That leaves me favoring option 2. Option 2 doesn't have all the benefits that come with a pre-commitment in option 4, but in choosing option 2, we could be committing to sell all agency debt and MBS within a specified time period, which I view as a large step forward. In addition, option 2 contains an embedded option of its own. We can choose at any time in the future to invoke a stronger commitment to sell along a particular path, as in option 4. For example, two years from now, we could pre-commit to an explicit sales path, if that strategy has merit at that time. So I think option 2 brings many of the advantages of option 4, but with more flexibility. One other consideration that tips me in favor of option 2 is the fact that the economic outcomes associated with options 2 and 4 are very similar, at least as modeled here by the staff. I realize these scenarios, as others have said, are hard to model and the range of real outcomes might be wider than has been presented. But based on what I can see, the pre-commitment strategy is not buying me enough of an improvement in the outcomes to overcome my concerns about the inflexibility in option 4.

Regarding the redemption of Treasury securities, I was prepared to support the language that was presented in alternative B that states we would stop reinvesting the proceeds from maturing Treasuries. I do have some of the concerns that others have mentioned that the redemption of Treasuries will be a tightening of monetary policy, but I can support that step because it will help us start unwinding our balance sheet. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thanks. We have a few more speakers, but it's four o'clock, and maybe it's time for a 15-minute, 20-minute break. Say 4:15. There's coffee outside. Thank you.

[Coffee break]

CHAIRMAN BERNANKE. Why don't we recommence? Governor Warsh, you're next.

MR. WARSH. Thank you, Mr. Chairman. Let me add my thanks for the memos. I think the reward you get for the great memos is trying to make sense of what we've heard so far when you write the minutes.

Let me see if I can't try to summarize it in some broad view before going to specifics, some of which I think are covered by what was already said this earlier this afternoon. First, I think it's more important that the broad outlines of an asset plan strategy be understood than that a specific asset management plan be announced. I think that really puts the emphasis on communications, perhaps for this FOMC cycle. Second, I think we should be as clear as possible about our redemption and sales strategy as we possibly can. No less and no more. That means that the purpose of the communication should be to see where we can agree around the table at least in a broad consensus. Third, if properly communicated, financial markets seem to me readily able to incorporate clear, credible, properly sized, prospective communications about asset sales. The improvements in the financial markets should make us more comfortable that, if we do our jobs in communicating the kinds of asset sales that we've described, they should be well received in the markets.

Fourth, it strikes me that the impact of the last dollar of MBS purchases or, say, the last \$100 billion of MBS purchases, was rather small in financial markets in terms of overall effect. I think the effect of the first dollar, or \$100 billion, of sales of these assets is also likely to be quite small, if properly understood. I think that private market participants appear right now to look quite kindly on this kind of asset. These government-backed, mortgage-backed securities strike me as being somewhere in the sweet spot of what investors are looking for. This obviously can change, but that should give us incremental comfort if we choose to start to socialize our strategy at this moment. Fifth, in my view, more broadly, there are likely net benefits of slowly and

steadily disposing of these assets, or at least signaling as we come out of this meeting an openness to doing so, and that could precede changes in the policy rate. Sixth, even assuming an active program of asset sales above and beyond what I'd recommend—I'm thinking about option 5—the high end of staff work suggests that the term premiums could be as much as 80 basis points. I share the view of others that that well overstates the likely impact. But even if that's the case, it was striking to me—and I'll share a view that President Lacker expressed—that it takes a lot of work to move the needle in terms of real economic effect. So while this is a very consequential decision we're making on asset sales, I think the consequences of the communication are greater. If the communications were botched, it would likely have real consequences in financial markets and the real economy. So I'll put the emphasis back there.

What should we guard against? I think as a seventh point I would say we should guard against option 5 being perceived as being too anxious to engage in rapid fire sales of assets. I think we should also guard against option 1, the idea that we're very comfortable holding these assets for the next couple of decades, making these housing assets part of our permanent portfolio, or allowing normal maturity schedules to dictate our holdings. Another thing we should guard against is confusing markets. I think markets, through no fault of anyone around this table, are uncertain about what our relative preferences are between policy rates, balance sheet size, and asset mix. I think they're also confused about the timing. If we could come out of this FOMC meeting or the next with some overall sense of the best way forward, I think we'd be doing ourselves and markets and the real economy some good.

As an eighth and final point before turning to specifics, it strikes me, based on what I've heard so far today, that it's best to chart a thoughtful, steady, middle ground that crowds in private investors, who are probably more interested in holding these assets than we are.

What does that mean in terms of strategy? I favor outlining a broad strategy of asset sales outside the four corners of the statement—most likely in the minutes and in the speeches from many of our colleagues—that accomplishes three things. First, it envisions circumstances where asset sales might, but only might, precede changes in the policy rate. Second, asset sales are done in a way that is slow, steady, prospective, predictable, and presumed to continue absent a material change in economic conditions. And finally, in the broad strategy of asset sales, we avoid at this moment pre-committing to a date for the program to kick off.

I think that, perhaps, as we get through the next couple of meetings, if we get more comfortable with the contour of the economy, as we'll discuss in the economic go-round tomorrow, we could get more comfortable with signaling what the date could be. But I'm not sure as of this minute that I'd want to nail that down or put that in stone.

On the question you asked, Mr. Chairman, about reinvesting the proceeds of maturing Treasuries, I am comfortable, at least in isolation, putting that in the statement at this meeting. But I think that goes against what is more likely to be the key takeaway that we want it to be, and I worry that, even though I favor that section in paragraph 4 as a matter of policy, it gets in the way of our broader communications coming out of this meeting. I would say it's probably not worth it for now. We can talk more about that tomorrow. Thank you.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I favor option 2 for reasons that have already been pretty well articulated here. I also appreciate, more than I can say, the staff memos. They were not only helpful, but I don't know what I would have done to entertain myself this weekend without them. [Laughter]

I did come down to option 2, but I was attracted by option 3. My problem with option 3 was that there seemed to be so much conditionality that it implied that we were going to use two tools. So it seemed to me a little difficult for both us and for markets to keep up with when we were using which tool and what we were using it to do. So I came down to option 2.

I do think that we should make a movement in the short-term rate first before we start the asset sales. And I favor redemption of Treasuries, as they reduce the balance sheet size and would put less pressure on reverse repos and term deposits. I would probably agree with Governor Kohn that it might make sense to begin or to announce them when we are getting ready to raise rates. I'm not sure that it is necessary to do it right now versus sometime in the near future.

I would also be interested in a strategy that replaced it with Treasury bills. I thought we had discussed that six months ago or so, and there were operational difficulties with that. The reason I particularly liked the redemption of the Treasuries is that we got to a point where we needed to buy additional Treasuries sooner, and they could have been bills.

Finally, on communications, I think we should be absolutely clear to markets about what our overall intentions are, and then make our own future decisions within those frameworks in the same way that market participants will make theirs. When we started buying the assets, we announced that we were going to purchase X assets by Y date. In terms of sales, I think also announcing that we were going to sell that same body of assets by a date certain would give everybody something to mark off of. Thank you.

CHAIRMAN BERNANKE. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. Let me start briefly with my premises. First, I don't want to tighten monetary policy right now. Second, I agree with President

Rosengren's point that the size and composition of the balance sheet is not an end in itself, but a means to achieving the ends specified by the Congress in our dual mandate. Third, in general I prefer maintaining our ability to adjust policy to the conditions as we find them. But, fourth, I think there is some guidance needed in markets, specifically with respect to the question of asset sales. That's the thing that I find that people have asked about the most, substantially more than interest on excess balances or term deposits or anything else.

Which considerations have most affected me of these that I've heard from you today and from staff and others in the days leading up to this meeting? One is that it's a bit hard for me to see how anything but really quite substantial asset sales before a change in our target could actually do very much to sop up some of that soggy bottom that we may be looking at when we want to increase the target rate. There is uncertainty, obviously, about what reactions will be, what the perceived signaling effect of our beginning to sell assets will be. So even though I think people have done a good job of trying to project what those reactions will be, we don't have any history on the basis of which to extrapolate.

Next, as several people have pointed out, we would be in a very uncomfortable position if we wanted to reverse sales, if we thought, "Oops, we made some sales, turns out that that was a little bit premature, and now we want to go back." I think that the hurdle for that kind of reversal would be considered quite high by everybody around the table.

Next, though, is sort of the converse of that. Once we are in a mode in which we want to tighten, I think that we should contemplate the possibility that we might sell assets fairly quickly or sell a lot of assets fairly quickly, depending on the circumstances as we find them. That is to say, if we are in a mode in which we have decided that tightening is warranted, we'll presumably have made the judgment that markets can sustain the tightening without pushing the economy in

an unfavorable direction, and where, obviously, by definition, we're not worried about either signaling or actually tightening. So, if a situation such as President Plosser contemplates were to be realized, I think that we, in turn, should contemplate moving in parallel with both policy tools as quickly as might be needed.

Where does this all leave me? Well, it leaves me wanting a fairly parsimonious decision, because obviously some of my premises are actually or potentially in conflict with one another. And that leads me to—[laughter]—that's the nature of policymaking, President Yellen, in addition to saying "so moved." I'm not uncomfortable with needing to balance those considerations, but they lead me to a parsimonious option 2, because what I hope that we can do coming out of this meeting is to signal with some clarity that asset sales will not begin until we have specified an increase in the target rate, and, in line with what Kevin was saying earlier, to indicate that we're prepared to move forward with a plan at that point, which would be reasonably predictable and from which we could deviate if unusual circumstances dictated that we do so. But I don't think, at this moment, that we either need to or should decide, for example, whether some variant on option 3 or option 4 is the right way to go, once we do make the decision to begin selling those assets.

On redemption of Treasuries, I guess at this juncture I'm opposed for the reason that President Lacker stated. I think it's best to bind these decisions up together when the time comes to make them. And, as I've already intimated, my preferred mode of communication would not be in the statement, certainly not this statement, because, again, I think that leads us towards tightening. Obviously, the minutes will speak for themselves. But I would hope that we would collectively equip the Chairman to be able to speak with the confidence that the whole FOMC is



behind him on the elements of this consensus that we are able to reach, understanding that there will be some elements of our decision that will need to await a future meeting. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. And thank you, staff, for great work. Keep it up. I know you will. We're certainly putting lots of demands on you, that's for sure.

My preference is to provide guidance only broadly in terms of what the sequence of tools is likely to be. It seems too soon to provide details. After all, I think that exit, in terms of trying to tighten financial conditions, is not likely to happen soon, nor should it happen soon.

Providing details now would be premature, as it would foreclose future options and might imply to market participants that a nearer-term adjustment to policy was going to take place than what we actually anticipate doing. I would favor outlining in the FOMC minutes, assuming that the Committee can come to a reasonable consensus, a sequence that goes like this: The Committee is going to change the "extended period" language at some point, then reserve draining will begin in size, the interest on excess reserves rate will be raised, and only after that will asset sales commence at a slow and deliberate rate.

I view early asset sales as inappropriate for several reasons. It's a blunt tool that we don't have much experience with. While the staff estimate is that modest asset sales would be worth 25 to 35 basis points, I thought the survey results were interesting in that even very modest asset sales of \$50 billion per year, according to the market participants, would cause a 20 basis point backup in yield, and \$150 billion a year would cause a 40 basis point backup. I think the reality is that we don't know how large the effects would be, we just know the direction. Also, I would note that asset sales are not anticipated by market participants any time soon. Even for agency

MBS sales, the probability of sales in the next two years is reported at only about 25 percent in the survey. In addition, we can conduct monetary policy effectively with an enlarged balance sheet, so I think the costs of delay on asset sales are quite low. We could do asset sales sooner, but I don't see the benefits outweighing the cost. I'm not particularly troubled by the fact that we have a large balance sheet. We have the tools to manage monetary policy despite that. I'm also not particularly troubled by holding the agency MBS for a while longer. I don't want to hold it for 20 years, but a little longer is okay. They are de facto government-guaranteed. The only risk we have is with respect to duration and convexity. Those risks seemed acceptable to me, relative to the risk of tightening financial market conditions prematurely. I'm troubled mostly by how far away we are from our dual mandate, to echo President Rosengren.

In terms of the Treasury redemption issue, I think there's no pressing reason to do this now. Depending on what the Treasury did in terms of their debt management, it would increase duration that would likely be held by the market and thereby lead to some increase in long-term rates. I don't see why that's desirable at the current time. Also, the decision about redeeming Treasuries depends a little, I think, on our decisions about what we want our portfolio to look like over the long term. So I'd ask the staff to help us think about what that portfolio should look like, and then use that as something to inform our decision about Treasury redemptions going forward. I'd also note that market participants generally put a low probability on our deciding to redeem Treasuries, so, if we were to do it and announce it, it would lead to some backup in rates right now. Thank you.

CHAIRMAN BERNANKE. Thank you. As always, thank you for a very informative discussion. I don't want to make the staff blush again, but their work, I think, really helped us to shape the discussion very, very well.

We don't have to come to final decisions today, obviously. But let me just try to summarize what I heard, with the understanding that the minutes, in particular, will convey the richness of the discussion. First, as a number of people commented, our first objective is to meet the dual mandate. Other considerations should be subject to that requirement. One implication of that is that we should consider the implications of the policy decisions we take for financial market conditions, and changes in the setting of one particular tool need to be appropriately adjusted against other tools. So, first, our dual mandate is the ultimate objective.

Second, subject to the constraint that we want to meet the dual mandate, I think it's fair to say that most of the Committee thinks it is important to move toward normalizing both the size and the composition of the balance sheet. There were some disagreements about how quickly, how slowly, how flexibly to do that, but many at least thought that a reasonable target was about five years after the commencement of an asset sales program. So that gives an order of magnitude I think, which seemed to be a center of gravity, but, obviously, people can differ on that.

Third, if we're going to normalize the balance sheet, and, in particular, improve monetary control, that naturally implies that at some point we will begin to sell MBS and agency debt. In describing that, I'd like to quote a sentence that was in my own testimony, which was released on February 10 on prospective sales. I said, "Any such sales would be at a gradual pace, would be clearly communicated to market participants, and would entail appropriate consideration of economic conditions." What I was trying to convey there is consistent with several points that I heard in the discussion. One is that, again, most people wanted to do it on a relatively gradual and steady schedule; another is that communication in advance is going to be very important;

and, another is that there's going to be at least some degree of conditionality, in that we will consider economic and financial conditions as we move forward and maintain that flexibility.

Fourth, with respect to sequencing, there were several views, including the LIFO approach that focuses first on asset sales, or mixed approaches that combine interest rate moves, reserve draining, and asset sales. I do think it's fair to say that a plurality or perhaps a majority did prefer using interest rate policy as the first tool. And my basis for that inference is that an absolute majority of the people speaking did prefer option 2, which does have the IOER rate moving first. I think there are good arguments for using interest rate policy. It is very familiar and, clearly, is something that people will understand—communication, I think, would be simpler. That being said, I think there is one possible compromise that we might consider as we go along. At some point, if we have not already begun the process of moving interest rates—it may not be very far in the future—we might, in the interests of market certainty, want to lay out a schedule for sales. And then depending on when we raise interest rates, either could come first. It could happen that the announcement came first. I think that would be fine. But in terms of—I hate to use the term “fine-tuning”—in terms of the active monetary policy action, interest rates obviously need to be an important part of that.

A number of people put a lot of weight on communication, although I heard most people talking more about general strategies as opposed to specific parameters, which we're not quite ready to put out. Minutes, testimony, and speeches are obviously good mechanisms for that, and I would hope that over the next intermeeting period we will be conveying these broad points to the public to allow them to begin to digest that. A few participants favored the use of the statement. I'm open to the use of the statement, but I think we ought to wait to do that until we

have an explicit schedule to announce—we don't want to say in the statement that at some point we plan to sell MBS.

Those are just some observations. Again, the minutes will convey the richness of the discussion. But I think that was very helpful.

On redemptions, we'll discuss this more tomorrow, because it's on the table for tomorrow's policy decision. My sense of the discussion was that most people around the table were at least willing to accept the idea of moving forward with redemptions. There were a number of people who pointed out that it would constitute a tightening and on that basis they were more ambivalent.

Without presupposing our outcome tomorrow, I'd just like to point out that we do have a number of options. One option would be to decide tomorrow that we want to announce that we're going to begin to redeem all Treasuries. A second option, which might make some of those who are concerned about tightening more comfortable, would be to continue to discuss variants of this option, not put it in the statement tomorrow, but note that this will appear in the minutes and will be signaled and will, therefore, begin to acclimatize the market to this possibility. There's President Lacker's variant as well, but I would just bring to your attention two other variants. One is that several people mentioned that we could roll over Treasuries into bills. Governor Duke, there were some issues associated with that, but I think that, by purchasing bills separately, we could largely address those, although there would be some technical issues. Another variant that we might want to think about would be as follows: If our goal is to reduce the duration of our balance sheet, or to take an intermediate type of step, we might redeem only the securities that had a long initial maturity and keep the three-year securities, which are going to be part of our longer-term portfolio anyway. That creates fewer

transactions to get to where we ultimately want to be. So there are a number of options. We'll come back to this tomorrow for, I hope, a fuller discussion. But, again, thank you for your thoughts. Any reactions or comments?

MR. ROSENGREN. Just a question.

CHAIRMAN BERNANKE. Yes.

MR. ROSENGREN. It would be interesting to know what was coming due and when, so that we could get a sense, if we were to go with the last alternative, what it might look like. Getting the information as soon as tomorrow may not be possible, I realize.

MR. SACK. Do you mean over the coming years?

CHAIRMAN BERNANKE. If we were to redeem only securities with original maturities longer than three, five, or seven years, what would the total redemptions be?

MR. SACK. I can give you some numbers now, or I could put together a full set of numbers.

CHAIRMAN BERNANKE. Do you think you can get numbers for tomorrow?

MR. SACK. Yes.

CHAIRMAN BERNANKE. Terrific. Anything else? [No response.] All right, we can now turn to the second agenda item, the economic situation, and turn to Dave Stockton and Nathan Sheets to give us the overview.

MR. STOCKTON. Those of you who monitor postings on SDS probably noticed that soon after we published the Greenbook last week, I was forced to issue a corrected version. Inadvertently, some of the dates in the headers had not been changed from the March publication date. Normally, I wouldn't submit myself to that ritual humiliation for something as seemingly trivial as header dates. But I was concerned that some of you may have thought we were simply resubmitting the March Greenbook [laughter] so that we could do nothing this round. Given how little our forecast has changed since last summer, I'll admit that this has become an increasing temptation. But being good government bureaucrats, I can assure you that we spent considerable time, energy, and resources to do nothing [laughter].

As we noted in the Greenbook, we have read the incoming data as supporting our view that the economy is in a moderate recovery that is gradually picking up some steam as we move ahead. The growth of final sales has stepped up, and firms appear to be boosting production both to meet those higher sales and to slow the pace of inventory liquidation further. Even the labor market has provided some tentative signs of improving—a development that we've considered key to our projection that the recovery will transition into a sustained expansion. Along with these favorable economic developments, financial conditions have shown further gradual improvement, which should support the modest acceleration of activity that we are projecting to occur both this year and next.

We have made only minimal changes to our outlook, largely because changes to the factors conditioning our forecast have been modest and offsetting. Equity prices are roughly 4 percent higher than we expected at the time of the March Greenbook, and the dollar is a bit lower. These positive influences were partially offset by a somewhat higher path for oil prices. On net, we revised up growth in real GDP this year by  $\frac{1}{4}$  percentage point to  $3\frac{1}{2}$  percent, and we continue to expect growth to pick up further to a  $4\frac{1}{2}$  percent pace next year, the same as in our previous forecast.

I won't use the remainder of my time this afternoon to elaborate on why our outlook is largely unchanged since March. Instead, I'd like to organize my remarks around two specific questions that the incoming data seem to raise about our forecast. The first question is whether the recent pattern of strength in indicators of spending and production suggests that we could be underestimating the momentum gathering behind the recovery. And, the second question is whether the recent string of strikingly low readings on core inflation could be pointing to a more pronounced disinflation than we are currently forecasting.

Let me turn first to the question of whether we are missing the start of a more powerful recovery. A case could be made that we are. We have revised up our estimate of real GDP growth in the first quarter to about 3 percent at an annual rate,  $\frac{3}{4}$  percentage point above our March forecast. And that solid gain comes on the heels of a  $5\frac{1}{2}$  percent jump in real GDP in the fourth quarter of last year that, itself, came as a considerable surprise to us, judged against our expectations coming into that quarter. While the signal for future activity from the outsized increase in output in the fourth quarter might be discounted because of the massive contribution to economic growth from efforts by firms to stem inventory liquidation, that same concern applies much less to growth in the first quarter. Indeed, we estimate that private domestic final purchases—which sums consumption, housing, and business fixed investment—accelerated from a 2 percent pace in the fourth quarter of last year to a  $3\frac{1}{2}$  percent pace in the first quarter, about  $1\frac{1}{2}$  percentage points faster than we were forecasting just six weeks ago.

Consumer spending has been an important part of this story. Real PCE had been expanding fairly steadily since last summer, but the increases in spending have picked

up further in recent months, at least as measured by the currently available data. We are now estimating that real PCE rose at an annual rate of 3½ percent last quarter, about 1¼ percentage points faster than in our previous projection.

Likewise, equipment outlays have been posting gains that are large, increasingly broad-based, and above our expectations. Real spending on equipment and software rose at an annual rate of nearly 20 percent in the fourth quarter, driven largely by spending on high-tech and transportation equipment. We estimate a similar-sized gain in real E&S occurred in the first quarter, and with increases in virtually all of its major components.

Surprising strength has not been confined to the spending data. We estimate that factory output increased at an annual rate of 6½ percent in the first quarter, about ¾ percentage point more than we had projected in March. And the breadth of those gains has been impressive, with the diffusion index of three-month changes in IP moving up to its highest level in almost seven years. These developments are also consistent with the positive readings from the national ISM report and the regional indexes of business conditions.

Finally, as Nathan will discuss shortly, the pace of foreign economic activity also has exceeded our expectations.

So, why, in the face of this array of more favorable data, have we not made more material changes to our forecast that would move us more in the direction of the kind of sharp recovery that has often followed deep recessions? There are several reasons.

First, while I have mentioned areas of surprising strength, there also are areas of surprising weakness. Nonresidential building stands out in this regard. We estimate that outside of drilling and mining, real NRS plummeted at an annual rate of 25 percent in the first quarter, a decline that was 6 percentage points greater than we were expecting in March. And with vacancy rates high, rents weak, and financing difficult, we expect declines to continue through next year. State and local governments also continue to struggle. As you may recall, we marked down substantially our forecast of state and local purchases in the March Greenbook, and still the recent data have come in below those lowered expectations. We see little relief for this sector until late this year at the earliest.

A second reason that we have been cautious about reacting more forcefully to the incoming data is that we are skeptical that the pace of recent increases in spending will be sustained. In the case of consumption, the recent gains in spending have occurred despite generally lackluster increases in disposable income. It is possible that this reflects an improvement in households' views about their permanent incomes. But that hypothesis doesn't square well with the downbeat assessments households report in the surveys about their current and expected financial situations. So we have responded to the recent strength in the consumption data by raising the



level of consumption going forward, but not by the full extent of the recent upside surprise in spending.

As for the business sector, while the incoming readings on orders and shipments have exceeded our expectations, these data are noisy, so we have taken only a modest signal from the recent surprising strength. Our forecast of a 15 percent increase in real E&S this year is below the 20 percent pace in the past couple of quarters, but is well aligned with the fundamentals, at least as assessed by our models.

More broadly, I don't get the sense from the Beige Book, from your discount rate memos, or from our own business contacts, that we have moved into something that more closely resembles a boom than a moderate recovery. To be sure, stories from business contacts have brightened some in recent months, but the general weight of the anecdotes seems to remain at the cautious end of the spectrum with respect to both capital spending and employment. Indeed, many of these reports suggest more downside risk than upside risk to our outlook, especially with regard to our projected pickup in the pace of hiring in coming months.

In sum, we acknowledge that the incoming data highlight some upside risks to the projection. But we still see counterbalancing downside risks, and for now, we remain comfortable standing pat with a forecast of moderate recovery.

Now let me turn to the second question that I posed earlier: Are we underestimating the extent to which inflation is slowing? Again, a reasonable case could be made that we are. Measures of core inflation have slowed appreciably over the past year. On a twelve-month change basis, core PCE inflation has dropped from 1¾ percent in March 2009 to 1¼ percent in March of this year. And the slowing in market-based core has been even greater—from 2 percent a year ago to a bit more than 1 percent now. The trimmed mean PCE price measure has receded a similar amount. The deceleration in core prices has been even more striking in recent months. The core CPI has been about flat over the past four months, and the core PCE price index has only inched up.

As we have noted in numerous alt sims in the Greenbook over the past few years, some downward momentum in price inflation combined with wide margins of slack in resource utilization lead many reduced-form price models to predict much lower inflation than in our baseline forecast. Perhaps that risk is now manifesting itself in the data.

Labor costs have also eased considerably over the past year. Hourly labor compensation, as measured by the employment cost index, increased just 1¼ percent in 2009, down from a 2½ percent increase over the preceding year. Although the productivity and cost measure of hourly compensation has been very erratic of late, it seems to be increasing at a 1 to 2 percent pace, not much different from the ECI. And with productivity gains running well ahead of virtually any measure of labor compensation, unit labor costs have almost certainly been declining.

Again, we concede the risk that the recent low readings on core inflation and labor costs could be signaling a greater disinflation than we are currently forecasting. But, at this point, we still view that more as a risk than as a best guess for several reasons. First, I would argue that we are already forecasting a noticeable disinflation between 2009 and 2010. We are projecting core PCE prices to decelerate from 1½ percent in 2009 to just below 1 percent over the four quarters of this year. Second, we are reluctant to attach a great deal of import to high-frequency movements in any price measure, so we are not especially bothered by the most recent string of very low price readings. Indeed, in late 2008, the three-month change in core PCE prices was just about zero, but core inflation subsequently stepped up to a 1½ percent pace for 2009 as a whole.

Moreover, there are likely some countervailing forces leaning against further disinflation. Based on readings from futures prices, Nathan and his crew are projecting oil prices to trend up a bit further through the rest of this year, following sizable increases over the past several quarters. Core import prices also are rebounding, in part in response to the upturn in commodity prices. As for domestic prices at earlier stages of processing, we are projecting core intermediate materials prices to increase more than 5 percent this year after declining 3 percent in 2009. The pass-through of these price increases into core finished goods and services is admittedly small, but it isn't zero.

Finally, we have been encouraged to largely stay the course on our price forecast by the continued stability of inflation expectations. If the recent string of very low readings on core prices had been accompanied by a downdrift in survey measures of inflation expectations and in TIPS-based inflation compensation, we would have been inclined to mark down our forecast of core inflation by more than the tenth we took out of 2010 and 2011. But the survey measures have held steady, and the TIPS measures have only edged up. It is certainly possible that a sizable output gap and low readings on prices could eventually result in a noticeable decline in inflation expectations. But there are upside risks to the stability of expectations as well. A solid economic recovery, rising commodity prices, large federal budget deficits, and concerns about the Fed's balance sheet could at some point result in an upward move in expectations that those factors don't seem to have induced to date.

For now we are content to stick with our forecast of core PCE inflation remaining about 1 percent this year and next. We continue to expect that total PCE inflation will get a small boost from rising energy prices this year and then fall back towards core in 2011. All told, we project total PCE inflation of 1¼ percent in 2010 and 1 percent in 2011. Nathan will now continue our presentation.

MR. SHEETS. The recent news from abroad has been dominated by a crescendo of market anxiety regarding Greece. What seemed several months ago to be a manageable set of problems is now on the verge of metastasizing, and European authorities still have not been able to marshal a convincing response.

On April 11, after months of delay, European governments announced a €45 billion support package for Greece in conjunction with the IMF. In principle, this package was sufficient to ensure that the Greek government could meet its financial obligations over the next year. The package nevertheless did little to boost confidence, as it became clear that disbursements would require parliamentary approval in some countries, including Germany, and as questions arose regarding Greece's willingness to accept IMF conditionality.

The situation intensified further late last week. Eurostat indicated that Greece's budget deficit in 2009 was actually 13.6 percent of GDP, somewhat higher than previously reported. Reports also emerged that—including the government's off-balance-sheet swaps—the debt-to-GDP ratio at the end of 2009 may have exceeded 120 percent. In response, the Greek 10-year sovereign spread surged to 600 basis points over German bunds. Subsequently, the Greek government formally requested financial support from the European Union and the IMF, but spreads climbed further today, to over 670 basis points, on news that S&P had downgraded Greek debt three notches to BB+ (or junk status), which puts Greek debt on par with Azerbaijan. (I should note that the two-year Greek spreads, which Brian Sack cited in his presentation, are higher and have risen even more than these 10-year spreads that I've noted.)

The European authorities are now focused on constructing a set of measures sufficient to stabilize confidence. We have been told on a confidential basis that an enhanced financial support package is being negotiated, with an eye toward locking in financing for several years. To buoy market confidence, these funds would need to have transparent disbursement mechanisms and be readily available. In particular, Greece has €9½ billion of debt payments due on May 19 and will need access to outside support by that time. Such a package would also need to be accompanied by progress in negotiating a credible adjustment program with the IMF. Given that there is no scope to adjust the nominal exchange rate, the Fund is reportedly calling for a 15 to 20 percent decline in Greek real wages over the next several years as part of a program to invigorate the country's lagging international competitiveness.

But even with a sizable financing package in place, the situation in Greece will remain tenuous. The government is aiming to reduce its budget deficit by 10 percent of GDP or more over the course of the next three years. Implementing such a program will require exceptional discipline, which to date has not been the hallmark of Greek economic policy. Moreover, the program's internal consistency is open to question—such rapid fiscal contraction could weigh heavily on economic activity and tax revenues and thus fail to deliver the desired improvement in the budget deficit.

There are also deeper questions about the sustainability of Greece's debt burden. Several years ago, investors were happy to hold the country's debt at razor-thin 30 basis point spreads over German bunds. In this respect, the stresses in Greece are a delayed manifestation of the same mispricing of risk that has driven the global

financial crisis. A key question for debt sustainability is where these spreads—and hence Greek yields—will eventually settle. By our reckoning, a stringent and sustained fiscal adjustment program, paired with average debt yields of around 5½ percent, would just stabilize the debt-to-GDP ratio at 140 percent. And such a scenario would imply a debt service burden of over 7½ percent of GDP, which is very heavy by historical standards. While our sense is that the European authorities still consider a restructuring of Greek debt unthinkable, it ultimately may prove unavoidable.

I turn now to the question of potential spillovers. As outlined in our Greenbook box, banks in a number of European countries—most notably France and Germany—have meaningful exposures to Greece. But the larger shocks would likely occur through confidence channels and a related pulling back from sovereign risk. The most vulnerable countries in this respect are Portugal, Ireland, and Spain, all of which ran budget deficits last year at or near 10 percent of GDP. Of these three, Portugal is the most vulnerable, with a 10 percent of GDP current account deficit and government debt of around 80 percent of GDP. Consistent with this observation, S&P this morning also cut Portugal’s rating from A+ to A–, noting that the government could struggle in coming years to “stabilize its relatively high debt ratio.” Imbalances in Ireland and Spain appear to be less pronounced, and economic policymakers in these countries seem to have greater credibility. As for spillovers to the United States, our models suggest that the key channel of transmission is likely to be through exchange rate appreciation, to the extent that stresses drive safe-haven flows into the dollar. That said, we also cannot rule out the possibility that full-blown disruptions in Southern Europe could generate stresses for a whole range of other countries that struggle with large fiscal deficits, potentially including the United Kingdom and the United States.

In recognition of the fact that there is still a world beyond Greece, I will conclude by making several remarks about international developments more generally. First, economic data received since the last FOMC meeting generally point to continued recovery abroad. We now estimate that foreign GDP in the first quarter expanded at a 4½ percent pace, nearly a percentage point stronger than we had expected in the March Greenbook. This stronger outcome was due in large measure to a 30 percent (annual rate) bounce in Singapore’s notoriously volatile GDP data and yet another quarter of double-digit economic growth in China. Going forward, foreign growth should step down to about a 3¾ percent pace through the rest of this year and next. This forecast incorporates a slightly stronger near-term outlook for the Asian EMEs, which is offset by a reduction in our projections for the euro area. Although recent data for the euro area have held up surprisingly well, and our baseline forecast envisions that stresses in Greece will gradually abate, we judge that increased uncertainties in Southern Europe will weigh on activity in the region for some time.

Second, the spot price of WTI oil has risen about \$2 per barrel since your last meeting, and nonfuel commodity prices are also up some, led by sharp increases in the prices of metals and lumber. The rise in commodity prices appears to reflect the

ongoing global recovery, especially in emerging-market economies. Indeed, for oil, recent data from the International Energy Agency show that demand in the EMEs, particularly in China, has been even stronger than previously thought. Increases in commodity prices over the past year or so have lifted inflation rates around the world, but we expect foreign inflation to move back down by the second half of this year, in line with a projected flattening out of commodity prices.

The jumping off point for the dollar in our current forecast is just slightly weaker than in March, as increases against the euro and the yen offset declines against the Canadian dollar and a range of emerging-market currencies. Our forecast continues to call for the Chinese authorities to begin a gradual appreciation of their currency against the dollar during the next couple of months. In addition, other emerging Asian currencies are now expected to appreciate more rapidly than we envisioned in March, consistent with the strong growth outcomes in that region. On net, we expect the broad real dollar to depreciate at roughly a 3½ percent pace over the forecast period, slightly more than in the last Greenbook, with this depreciation coming disproportionately against emerging market currencies.

Finally, I note that U.S. exports are projected to rise at a 9 percent pace through the end of next year, boosted by a declining dollar and the ongoing recovery abroad. Imports should expand at just below that pace—though from a higher level—as the U.S. economy strengthens. Taken together, these projections imply a contribution from net exports to U.S. GDP growth that is roughly neutral through the forecast period.

Brian Madigan will continue our presentation.

MR. MADIGAN.<sup>3</sup> Thank you. I'll be referring to the package labeled "Material for Briefing on FOMC Participants' Economic Projections." Exhibit 1 depicts the broad contours of your current projections for 2010 through 2012 and over the longer run. Almost all of you continue to project a gradual economic recovery, with the unemployment rate, the second panel, slowly trending lower and inflation, the third and fourth panels, remaining subdued over the next few years.

Exhibit 2 reports the central tendencies and ranges of your projections for calendar years 2010 through 2012 and over the longer run; the corresponding information about your January projections is indicated in italics, and Greenbook projections are included as a memo item. As shown in the top panel, most of you anticipate that real GDP will increase about 3½ percent in 2010. The central tendency and the lower limit of the range of your growth projections for this year are both slightly higher than in January. You see economic growth stepping up in 2011, with a central tendency of 3½ to 4½ percent and then staying at about that rate in 2012. Both the range and the central tendency of your estimates of the longer-run sustainable rate of GDP growth, the right-hand column, are the same as in January.

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

Your unemployment rate projections are summarized in the second panel. The central tendency for the average unemployment rate in the fourth quarter of this year is 9 to 9½ percent, a bit lower than in January. But, underscoring your expectations of a gradual economic recovery, all but one of you expect that the unemployment rate will remain above 8 percent at the end of next year. Moreover, most of you project that the unemployment rate will be about 6½ to 7½ percent even in late 2012—well above your estimates, shown in the right-hand column, of the 5 to 5¼ percent unemployment rate that most of you anticipate to prevail over the longer run in the absence of further shocks.

As shown in the third panel, the central tendencies of your projections for headline PCE inflation over 2010 to 2012 are just a bit lower than the projections you gave in January. In contrast, the central tendencies of your projections for core PCE inflation over that horizon, the fourth panel, have shifted down more notably, and the dispersion of those projections has narrowed. The deviations in your projections for overall inflation compared with core inflation generally suggest that a number of you anticipate persistent upward movements in the relative prices of food and energy over the next few years. Nonetheless, nearly all of you project that through 2012 headline inflation will stay at or below your judgments of 1¾ to 2 percent for the “mandate-consistent” inflation rate, the right-hand column.

Your views on the outlook for inflation continue to differ somewhat from the staff’s: Across the three years, the Greenbook forecasts for total and core inflation are around the lower limits of the central tendency ranges of your projections. This pattern helps explain why a sizable majority of you anticipate that it will be necessary to begin moving the federal funds rate up earlier than envisioned in the Greenbook.

As shown in exhibit 3, about two-thirds of you continue to see greater-than-usual uncertainty regarding your projections for economic growth and inflation, the solid bars in the two left-hand panels. As shown in the top right panel, most of you judge that the risks to output growth are roughly balanced, but a few of you now see those risks as tilted to the upside. Most of you continue to view the risks to the inflation outlook, the bottom right panel, as roughly balanced. Thank you. That concludes our prepared remarks.

CHAIRMAN BERNANKE. Thank you very much. Questions for the staff? Anyone?

President Lacker.

MR. LACKER. Thank you. This question just occurred to me in looking at this year’s bank earnings reports, and it probably should have occurred to me earlier, and you have probably thought this through, so help me with this. When loans are written off by a bank, that’s an increase in the net worth of the consumer, but my understanding is that that’s not included in

NIPA personal income, and, as a result, there's sort of a boost to net worth, like an unmodeled income flow, that we've been seeing. A couple of back-of-the-envelope calculations suggest it's roughly 1½ percent outstanding balances at an annual rate. I can't claim we have nailed this, but it could be material—it looks like it could be maybe 0.4 percent of disposal income at an annual rate. So do you think that might be responsible for consumer spending coming in stronger than you might have expected? Do you factor this in? How do you think about this?

MR. STOCKTON. First of all, I guess I'd need to check on the accounting because, in fact, I haven't thought of this and I'm not totally sure. I guess I'd like to get my thoughts organized on that. If that's the case, the income flow from that would not be in this forecast, but it would be here through its effects through net worth and overall stock prices. I will get a note to you on what the facts are there first before I actually embarrass myself by saying something incorrect.

CHAIRMAN BERNANKE. President Lacker, another possible measurement issue is tax refunds, which are not counted as current income but are probably higher this quarter than they have been on average. That also could explain part of the change.

MR. LACKER. Yes. Well, let me follow up. Do you calculate this financial obligations ratio? Does that factor into your modeling at a formal level? I mean, it's sort of a “cash-flowy” kind of thing.

MR. STOCKTON. Yes. We look at that financial obligations ratio to get a sense of how much strain there is on household balance sheets. It's something we take account of judgmentally. It's not incorporated in our consumption models per se, but I think certainly as we look at the decline in the financial obligations ratio, that gives us a sense that part of what this forecast is predicated upon is an improvement in underlying financial conditions and a lessening

of credit constriction, and that affects consumption. So we're getting a bigger acceleration in consumption than just the pickup in income growth can account for, because we're assuming there are going to be better financial conditions and better household balance sheets going forward.

MR. LACKER. Thanks.

CHAIRMAN BERNANKE. Sorry to pursue this, but you've got me interested now.

MR. LACKER. Yes. It's interesting.

CHAIRMAN BERNANKE. It would be a wealth effect mostly, and that has got to balance out. Any write-down on liabilities would have to balance out on the asset side, obviously. But are you referring to the flow of payments, the interest payments?

MR. LACKER. I think there are both. It decreases their liabilities, which makes them better off.

CHAIRMAN BERNANKE. Right.

MR. LACKER. But then a mortgage restructuring reduces your monthly payment flow, and that has this financial obligation ratio effect. So I was thinking about that.

CHAIRMAN BERNANKE. An interjection by Governor Kohn.

MR. KOHN. I actually asked one of your staff about this, Dave, and she said, first of all, it's a transfer of income from the lenders to the borrowers.

MR. LACKER. But presumably to more credit constrained borrowers.

MR. KOHN. Right. So the mpc rates would probably be a little higher.

MR. LACKER. Right.

MR. KOHN. But she also noted that it's unlikely that this has grown a lot over time to account for the pickup in income growth. It could account for some of the level. But I guess the



more foreclosure mitigation efforts there are, the more of this that might be going on. What I was reading about was the strategic defaults—people who were defaulting and staying in their homes so they weren't paying rent and they weren't paying their mortgages, either.

MR. STOCKTON. But even that effect on consumption would in some sense be a little bit more like a wealth effect, because presumably those people are going to have to pay for housing sooner or later. So it isn't an increase in their permanent income by that amount. It's a certain period of time in which they might be able to consume housing services free, but ultimately they're going to have to pay for it. So that was a small, incremental effect on wealth. It could have a small positive effect. We didn't really think that was likely to be material.

MR. REIFSCHNEIDER. There's a timing issue here on these wealth effects, as well, in the sense that banks are taking write-downs on these loans in anticipation of losses. Looking ahead, the market is pricing that into valuations of firms, so that's getting into net worth. But if you think about it from the point of view of households that are in trouble, the bank may be assuming that they're going to be writing down the debt, but the household doesn't know it yet. So there's uncertainty about the timing but eventually those two things come in sync. But that goes on in downturns regularly. It's more pronounced in this one, but it's not clear that this effect isn't picked up by the fact that it's correlated with other things reflecting the depth of the recession. There are other variables in our models, like the unemployment rate and so on, which may be more or less proxying for these effects.

MR. LACKER. But the secular trend in debt would last then.

MR. REIFSCHNEIDER. Right.

CHAIRMAN BERNANKE. Governor Duke, did you have something on this?

MS. DUKE. Well, I got worried about it from the other direction. If all of these homeowners are not making payments on their mortgage, then they're spending that money, and sooner or later they're going to have to come to grips with either paying for rent or resuming payments on their mortgages. Again, someone on your staff calculated that for me, and it was a very small amount in relation to total spending.

CHAIRMAN BERNANKE. I am really impressed by the perspicacity of the group here. [Laughter] President Lockhart, do you have a question? No?

MR. LOCKHART. Withdrawn.

CHAIRMAN BERNANKE. Any other questions? President Bullard.

MR. BULLARD. I have a question for Nathan Sheets. You said that the Greece situation is on the verge of metastasizing. Can you give the Committee a sense of how you think events might unfold between now and the next meeting? It seems to me that if we did get to the point where the Europeans were willing to say that there has to be a restructuring, it would be a real bombshell, even globally.

MR. SHEETS. I think that even today we saw increased evidence of that metastasis with the downgrade in Portugal. Let me give just a little bit of a time line here. I think that the Europeans are hoping for a package to be announced in early May, within a week or so, and that would be voted on by the European Union and by the IMF executive board a week after that, which would make it strategically after the May 9 German state elections, which would then put money in the hands of the Greeks so that they would be able to make their €9.5 billion payment on May 19. My sense of the most likely outcome is that things will go reasonably smoothly over the next several weeks and Greece will get the money without any further blowups. This is what's incorporated in our baseline forecast.

Nevertheless, there are lots of risks. The Germans have not been willing to commit categorically to supporting a package. Other European countries have said, “Well, if Germany hasn’t quite gotten around yet to voting for the money, we’ll make it up and make sure that the Greeks have the €10 billion.” So there are all sorts of different ways it can blow up over the next couple of weeks, including the possibility that the Greeks and the IMF don’t have an agreement. But I would expect it would go reasonably smoothly over these next six weeks, with all sorts of downside risks associated with it; then, over the course of months—probably not years—people would start doing real hard analysis on the debt-sustainability issues.

At some point, the Greeks are going to have to make a firm, firm commitment to this fiscal adjustment package and have some social cohesion on it, which they don’t have yet—they’ve been rioting in the streets in Athens and criticizing the finance minister and others for going forward in this direction. If Greece doesn’t get social cohesion on this issue, then I think, at some point over the next six months or so, the situation would deteriorate and blow up. Maybe the Chairman heard something different over the weekend, but at least in my conversations and in what I’ve read, the Europeans at this stage are not at all willing to entertain the notion that a debt restructuring is probably in the cards on this one.

CHAIRMAN BERNANKE. They’ve been very clear that they’re concerned that a restructuring would just create contagion and lead to a run on other countries. At the same time, they have another serious issue: There’s a very severe doubt that this coalition could come together to do the same thing for Portugal or another country.

Vice Chairman, you had an interjection?

VICE CHAIRMAN DUDLEY. Yes, I just wanted to expand a little bit. The German situation is particularly problematic because they have these state elections. This whole idea of

aid to Greece is very unpopular, yet the German government clearly wants to come forward with the aid, and they haven't explained yet to the German voters that this isn't a one-year package anymore, this is a three-year package, and it's going to have to be a lot bigger to be viable. I think what the Germans are hoping is that the IMF and Greece will work out a three-year agreement that's very tough on Greece and then they'll say to the voters, "Okay, we've got this really tough agreement. Oh, by the way, now the aid package is for three years. It's going to be much bigger than we thought." And they hope that they can get it through that way. That's why you're hearing all of this tough talk out of Germany, because they're trying to prepare the ground for ramming this through at the end. What's going on in Germany is pretty complicated, and there's a lot of politics and a lot of theater involved, so we'll see if it plays out smoothly or not over the next week or two.

CHAIRMAN BERNANKE. Any other questions? President Hoenig.

MR. HOENIG. I just want to pursue this a little further. Nathan, what if they can't come to agreement, and Portugal and Spain need help next? Because even if they do come to an agreement, there's that possibility for Portugal and Spain. I hope that someone is assuming that this aid doesn't come through and they do go into default because—

VICE CHAIRMAN DUDLEY. We're looking at it. European banks are another transmission channel. One could imagine that if we started seeing contagion to Portugal, Spain, maybe even Italy, people will start to become worried about the European banks. Then you could actually have a dollar funding problem again as U.S. banks start to back away from European banks. We don't have the swap agreements in place. We don't have any sort of mechanism to provide dollar liquidity to Europe. So the LIBOR problem that we saw a year and a half ago could potentially resurface. So there's some real risk here.

MR. SHEETS. In terms of the transmission, my sense is that Portugal is very vulnerable. They have big fiscal deficits, relatively large debt-to-GDP ratios, and I think there's a perception that they have not yet taken the situation sufficiently seriously and put into place a rigorous adjustment program to address the fiscal problems that they face. I see Portugal as being quite vulnerable. In contrast, I think it would take a very strong wind for this thing to spill over into Spain. Spain is much larger. It doesn't have the imbalances. It has been influenced by the global financial crisis and is experiencing a severe recession, but underneath it, I think that there's pretty much universal respect for the Spanish policymakers.

With that said, if things did move from Portugal and Greece into Spain, then at that point it would get brutal, and let me give you one parameterization of that. Western European bank exposure, including the CDS, to Greece is about \$240 billion. To Portugal it's about \$290 billion. To Spain it's almost a trillion dollars. So if it hits Spain, I think what we have is not just a Southern European crisis, but we also have a more generalized sovereign risk crisis. At that point, I'd say that there's some probability that it could move across the channel to the United Kingdom and perhaps become a broader problem. I see in this a firewall between the Portuguese and the Spaniards. If the crisis blows over that firewall, then it could get much more severe.

MR. HOENIG. That would be bad. It has a familiar ring.

VICE CHAIRMAN DUDLEY. I agree with that.

CHAIRMAN BERNANKE. Questions? President Evans.

MR. EVANS. I wonder if Bill Dudley could just elaborate a bit. You mentioned the dollar funding issues. What's the channel that that might transpire from? Back in 2008, European banks were trying to finance dollar assets and they needed dollars.

VICE CHAIRMAN DUDLEY. But there still is a structural European dollar funding shortfall. It's not as big as it was.

MR. EVANS. But I would have thought these were euro funding issues.

VICE CHAIRMAN DUDLEY. They have a book of business, and that book includes funding their dollar assets. If their credit quality were to come into question, their counterparties would back away. If U.S. banks back away, even though the crisis isn't with respect to dollar assets, you could still have a dollar funding shortfall because of counterparty risk.

MR. EVANS. Okay. So it's general risk aversion.

VICE CHAIRMAN DUDLEY. I agree with what Nathan said. If it goes to Spain, the European bank exposures are big enough to matter. And I think there's a general perception that the European banks have been very slow to recognize their problems and to raise capital. There has been a bit more perception of regulatory forbearance in Europe, so if you have this piled on top of it, it becomes a pretty big deal.

CHAIRMAN BERNANKE. Any other questions? President Kocherlakota.

MR. KOCHERLAKOTA. What's the maturity structure on Spain's debt? How much is short term; how much is long term?

MR. SHEETS. I know the maturity structure on Greek debt. It's about eight years on average, which is the only reason this thing hasn't been even worse. I don't know off the top of my head the maturity structure for Spain, but that's something that's knowable, and we can get it to you quickly.

MR. KOCHERLAKOTA. Thanks.

CHAIRMAN BERNANKE. Other questions?

[No response]

CHAIRMAN BERNANKE. Well, we need to start the go-round, but I guess I would be happy to leave that till tomorrow morning if that's your preference. Yes? All right, I believe that the reception is available on the terrace to be followed by an informal dinner with no business. Thank you and I'll see you tomorrow morning at 9:00 a.m.

[Meeting recessed]

**April 28—Morning Session**

CHAIRMAN BERNANKE. Good morning, everybody. We had a number of phone calls from Europe this morning. Markets are fairly stressed. For example, some of the banks are having difficulty getting dollars at this point, so there is a great deal of concern. The markets have apparently fully priced in default by Greece, so there's a lot of discussion going on about how to address that concern, and, in particular, whether other countries that are similarly situated should take preemptive steps to forestall concerns about their fiscal situation. We'll have additional calls later today and tomorrow.

The Vice Chairman was on a call this morning. We'll let you go first in the go-round, and you can report additionally on that.

I understand Nathan has distributed a chart to answer a question that was raised yesterday about the residual maturity of outstanding debt.<sup>4</sup> Does anyone have any questions about that?

MR. KOHN. Mr. Chairman, my question, is for Brian Sack. Where would the U.S. be on this chart?

MR. WARSH: Sixty months, I think.

MR. SACK. I believe it is approaching five years.

MR. KOHN. Okay. So it would be the lowest bar on the chart.

MR. SACK. Yes.

MR. KOHN. Okay.

CHAIRMAN BERNANKE. Are you trying to cheer us all up?

On a different topic, after hearing our discussion yesterday, I consulted with a few people, and I thought it might be worthwhile to have the staff give us a bit more information on

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<sup>4</sup> The chart is appended to this transcript (appendix 4).



the redemption options, and they, as usual, have come through with useful information. Let me turn it over, if I may, to Brian Sack, to run through this information.

MR. SACK.<sup>5</sup> In yesterday's discussion of the redemption strategy for the Federal Reserve's holdings of Treasury securities, several FOMC members raised the possibility of running down our holdings of longer-term securities while continuing to reinvest in shorter-term issues. We circulated a table to you this morning that summarizes the amount of redemptions achieved under several potential strategies along these lines.

A decision to redeem all maturing holdings of Treasury securities would achieve a cumulative decline in the SOMA portfolio of \$330 billion by 2013. This outcome serves as a good baseline for comparison.

The FOMC could, instead, decide to redeem only those assets with original maturities above a certain level. If it redeemed all assets with an original maturity of three years or more, redemptions by 2013 fall to \$254 billion. And, of course, raising the threshold maturity level further would scale the redemptions back even more. Redemptions fall to \$158 billion with a five-year threshold and to \$34 billion with a seven-year threshold.

Note, however, that the approach of using the original maturity of Treasury securities to decide what is redeemed is somewhat arbitrary. It is not the case that our holdings of a particular maturity are always reinvested in securities of the same maturity. Instead, the proceeds from all securities maturing on a given day are aggregated and allocated to newly issued securities in a manner that does not depend on the original maturity. What determines the evolution of the duration of our portfolio is the type of securities that we buy with these maturing proceeds.

With that in mind, another approach is to direct the reinvestments of the proceeds of all maturing securities into relatively short-term Treasury instruments. Unfortunately, we have limited scope to switch our holdings into Treasury bills in the primary market. The reason is the statutory limitation that we can only roll over our maturing holdings into new issues when the day of the maturity matches the day the new securities are issued. Few coupon securities mature on the days of Treasury bill issuance. As a result, we would only be able to acquire about \$66 billion of bills at Treasury auctions through 2013, leaving \$264 billion of redemptions over that period.

If the strategy were expanded to include reinvestment in two-year notes, the FOMC could roll over more debt, bringing redemptions down to \$123 billion. And if it were expanded to include three-year notes as well, then all maturing holdings could be rolled over into new issues.

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<sup>5</sup> The material used by Mr. Sack is appended to this transcript (appendix 5)

Of course, an alternative strategy is not to rely only on the primary market, but to purchase securities in the secondary market. Under that strategy, even if the FOMC restricted new investments to bills, it could bring its redemptions down to zero if it chose. Alternatively, it could achieve any level of redemptions that it wanted between zero and the full redemption amount under this approach.

The staff can continue to study the advantages of various approaches and provide more information to the Committee, such as the path of the duration of SOMA holdings under these alternative approaches, if the Committee wants. Thank you.

CHAIRMAN BERNANKE. Thanks. Any questions for Brian? [No response.] I think I owe you a bit of an apology. I think the Treasury redemptions idea was a little half-baked. My sense is that we're not quite ready to work through this. I think the question is: What is our objective? Are we trying to get to a specific maturity structure as we normalize our portfolio? How quickly? What are the implications for the balance sheet in general, and for things like capital gains and losses? I want to hear everybody's views on this—perhaps in the policy round might be the best time. But I want at least to raise the option that we might want to instruct staff to give us a fuller description of the issues, including issues relating to Treasury issuance, and so on, before we take this action. But if there is a strong view to move ahead, we certainly can discuss that. Any questions or comments? [No response.] If not, let's go ahead with the go-round, and let the Vice Chairman move up so he can talk about Greece.

VICE CHAIRMAN DUDLEY. Thank you, Mr. Chairman. I was going to talk about Greece anyway, but I didn't realize it was going to keep getting so much worse in the last 48 hours. Where we are right now is that the IMF and the Greek government are negotiating a package, and they hope to complete those negotiations by the end of the week. Should they actually continue, as we expect, those negotiations are expected to lead to a three-year program, €75 billion, or maybe even a little bit more, that would allow Greece to roll over all of its maturing obligations over that period. I think the Greeks are willing to agree to this, because

their alternatives are horrible. Obviously, agreeing to it doesn't mean you actually will implement everything. It buys you some time, though, at least, to get that first disbursement that you need to be able to roll over the €9½ billion of maturing debt that they have due on May 19.

The problem at this point is that the markets have moved well beyond this. As of this morning, two-year Greek sovereign debt yields rose to 25 percent, which, if you do the math, implies either a very high probability of restructuring or a very big loss, if there's a restructuring, or some combination thereof. So the markets are basically saying that the Greek debt level, even with this package, is probably not viable over time.

I think the Europeans are still going to press ahead and try to get this out by the weekend. The next hurdle for this will be the German electorate. They have not been told, as far as I am aware, that there's going to be a bigger package. They've been told that it's going to be a €25 or €30 billion package, of which the German share would be about €8 billion. Obviously, if it is a €75 billion package—€25 billion IMF, €50 billion Europe—the German share is going to be quite a bit higher than what they've been told. I think the German official view on this is, "Well, we're going to show how much the Greeks are doing." This is going to be a very austere package, with four years of fiscal retrenchment accumulating to something on the order of 13 percent of GDP. So they'll use that to show that the Greeks are doing enough. But we'll see.

The ECB is looking at the issue of what happens if the Greek sovereign debt is downgraded by Moody's. Yesterday it was downgraded to junk status by S&P. If it were downgraded to junk status by the other rating agencies, then it would no longer be eligible as ECB collateral. Lucas Papademos was on the call. He said that the ECB does have emergency measures that it can take to ensure that liquidity is forthcoming. I think he was pretty reassuring on that score, even though he didn't want to get into the details of what those emergency

measures might actually be. The Bank of Greece can lend to the Greek banks, so that seems to be okay at this point.

The second big issue, of course, is that the contagion has already begun to Ireland and Portugal, and, to a lesser extent, to Spain and Italy. The good news is that they're at better starting points than Greece in terms of their debt-to-GDP ratios and in terms of their current account positions. Some countries, like Ireland, have already demonstrated quite a bit of social cohesion and are already adopting pretty significant fiscal consolidation. The bad news is that there's nothing beyond what these countries can do for themselves. There's no discussion, at this point at least, of packages being cobbled together by Europe to provide aid to these other entities. So Europe may aid Greece, but, if there's going to be a package for Portugal, Ireland, or Spain, at this point it's only from the IMF, and that means a much smaller package. So I think the big thing over the next couple days will be to see what Portugal, Spain, and Ireland say about their willingness to do fiscal consolidation and how credible that is, because that's really the firewall at this point. They're certainly going to be urged to do as much as they can, but we'll see if that's sufficient.

In terms of the channels of contagion back to the United States, I think there are several potential channels. First, at a minimum, if all of this goes really, really well, you're going to have a lot more fiscal consolidation in Europe a lot sooner than we had thought a year ago. If it goes well, it means that Ireland, Portugal, Spain, and maybe to a lesser degree, Italy, are all going to undertake fiscal consolidation that's going to happen quite soon. So Europe is going to be much weaker than we had thought.

Second, obviously, the dollar is another source of impact on us, and I think the Greenbook looked at that in some detail. The trade weighted value of the dollar hasn't really actually moved much, so I think the consequences from that channel are pretty small.

Third, there's obviously a risk of contagion through the banking system, because, as Nathan outlined yesterday, the European banks hold a lot of sovereign debt in Europe—not so much Greece, not so much Portugal, but when you add in Spain and Italy, it gets to be a very, very large number. One risk here, of course, is that U.S. banks could start to back off from European banks, or the healthy European banks could start to back off from the weaker ones, and then you'd start to see funding pressures among the banking community in Europe. So far, we would say we've seen just a little inkling of dollar funding pressures to date. Interestingly, yesterday the German Eurodollar futures contract went up by—what was it, Brian, five or six basis points?

MR. SACK. Six.

VICE CHAIRMAN DUDLEY. Six basis points, at a time when all other yields in the U.S. were tending to go down. And there are some reports of people pulling back a little bit in terms of cutting their lines to the Portuguese banks. It isn't at the level yet where it's going to have any great consequence if it stops where it is now. But, as we've seen in the past, oftentimes it can go from very little things to very big things very, very quickly. I think the minimum effect on us is going to be a drag on our economic growth, if things go well. If things go badly, the effects are going to be bigger. My view is that this is just one more reason why we want to stay where we are right now in terms of our monetary policy course. And I feel very strongly that we don't want to do anything today that's surprising to markets. So on the Treasury redemptions

front, I fully support the idea of having the staff look at this in more detail and bringing it up again at the June meeting, but I wouldn't do anything today.

Because I'm starting the policy round, I have a couple of other things to touch on that aren't about Greece. There's another issue in terms of financial stability that's a bit of a risk to the outlook, and that's the credit ratings of major U.S. banks. Apparently, the credit rating agencies are looking at the regulatory reform legislation as possibly quite negative for how they would rate U.S. banks, because if the legislation results in much diminished potential for government support to the banks, the rating agencies might decide to eliminate or reduce the degree of uplift to the ratings that is provided by government support. Right now, major U.S. banking institutions get anywhere from one to four notches of uplift to their ratings from the implied government support. If the legislation comes through in a way that's very austere or limiting in terms of the government to support the banks, the rating agencies could actually downgrade the banks as a consequence. This could become a big deal if these rating agencies' downgrades were big enough to cause the short-term funding ratings to be downgraded to A2/P2. Theoretically, at least, this could happen for four major institutions—Morgan Stanley, Goldman Sachs, Bank of America, and Citigroup. If it were to happen, these institutions would probably encounter liquidity problems over the medium-term horizon.

We looked at what would happen for these four institutions. Three of the four would be fine on a 30-day horizon—they have a big enough liquidity buffer to handle 30 days—but, after that, all of them would run into difficulty. I don't think that the likelihood of this happening is particularly high, especially at a time when U.S. banks have raised a lot of capital and have much greater liquidity buffers than they had before, and when CDS spreads for these institutions have come down dramatically. But I wanted to flag it as a risk, because the rating agencies have

brought this up as a potential issue. They haven't said what they are going to do. It's sort of a timing issue: the implementation of Basel II is going to happen later, and U.S. financial regulatory reform is going to happen earlier, so there's a little bit of a mismatch in terms of timing here, which is just another risk.

In terms of the economy, abstracting from all of these financial stability issues, to my mind, things haven't really changed very much since the last meeting. GDP is on a little bit stronger track, inflation is a little bit weaker, so that combination is mostly offsetting. I'm not particularly excited about the strength in GDP. I'm very sympathetic with David's remarks yesterday about the fact that job trends are still very weak and the income trends are very anemic. The fact is that we're going to lose a lot of support that we've had from inventories, and we're going to lose some support that we have had from the fiscal side. And state and local governments are clearly going to be tightening their belts. So I think that the outlook really hasn't changed that much. I notice that, when I look at the longer-term forecasts of the Committee for 2011 and 2012, there's very little change to GDP or the unemployment trajectory relative to last time; the only thing that has really changed is that inflation is actually projected to be a little lower. All of that seems to be very consistent with the idea that nothing really has changed, so there's no real reason to change course. Thank you.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. It is heartening that the incoming data are coming in somewhat stronger than I expected at the last meeting. That said, my forecast is very similar to that of the Greenbook, with moderate growth this year that picks up as the various headwinds subside. The discussions I've had with businesses are consistent with this forecast. Most contacts are seeing modest improvement but are still very tentative. Before they're willing

to hire or undertake very large investments, they want to see more evidence that we are in a sustained recovery. There are still important sectors of the economy that remain weak, as was highlighted yesterday, such as commercial real estate and state and local spending, and I expect that it will be some time before we see much improvement in these areas.

My forecast also has continued disinflation, and many of the models used in my research department imply more disinflation than in the Greenbook. Wages and salaries continue to decline, and employers I have talked to report little pricing power. However, they have noted plans to restore some of the benefits that were reduced over the past two years.

I would note that bank lending continues to shrink significantly. This seems inconsistent with concerns raised that excess reserves will be inflationary. Such an outcome would presumably occur through substantial bank lending, and, in fact, the problem continues to be too little lending, not too much lending. According to many of the bankers I've talked to, this is not likely to turn around any time soon. As many bankers remain capital constrained, many banks are waiting to understand the impact of regulatory reform, and most banks are still working through significant nonperforming loans. With bankers remaining hesitant to lend, an asset bubble funded by leveraged institutions seems unlikely. While the economy is improving, we are likely to remain far from my goal of full employment and inflation at 2 percent over the forecast horizon.

I want to thank the Vice Chair for talking about Greece. I do think it highlights the point that over time we may need a more structured discussion of tails of the distribution; the Greenbook is focused on the modal forecast. I know the scenario analysis is partly intended to get at that, but, given what's happening with financial regulatory reform, and given that we have a case study with Greece and possibly these downgrades, it seems to me that thinking about how



to structure a discussion that gets at tails of the distribution, and thinking through how we could get a more systematic way of doing that, would be useful. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Of course, the alternative scenarios, to some extent, look at those.

MR. ROSENGREN. They do that. But I was thinking more along the following lines. Take the example of Greece. It would be helpful to have data on country risk exposure from the BIS, to have some idea of what our large 10 or 15 institutions were holding, not only the sovereign debt but the credit default swaps to the Greek banks themselves. We don't really talk about paths of contagion. And when we think about what happened with the real estate crisis, I think we kind of knew there was an issue, but we didn't have a structured way to have a full discussion of that. And I think it's useful to get an update. But this might be an opportunity to think about how we could think through all of the channels and how that might influence what we do, particularly on supervisory policy, so we do a better job of meshing supervisory policy and monetary policy.

CHAIRMAN BERNANKE. That point is very well taken.

MR. STOCKTON. Could I just mention a couple of instances?

CHAIRMAN BERNANKE. Yes.

MR. STOCKTON. In fact, we're in the process of doing exactly that kind of scenario analysis that will not be just the type of event that's within the conventional 70 percent confidence interval, but we'll be thinking about more extreme outcomes both for monetary policy and supervisory policy.

MR. REIFSCHEIDER. Specifically, we're in the planning stages right now of a project for thinking about a widening sovereign debt crisis that potentially spills over and creates a banking panic in Europe; so we're working on that.

CHAIRMAN BERNANKE. Good. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. Economic activity continues to improve in the Third District, and a sustainable recovery appears to be under way. Our general activity index from our Business Outlook Survey of manufacturers has been in positive territory now for the last eight months. The index rose from 18.9 to 20.2 in April. New orders, employment, and hours worked indexes have also improved this month and seem to be at levels consistent with typical economic recoveries. The prices paid index rose to 42.7, our highest level since August 2008. Perhaps more noteworthy, the index for prices received was also positive and now has been positive for four out of the last five months. The last time we saw a string of positive numbers for the prices received index was October of 2008. Future prices paid and prices received indexes have also been rising for our manufacturing firms, and, as manufacturing picks up, it seems to suggest that firms believe that they will be able to raise prices in the future.

Residential construction has also improved in the region. Real estate agents tell us that the pickup in March reflected seasonal increases and/or buyers taking advantage of the federal tax credits set to expire at the end of April. They admit that it's difficult to distinguish between those two phenomena. Interestingly, one very large luxury national homebuilder told me this week that he believes the national statistics on housing demand underestimate the strength of the rebound. His selling pace for the last month is up 100 percent over last year. Many of the buyers, of course, in this luxury market are higher-income households. Some did not qualify for the tax rebate, and, given the higher price ranges he operates in, the tax credit probably

represents a relatively small incentive for the customers who do qualify. But he said the tax incentive may be helping these higher-end customers because it allows them to sell their older homes and move up. The contact also mentioned the traffic through his show homes has been rising very steadily, which he thinks bodes well for future sales, and he even mentioned that his pricing power was improving significantly. This is the most upbeat conversation I've had with this builder in three years. So it's quite a change in his tune.

Nonresidential construction appears to be in the tank, but stabilizing at a very low level. We have a little better performance than the nation as a whole, where the value of non-real estate construction continues to decline. Our commercial real estate contacts indicate that, since the time of our last meeting, leasing activity has remained slow, but vacancy rates have remained steady for most types of commercial property, with the exception of some retail centers.

Retail sales in the District were up in March compared with February and compared with a year ago. However, special factors like early Easter and unfavorable weather may have munched the statistics between February and March.

Although labor markets in the region remain weak, we are beginning to see some improvement there as well. Payroll employment in our three states increased for the first three months of the year ending in March, the first three-month increase in two years. The unemployment rate held steady as increases in the labor force seemed to be offsetting employment gains.

Overall, business contacts in our region are coming to believe that we are in a sustainable recovery. Consumer confidence in the mid-Atlantic region, while at relatively low levels, has improved substantially over the last year, and future activity indexes from our manufacturing survey are at high levels. So, cautious optimism seems to rule the day.

My view of the national economy is similar to what I see in the District. I have made little change in my forecast since our January submission. I believe economic recovery began in the middle of last year, and I have growing confidence that the recovery is on a sustainable path, even as the effects of monetary and fiscal policy begin to wane. Conditions in financial markets continue to support recovery at this point, as credit conditions are easing in the banking industry. Labor markets are improving. Consumption growth has been stronger than expected. Investment in equipment and software has been solidly expanding. I'm projecting GDP to grow at around 3½ percent over the next two years, employment growth to pick up over the rest of this year, and the unemployment rate to fall gradually over the forecast horizon. I think the risks around my forecast are now tilted to the upside, not that there aren't downside risks—there are several and, as Vice Chairman Dudley emphasized, there may be others yet to come. Nevertheless, as we've received better than expected data, I think we also need to remember that many of our baseline forecasts are considerably weaker than what historical correlations in the data would suggest, given the depth of the recession from which the economy is now emerging. We could be overestimating the effects of headwinds in our baseline forecast. There are, after all, mainly add factors to the underlying forecasts, not responses to the historical data. We seem to be continuing to see the glass as half empty rather than half full, and I think we need to be conscious of that.

My inflation forecast continues to differ from the Greenbook, and I'm getting more concerned that we may miss the signals to begin normalizing interest rate policy. In the near term, I expect underlying inflation to remain very moderate, but I do expect it to begin to drift up continually over the next two to three years, and I see upside risk to inflation in the medium to longer term. While measures of core inflation are low, commodity prices have been rising. The

future price indexes in our manufacturing survey are firming, again suggesting that firms believe that they will have some pricing power as the recovery continues.

I continue to believe that we will need to raise the federal funds rate in the second half of this year, well before early 2012 as anticipated in the Greenbook. My forecast assumes that the funds rate will reach 1 to 1½ percent by the end of this year, still very low levels by historical standards. Our statement now conditions changes in the funds rate on some economic conditions, and the factors cited are inflation expectations, resource utilization, which is difficult to measure as I have discussed, and actual inflation. All of those are backward-looking statistics in my mind. As I've indicated in earlier meetings, I prefer to benchmark policy on aggressive responses to movements in inflation relative to target and, to the extent it responds to real activity, responses to measures of changes in activity or changes in the unemployment gap. In my view, the focus on growth rates of output and employment gives us a better chance of staying ahead of the curve rather than falling behind it. By the time of our next meeting, I expect we will have experienced four quarters of fairly strong output growth and at least one quarter of reasonable employment growth.

This means that the economy's underlying equilibrium real rate of interest will be rising, as it has been. If we don't begin to adjust policy in response to such growth and rising real rates, we will implicitly be increasing the degree of accommodation, not just holding it constant. As shown in chart 6 of the Bluebook on page 27, the current real federal funds rate is now at the bottom of the range of the four model-based estimates of the equilibrium funds rate. Thus, if these trends continue, we will begin to need to normalize the funds rate.

Now, of course, some may argue that having more accommodation by holding rates fixed is desirable because of the zero bound. That's true, but that's different from a statement that says

we're tightening. But it also seems to me that we made some extraordinary moves in terms of our large-scale asset purchases and quantitative easing in response to the zero bound. So I think it becomes increasingly difficult to assess the stance of policy at the zero bound, but nonetheless, the signals should be moving us towards a normalization. I want to say "normalization" to underscore the fact that a 0 to a ¼ percent fed funds rate is not normal policy, as we all know. We took a number of extraordinary policy actions to help stave off the crisis: We opened special liquidity facilities, we purchased housing agency securities and long-term Treasuries, and we took the funds rate to zero. Now that financial markets' functioning is improved, we have closed many of the liquidity facilities. Similarly, as substantial economic growth and recovery continue, it will be time to take the initial steps in normalizing interest rates and moving the funds rate away from the zero bound.

I view asset sales in the same way. We described our purchases of agency debt in MBS as credit-easing. We were intervening because intermediation in housing finance was severely impaired. The market is now functioning much better, and the Fed no longer needs to serve as an intermediary in housing finance. Thus it's time for us to begin to shed those assets from our portfolio and return to a more normal composition and size. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you very much, Mr. Chairman. My sense of the strength and durability of the recovery has improved in the past few weeks, and that has been in response to the recent data flow at the macro level as well as particularly upbeat reports from our District. Fifth District manufacturing and service sector survey results were released yesterday, and they were particularly strong. The composite manufacturing index set a new all-time record in April. This is a series that goes back to the very beginning of the 1990s; it gained 24 points, to reach a

level of 30, beating the previous record set in early 2000 by 8 points. All of the individual indexes increased significantly, as did readings in every industrial sector, with the exception of transportation equipment. Our manufacturing index had lagged a little bit behind some of the other regional indexes, so this move is pretty noteworthy.

Last week the annual spring furniture show was in High Point, North Carolina. It's a well-known international trade event, so it's something of a bellwether for the U.S. furniture industry, such as it is. There still is a U.S. furniture industry, I assure you [laughter]. Attendance was over 80,000 this year, a 15 percent gain from last year. Orders were strong compared with recent years, and that should show through to shipments in the second half of the year. Many participants were pleased with the robustness. It has been several years since they had a good show, and people in High Point put big stock in how well the show goes. Many participants, though, I will mention, were concerned that supply constraints and rising demand for furniture could put upward pressure on prices. Some of them aren't convinced that the Chinese suppliers who have retreated from the market as demand fell are able to come back on line and really meet demand. So they're worried about upward pressure on prices. That improved sentiment was echoed in our service sector survey. Both retail and nonretail service sector revenue indexes turned positive in April. The retail sector index reached its highest level since June 2007, and shopper traffic rose to its highest level since early 2006.

A more optimistic outlook is also evident in the array of anecdotal reports we've been getting from our directors and other contacts. I won't recount them to you, but I'll just note that over the last few months the positive elements in these reports have grown steadily as a share and become more and more prevalent. We've also heard some scattered reports of concerns

about current or imminent raw material shortages and upward pressure on input prices, consistent with what President Plosser was alluding to.

Turning to the national picture, my outlook for output and employment is similar to the one presented by the Greenbook. I thought that was a balanced presentation yesterday. Also like the Board staff, I have raised my forecast in response to the incoming data flow. I think the long-awaited appearance of decisively positive, though not yet robust, employment growth was particularly encouraging, as was the favorable surprise on retail sales in the first quarter. So my sense is that we're going to continue to see favorable developments on the consumer front this year. Pent-up demand in the early stages of a cyclical recovery has often contributed to a robust burst of growth in consumer spending in the past, and I think it can be a factor this time as well. The overall financial position of the consumer sector has probably improved enough so that pent-up demand can be realized ahead of employment and income gains. Consumers seem to be more confident now that those gains are going to be realized, or at least that the downside risks to those gains will not be realized. In addition, it seems plausible to me that consumer credit write-offs are going to continue to transfer wealth to more liquidity-constrained consumers, and I think that could be a positive factor, whether or not we have an econometric handle on that. Thus, I wouldn't be surprised to see more markups of consumer spending forecasts by the Greenbook in coming quarters.

I'd like to say a word about consumer lending. Apparently write-offs are far larger than the reduction in consumer credit outstanding. Large banks report that they're extending a lot of new credit, which is not nearly as much as they're writing off. So there's new lending going on. It's sort of like employment—it's just that the net flow is negative at this point in consumer credit. I interpret a phrase like "not enough lending is going on" to mean that there aren't



enough creditworthy borrowers that lenders can find. In any event, I think we're on a path at the national level toward realizing steadily increasing growth rates in final sales over the last three quarters and going forward as well. That shortly will establish growth well enough and strongly enough to warrant raising rates at some point later this year.

Turning to inflation, I've lowered my near-term forecast in response to the recent numbers, but I'm struck by the persistence of the relatively high readings on expected inflation from both the surveys and the TIPS market. I hope we don't experience a repeat of late 2003. At that time, what seemed like high unemployment—it doesn't seem very high in retrospect—led us to underpredict inflation significantly for 2004. Yes, the unemployment rate is far higher now than it was in 2003, but I think the relationship as we understand it between unemployment and inflation is just as tenuous, just as murky, on both theoretical and empirical grounds as it was then. If it turns out that we're too sanguine on inflation, by extrapolating this low point in inflation, then that adds to the risk of waiting too long, in my mind. If inflation firms up this year and markets see us holding rates low for an extended period as that happens, I think expectations could erode suddenly. I think that recent legislative proposals that would have the effect of politicizing the FOMC just exacerbate this risk, especially if any of them make it into law.

I think it would help us reduce this risk—I will say much more about this in the policy go-around—to begin selling assets as soon as we can, and my preference would be to look to June for an announcement. I think that could help ratchet inflation expectations down a notch and give us some leeway in the event of an unfavorable inflation surprise. But again, I will say more about policy in the policy round. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. Business contacts and directors in the Sixth District are a bit more positive and optimistic about the economy than they were six weeks ago. Sales growth is reported in a number of sectors, including retail, transportation services, and manufacturing. Retailers in my District, including one very large national retailer, explained the spurt in consumer activity as highly value-focused and responsive to aggressive discounting and incentives. Construction activity continues to be subdued in both residential and nonresidential categories, and, contrary to President Plosser's anecdote, one national homebuilder I spoke to reported that, following a very strong March in terms of sales, April was shaping up to be very weak.

While acknowledging some encouraging developments, most of my contacts across the Southeast viewed the signs of improvement as inconclusive. They continue to temper greater optimism with a cautious approach to hiring and business spending. Businesses continue to pursue productivity enhancements in their spending on equipment and software. In several conversations, we heard that investment spending is either mandatory for replacement and maintenance, or aimed at labor-saving efficiencies. We heard for the most part continuing reluctance to hire permanent employees. Our contacts in the temporary services business reported growing activity, and we also heard opinions that large firms have renewed offshoring activity.

Banks in the Sixth District continue to struggle to varying degrees with problems related to real estate loans. The position of smaller banks is more tenuous than that of regional banks. The wave of small bank failures will persist through 2010, while some regional banks are showing signs of stabilizing. Anecdotal input from borrowers suggests somewhat stronger appetite on the part of District banks for C&I lending. One midsized telecommunications

company reported a marked improvement in bank posture toward lending for expansion. There seems to be lots of variation by industry. Our survey work found no small manufacturing companies denied credit, but this was not true for construction and retail. We also heard reports from a variety of sources that investor funds are active in making a market for troubled bank assets, including real estate, providing a floor for valuations.

Regarding the national economy, stronger incoming data has led us to mark up our economic growth forecast marginally higher than our January submission. That said, our forecast projects more modest growth than the Greenbook baseline, particularly in 2011 and 2012. We see less desire on the part of firms to invest for growth or expand inventory. We also take the view that the recent strength in consumer spending won't be sustained. We see a slower pace of reduction of unemployment weighing on household spending. Our outlook for unemployment is worse than the Greenbook's because of firms' persistent caution in hiring full-time U.S. employees. We've assumed a little more productivity growth and a lot less job creation in comparison to the Greenbook.

Regarding inflation, the incoming retail price data argue persuasively that disinflation is still occurring and more so than we anticipated in January. As a consequence, we have marked down our near-term outlook for core inflation.

I see the balance of risks for economic growth biased to the upside. That is to say, I think there is a greater chance I'm proven wrong by stronger growth than by weaker growth. Manufacturing activity is quite strong, and consumer activity so far has exceeded my expectations. So it's possible that underlying consumer demand is more sustainable than I am forecasting. I continue to see the risks to our inflation forecast as broadly balanced. Our business contacts frequently express anxiousness about the possibility of higher inflation down

the road, but we do not get a sense that many are acting on this concern, and expectations seem to be well anchored for now. In summary, the recovery, in my view, is immature and has not yet achieved a solid foundation. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I am seeing early signs of a recovery in the Fourth District, and incoming information has improved my outlook for economic growth in the first half of this year. In fact, I now expect output growth for the first half of the year to be roughly a full percentage point better than my January forecast submission. Economic activity has strengthened in the last quarter, and my business contacts are more confident that we are on a sustainable recovery path than they were just a few months ago. But it's still not clear how much of the strength that we've seen recently is tied to nonrecurring factors, like inventory restocking, stimulus programs, and other short-term supports.

My economic growth outlook for the remainder of this year and in 2011 is still subdued relative to the recoveries we've typically seen after steep recessions. And it's consistent with what most of my business contacts are telling me they expect. They remain very cautious about growth prospects going forward. In fact, two very large manufacturers in my District had first-quarter earnings that exceeded expectations, but they were criticized by analysts for not moving up their earnings for the rest of the year. They are saying that they just have never been through an episode like this one, and this first-quarter strong performance just isn't sustainable in their minds right now. So it's that kind of caution, along with the immense challenges of relocating people who have been unemployed for long spells, that is keeping growth in my medium-term outlook below the Greenbook baseline.

These issues are also reflected in my interpretation of the high levels of productivity growth we saw in the later part of last year. My outlook for productivity growth during the next few years is less sanguine than the Greenbook's. My business contacts continue to report that they are expecting to keep hiring limited, while still easily meeting expected increases in demand. So these reports do suggest elevated productivity growth in the near term. However, my business contacts also report that they are being very disciplined in their capital investments, especially in their U.S. facilities, which will limit investment-driven productivity growth. In addition, they report that the available labor pool contains an unusually large fraction of people with very long unemployment spells, people who have to reintegrate into the economy with some loss of skills and productivity. Combining these disparate trends, I expect a notable deceleration in productivity growth over the next few years, relative to the Greenbook baseline. And my slower productivity growth then translates into a slower output expansion path than the one in the Greenbook baseline.

My assumption for relatively slower productivity growth than the Greenbook also has some implications for my inflation outlook. My inflation outlook is already very low in the near term. It drops below 1 percent in the current quarter. From there, it gradually increases in response to stable inflation expectations and an accommodative monetary policy, and it reaches 1.5 percent by the end of 2012. If, instead, productivity were to evolve along the Greenbook baseline, unit labor cost in my outlook would likely be even lower than I now expect, with the result that inflation would remain fairly flat, near 1 percent, rather than edging up as in my current outlook.

A pattern of subdued inflation is quite evident in the price data. My staff, as you know, has been calculating the median CPI for years as a measure of underlying inflation pressures.

The 12-month increase in the median CPI has fallen precipitously, to a record low of 0.6 percent in March—evidence of disinflationary forces at work. And even if we exclude housing, the 12-month trend in the median CPI still stands at an extraordinarily low 1.2 percent.

Consulting with my business contacts on how they see the pricing developments in their businesses has tended to confirm very low inflation rates. Businesses that are in some of the harder-hit industries, such as commercial and residential construction, continue to talk about significant price-cutting. But even in sectors where activity is recovering, ample productivity growth enables companies to hold prices steady, even when commodity prices are picking up. It's not easy to convert pricing anecdotes into retail-level price measures, but the reports on pricing decisions strike me as unusually tame at this time.

The incoming data on output have helped to confirm my sense that the risks to my outlook for economic growth are balanced. But in terms of inflation, I see the risks as weighted to the downside. For example, as I have noted, productivity growth along the Greenbook path would put further downward pressure on unit labor costs than is embedded in my outlook.

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. First Vice President Holcomb.

MS. HOLCOMB. Thank you, Mr. Chairman. The Eleventh District economy does not appear to be uniquely distinct from the U.S. economy. Like the nation, the Eleventh District economy seems to be on an improved and improving trajectory, obviously, from a low base. This view is reflected in the economic projections submitted by Dallas for economic growth averaging just under 4 percent this year and next, and 4.5 percent in 2012, with declining unemployment and subdued inflation. I'm told that our economists have a higher level of confidence in these projections, all the more so for having put them in writing.

Since the March FOMC meeting, economic conditions in the Dallas District have continued to firm up. As you heard, Mr. Chairman, when you visited Dallas three weeks ago, the outlook in the District is guardedly positive, or, to use the term you introduced in summarizing your discussion with our directors, there is “constrained optimism.” New data, as well as anecdotal evidence, suggest continued strengthening in the District. District employment has increased for three straight months, and most measures of economic activity, with the exception of commercial real estate, continue to improve. Factory output is expanding, drilling activity is strong, consumer confidence is edging up, and Texas retail sales and exports are rising. Our Texas leading index continues to show gains, and our April manufacturing survey shows further acceleration of business activity, with most of the current activity and labor measures reaching their highest levels since before the recession.

The main concern that we have encountered is a lack of confidence that the improvements will continue. Our directors in particular have expressed concern about the sustainability of these trends. Most of our directors have been providing somewhat upbeat reports about their companies, their industries, and their local economies, but are concerned about the impact of the withdrawal of government life supports. This has constrained their willingness to make capital expenditures. In addition, several directors indicated that their companies have right-sized during the downturn, meaning that they will not hire back most or all of the employees that were let go, even when times improve, because of new efficiencies that were introduced into their operations. As you can imagine, it’s difficult to constrain optimism in Texas. But, for now, that’s where we are. Thank you.

CHAIRMAN BERNANKE. Thank you. President Evans, how’s the optimism in Chicago?

MR. EVANS. Thank you, Mr. Chairman. I'm going to refrain from discarding my prepared remarks, just because of the Greek situation. I do have a relatively upbeat report, but it does seem that tail uncertainty refuses to go away. In the short time since our last meeting, the data have come in about as we expected, perhaps even a little stronger. It's looking more and more as if we've turned the corner. Unfortunately, the neighborhood is still pretty depressed.

I have been hearing relatively upbeat reports from most of my contacts for several months now. Consistent with moderately improving growth, these have become stronger and more broad-based. Of course, uncertainty and wariness remains, but this seems to be abating somewhat. For some time, many contacts have been concerned that economic growth would falter once we were through the inventory upswing. Now most are reporting decent orders into the second half of the year. Perhaps this reflects an initial release of pent-up demand. For example, several directors reported companies were starting to spend on IT projects that had been put on hold because of the downturn and uncertainty over the recovery. And the recent strength in consumer spending is consistent with households beginning to make some purchases that they had delayed during the recession. Nonetheless, many business contacts remain wary over the sustainability of demand, much as you were mentioning with regard to the Dallas directors.

With regard to some specific reports, the improvement in our District is reflected in the Chicago Purchasing Managers Index, which will be released this Friday. The index jumped 5 points to 63.8, its highest level in five years. Some of the strongest reports we heard came from the heavy equipment manufacturers, which had seen robust export and agricultural demand. Caterpillar increased its projection for sales growth in 2010 from 17 percent to 40 percent. The



company is also bringing back 3,000 U.S. workers who were laid off during the recession. John Deere, similarly, reported a large increase in employment callbacks. Those are good signs.

Another positive sign of improving labor markets is the strength of the temporary help business. Those firms are seeing solid increases in billable hours and job placements, and, by industry and worker segments, gains are proceeding sequentially, as they would expect in a sustainable recovery. Of course, there's still a huge amount of slack in labor markets. Many firms advertising for workers have been inundated with responses. For instance, Allstate Insurance recently opened a new call center in San Antonio and received more than 7,000 applicants for 600 available jobs. Unfortunately, many of those who applied lacked the requisite skills.

In credit markets, bank lending to small- and medium-sized businesses continues to be weak. We still hear about frustrated firms who say they have good prospects but can't find loans. We get that from our advisory council contacts—the bankers always tell us that it's the lack of creditworthy borrowers, as President Lacker mentioned, and it's a very consistent story. We did hear some interesting stories of private equity and hedge funds trying to take advantage of the high margins created by banks' reluctance to lend. They are entering deals to buy loans and the high-yield debt of middle-market businesses. Their sense is that this will represent a good profit opportunity for the next year or so. It's hard to know how much lending capacity such investors can really add, but these stories are consistent with others we hear of money that had been on the sidelines coming back into the game, so financial market functioning seems to be much better.

On Vice Chairman Dudley's comment about regulatory reform and the rating agencies thinking about downgrading large financial institutions, I just wonder about that. It seems like

one can think of the assistance from “too big to fail” as an option contract, and the question is: Is it in the money at the moment, or is it out of the money? And it seems like it’s out of the money, so I wouldn’t think that they should downgrade them at the moment.

I’ll turn now to the GDP forecast. The incoming data indicate, as they have for some time, that the recovery seems to be progressing about in line with expectations, namely, we’re most likely seeing a moderate rebound as opposed to a sharp bounceback. Overall, our economic growth forecast is about the same as the Greenbook’s.

My forecast for inflation has come down a bit more. The recent drop in inflation to very low numbers seems to reflect the significant effect of slack on pricing. From conversations with McDonald’s to Caterpillar, corporations talk about successfully managing future costs down. They have negotiating power, and slack is a powerful element in their ability to get concessions. What are they going to do with margins, and are they actually going to pass that along to prices? Okay—I don’t know; stay tuned. Inflation expectations have been remarkably stable, given the actual disinflation we’ve experienced over the past 18 months. Perhaps this reflects the usual inertia in expectations, or perhaps it reflects the fact that the very large amount of slack is being offset by the effect of the dramatic expansion of our balance sheet and on hidden inflation risks. I can’t tell which at the moment. Over the projection period, my forecast assumes that inflation expectations will not move appreciably, either up or down. Unlike the Greenbook, we forecast inflation to rise somewhat over the next couple of years. Nevertheless, even in my projection, inflation at the end of 2012 is below the 2 percent mark that I view as being consistent with price stability. This should give us room to keep policy accommodative for “quite some time,” or whatever language we use to express another expected six months. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I, too, have been heartened by recent data indicating that the recovery has picked up steam and that the labor market may finally have turned the corner. These are very welcome signs that make me more comfortable with my forecast of a moderate recovery. In contrast, the very low recent readings on core inflation raise the worrisome prospect of continued disinflation.

My outlook is similar to the Greenbook's. The continuing improvement in financial conditions, the rebuilding of household and business confidence, and recovery abroad, especially in Asia, should contribute to solid economic growth over the next few years. I expect real GDP to increase about 3½ percent this year, and roughly 4½ percent next year. My forecast hasn't changed much since January, with upside surprises about offsetting those to the downside. Consumer spending and business investment in equipment and software have rebounded more quickly than I had anticipated. Indeed, the Tech Pulse Index compiled at the San Francisco Fed, which measures activity in the IT sector, grew at a blistering 35 percent annual rate in the first quarter, after racking up a 32 percent gain in the fourth quarter of last year.

But the worsening of already severe budget problems at the federal, state, and local levels implies less support for growth from government going forward. Conditions in commercial real estate have deteriorated more than expected, and, of course, the situation in Europe poses significant downside risks. Labor markets also remain depressed, and the pace of recovery will not return the economy to full employment for several years. I expect the unemployment rate will end this year about 9¼ percent, and next year at about 8 percent.

I see the risks to my forecast for economic activity as balanced. On the downside, I continue to worry that the household debt overhang could crimp spending more than I or the Greenbook have assumed. Admittedly, the recent retail sales data do suggest that the much-

heralded rediscovery of thrift may have had a pretty short run. [Laughter] But this spending surge might also reflect a transitory burst of pent-up demand rather than a sustained upward shift in the pace of consumer spending. My business contacts report that consumers remain focused on necessities and are trading down based on price. The household debt overhang could weigh on consumers for some time, as in the weaker consumption alternative scenario reported in the Greenbook. And in that scenario, the unemployment rate doesn't fall below 9 percent until 2012.

On the upside, overall financial conditions have improved dramatically over the past year. If this trend continues, we could see a much more rapid recovery than I expect. The stock market is up more than 40 percent in the past year. And, despite the severity of the recession, spreads on corporate debt relative to Treasuries have narrowed to levels seen after the much more modest 2001 recession. Favorable terms have buoyed bond issuance in both the investment-grade and high-yield categories.

Yet, despite the substantial improvements in stock and bond markets, overall financial conditions are not particularly conducive to growth. For example, despite the huge rebound in stock prices, the S&P 500 price-to-earnings ratio is only about 20, below its longer-run average. Other measures of asset prices and market conditions are generally within normal ranges. Financial conditions indexes that attempt to aggregate a broad array of factors indicate that, overall, recent conditions have been only slightly positive. These financial measures contrast starkly with the stance of monetary policy as measured by the real federal funds rate, which is in negative territory.

Importantly, loans remain hard to get and expensive for businesses, which hits borrowers who don't have access to bond and equity markets particularly hard. My business contacts continue to complain that banks apply stringent credit standards, depress loan-to-value ratios,

and impose high collateral requirements. One contact pointed out that because smaller businesses frequently use real estate as collateral for loans, the fall in commercial property values is depressing loan commitment amounts. Although my banker contacts adamantly deny they are tightening standards per se, they admit they are scrutinizing loans more closely and refusing to make exceptions to their standards, which effectively makes it harder for businesses to get loans. One banker described it as a “trust but verify” approach. You will recall that that was how Ronald Reagan described his arms control policy toward the Soviet Union. These statements are consistent with the evidence from the April Senior Loan Officer Opinion survey that indicates that, although banks are not ratcheting standards tighter, they’re also not yet unwinding the tightened standards they have put into place over the past few years.

My staff has been examining the terms that banks are setting on loans using data from the Federal Reserve’s Survey of Terms of Business Lending. The main finding is that, for loans with repricing intervals of less than one year, lending rate spreads over the fed funds rate were about 50 basis points above normal in the first quarter of this year. This analysis controls for loan characteristics, including borrowers’ credit risk and lender fixed effects. Interestingly, loan spreads were about 25 basis points below normal from 2005 through mid-2007. Banks’ financial conditions, including loan portfolio quality and supervisory rating, were found to influence loan pricing, suggesting that these spreads may remain elevated for some time.

In summary, although overall financial conditions have improved and are no longer a sizable drag on the economy, they are also not an impetus for robust growth. Favorable conditions in money and bond markets are being offset by tight terms and conditions on bank loans. Of course, these developments need to be followed closely both in terms of how they affect the outlook and for signs of imbalances that could threaten financial stability.

Turning to inflation, the very low recent readings on core measures of inflation are disconcerting. Based on the Greenbook estimate, core PCE prices rose 1.3 percent over the 12 months through March, and the most recent data show a marked downward trend. As I mentioned at our last meeting, these declines in core inflation are broad-based, with weakness in housing costs accounting for only about a half a percentage point of the roughly 1½ percentage point decline in core PCE price inflation we've seen since the peak in 2008. I expect core PCE prices to rise a little less than 1 percent this year, and to rise 1 percent next year. Measures of labor compensation are very weak, and the economy's substantial slack will continue to weigh on inflation. Fortunately, inflation expectations remain well anchored, which should temper any further fall in inflation. Nonetheless, given all of the prevailing uncertainties, I am not that confident in this forecast and see both upside and downside risks along the lines of the alternative scenarios in the Greenbook.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. The Eighth District economy appears to have been one of the weaker Districts in the most recent Beige Book survey. We intend to watch this closely to see to what extent this is an aberration or the start of a longer-term development. The District has, however, experienced some signs of life after the most recent recession. There has been a turnaround in new private building permits, for instance, and we have seen employment gains in a few sectors. District firms are increasing capital expenditures, even while they say they are reluctant to add to payrolls. For several years, it has appeared that the Eighth District labor market performed somewhat better than the nation as a whole. We recently received benchmark revisions for the last several years, which now suggest that the nation and the District are more alike than we thought, with District employment declines during the

recession only slightly better than the nation as a whole. Large transportation firms in the District indicate that business is recovering dramatically. I interpret this as a very positive sign for the economy going forward.

Nationally, the economic recovery remains largely on track. I expect a reasonable pace of economic growth over the next two years and beyond. I think that the growth will be strong enough to encourage gradual improvement in U.S. labor markets. While firms continue to stress that they are reluctant to hire—we've heard several comments like that again today—I think that these firms will be inclined to add workers as the economy continues to improve.

Inflation, indeed, remains subdued. I think that core inflation will continue to be importantly affected by developments in rental markets. Behavior in rental markets is likely to be distorted for the next several years relative to the behavior of the last 20 years. We should at least monitor the core index without the shelter component. Discarding the shelter component is not really right, but neither is discarding the food and energy components.

One common argument for continued focus on core inflation is that it is a good predictor of headline inflation. My sense, based on some St. Louis staff analysis, is that the empirical relationship on this dimension breaks down if we use data from the mid-1990s to the present; that is, core inflation is not such a good predictor of headline inflation over the last 15 years. We will probably do better over the next several years, given the distortion in housing markets, to focus on headline inflation and simply admit that prices are more volatile than we would ideally prefer, but there is not much that we can do about that volatility given the nature of the shocks to the global macroeconomy. I expect medium- and longer-run inflation expectations to continue to edge higher during the remainder of 2010, as the economy continues to improve.

I see the Greek sovereign debt situation as a growing risk—and I wrote this before the news this morning—to the outlook. An unhappy ending there, which is looking increasingly likely, could feed continuing sovereign debt problems in several other countries, adding to financial stress worldwide. Should a larger country follow Greece and lead to a loss of confidence in fiscal rectitude, speculation about the U.S. could follow. Speculation of this type may not be entirely rational. Longer-term rates could, nevertheless, rise, even in the U.S., and complicate monetary policy decisions going forward. Thank you.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. The Tenth District's economy continues to expand at a pretty steady pace. Manufacturing, agriculture, and now consumer spending are showing strength and are contributing to the improvement of the overall economy within the region. Energy conditions have actually softened somewhat but remain a contributor to our recovery overall. Commercial real estate continues to be the weakest sector of our economy. Looking ahead, though, our contacts expect the recovery to continue at a relatively solid pace, and a growing number of firms are anticipating employment gains through the end of the year. For the first weeks of April, District factory managers reported a sharp rise in production and shipments and new orders. Manufacturers and transportation companies expect the rebound in shipments to continue over the next few months, from every indication they have. And employment levels in manufacturing are expected to edge up with this stronger activity. A temporary employment company headquartered in our region has reported to me that their sales, that is, their placements, are up 40 percent since the beginning of the year.



Conditions in the agricultural sector continue to improve. And I would note that continued strong gains in farmland values have pushed value-to-rent ratios to record highs in our area. We have received yet more reports of strong investor interest in farmland as well.

While the energy sector, as I said, has remained a broad source of strength in the District, in recent weeks softer prices for natural gas have slowed the expansion of our drilling activity, and natural gas is about 60 percent of our drilling. In addition, the profits of renewable energy firms have also declined, as might be expected.

Our examiners and our contacts report that commercial real estate continues to be weak, with sales, rents, and prices posting some further declines, and we are seeing further deterioration in the quality of that commercial real estate on some of their books. One favorable sign is that the degree of deterioration seems to be slowing. As I think I mentioned last time, the cap rates are improving in the class A space, although the industrial space and the B and C space are still under very serious pressure.

District wage and retail price pressures remain subdued, as others report. However, manufacturing reported a modest rise in the prices of finished goods and an expectation of further increases, at least over the summer months. Manufacturers and transportation companies in our region are systematically reporting that raw material prices have continued to rise.

Like the region, the national data show the economy is expanding at a reasonably solid pace, as others have said. I have edged up my forecast for GDP growth as well, to about 3½ percent. The recent strength in consumer and business spending and exports suggests the economy is transitioning from a recovery driven by fiscal stimulus and inventory adjustments to one that I think is more sustainably driven by private spending. The recent strength also suggests that the pace of recovery may prove faster than anticipated. The recent improvement in the labor

conditions is another encouraging sign for the recovery. Last month's solid gain in private payrolls, rapid growth of employment in temporary help services that I noted, and evidence of a modest uptick in job openings, all suggest broader job growth will improve.

In noting these more positive numbers, I haven't lost sight of the important uncertainties that we face. Commercial real estate, which I mentioned, continues to be adversely affected, and that is affecting bank lending. Uncertainties remain in the job market, although there are improvements. And fiscal policy, with the end of the Bush tax cuts coming, and the mounting deficits for state governments as well, will almost certainly complicate monetary policy in the quarters, perhaps years, ahead. I also am very much aware of the international activities that we've described here already this morning.

I expect core consumer inflation to remain low for now, and, as I said, just under 1 percent. Over time, though, I expect core consumer inflation will gravitate towards our longer-term expectations. The gravitational pull will be helped along on the other side by a push from an improving economy, perhaps a decline in the dollar, depending on the international experiences, and rising commodity prices. To varying degrees, these forces reflect, I think, the effects of important, sustained fiscal and monetary policy. With this outlook, I think the time has come to be talking, as we did yesterday—and I will talk more about it in the policy round—about a careful but deliberate exit strategy from our current policy. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. The economy is improving in the Ninth District. My contacts report that agriculture and natural resources remain significant sources of strength in the Dakotas and eastern Montana. For those of you who are perhaps interested in making a few bucks on the side, you can head out to Williston, North Dakota, where

the oil industry is very hot. But bring a sleeping bag, because there are no rooms at the hotels or anywhere else. Others have beaten you there. In Minnesota, large manufacturing firms, even the ones engaged in residential investment, are beginning to see significant growth in orders. And this is especially true if they have a global presence. However, we have heard two forms of concern in the District. First, many of our small business contacts complain of not being able to get credit. Second, we are still not hearing of plans to make permanent hires.

I believe that this picture roughly coheres with the story of the national economy. Bank lending continues to fall. Our local contacts, some with national operations, ascribe this decline to multiple causes, including regulatory uncertainty, supervisory pressures, asset quality problems, and low loan demand. Fortunately, investment, especially in equipment and software, is, nonetheless, growing. Nonfinancial corporations are successfully raising funds in equity markets and in corporate bond markets. The U.S. financial system is working toward a recovery in which banks are playing an unusually subsidiary role.

With that said, small businesses traditionally rely on banks as a source of funds, and, at the same time, small businesses have been an important source of employment growth in the early part of the last two recoveries. Barring changes in financing or hiring patterns, these elements imply that output will recover more slowly than in the usual recovery, and employment recovery will be even slower.

Recent realizations of inflation have been low, and my outlook for inflation is correspondingly low over the coming year. Nonetheless, we should keep an eye on measures of longer-run expected inflation. The Board's measure of the 10-year, 10-year forward break-even inflation rate, which is telling us about inflation in the 2020s, drifted up by nearly 30 basis points

since the last FOMC, and is close to 3 percent. It has gone up by 65 basis points since September.

Our most difficult, but most important, job is keeping long-run inflation expectations anchored. I thought, in terms of fulfilling our mandate, the scariest picture in the Ihrig memo we looked at yesterday was, in fact, figure 7. That was the most significant deviation from our mandate that I saw. And I see balance sheet reduction as playing the key role in that process of controlling our long-run inflationary expectations. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. I am glad to hear about those employment opportunities in Williston, North Dakota. [Laughter]

CHAIRMAN BERNANKE. You'll be free soon, right?

MR. KOHN. I don't plan to do it for free, Mr. Chairman. Relative to my forecast in January, like many of the rest of you, I revised economic growth up just a little for 2010, and I revised the unemployment rate down, but despite stronger growth and lower unemployment, I also revised my inflation projection down. Importantly, the incoming data did not cause me to change my basic reading on the likely trajectory for activity or inflation over the next several years. At the end of 2012, output is still below potential, inflation well below my target, as it appears to be for many others around the table.

Stronger economic growth in 2010 reflected better-than-expected consumption and investment. Also encouraging for future growth has been the improvement in financial conditions—higher stock prices, lower corporate bond yields since January, and a very substantial volume of bond issuance. Investors are demonstrating a greater appetite for risk or,

perhaps more likely, perceptions that risk itself is lower as economic growth persists and profits soar.

This raises questions as to why we saw the added strength and whether we're on the cusp of a much stronger recovery more in line with past recoveries from deep recessions. I agree with the observations of President Lacker and a number of others, in that I think we're seeing the results of some pent-up demand being expressed. Purchases of business capital and consumer durables that were postponed in the depths of the recession are being made as confidence in the recovery builds. Unfortunately, it's very difficult to know how large this pent-up demand is. Estimates of desired stocks of capital and consumer durables are notoriously difficult to make. I can see sizable growth being carried forward for business equipment and software investment at least by larger businesses with access to capital markets. Low interest rates are showing through increasingly to the cost of capital as spreads narrow. Profits are very high, and businesses are generating more internal funds than they are spending on capital—there's a negative financing gap—and that, combined with high volumes of bond borrowing, is allowing paydown of short-term debt and buildup of spare liquidity. And business confidence should continue to build slowly as the expansion continues.

It's harder for me to see consumption providing continuing impetus to rapid growth, and I see much more limited room for upside surprises in the consumption sector. Low interest rates haven't shown through nearly as much to consumer loans as they have to business credit in financial markets. Interest rates on revolving credit actually have risen, probably reflecting both losses and new rules and laws. Some of the recent strength in consumption probably comes from high tax refunds—the staff estimates that that might be about a half a percentage point. Income growth remains quite sluggish. Faster consumption growth in the first quarter came at the

expense of a lower saving rate. That doesn't seem sustainable to me. Certainly further declines don't seem sustainable, especially in the face of still sluggish housing values and the need to rebuild wealth. Labor compensation growth has been very low, including a continued deceleration in average hourly earnings in recent months, the most recent data we have on that. So the pickup in income is likely to be quite gradual as labor markets strengthen, and, with consumption most likely moderate, I think the accelerator effects on investment will be limited.

As I noted, like many of you, I did not revise up my economic growth rates for 2011-2012 or revise down my unemployment rate for the end of 2012. I think the basic picture is still one of gradual recovery from a very deep recession with significant slack still remaining at the end of 2012. The list of headwinds is familiar. Households are still adjusting to lower wealth and to the prospect that rising housing prices will not be a source of wealth in the future. The overhang of housing damps the rebound in that market for some time. Ongoing foreclosures keep inventories of vacant homes high and hold down price increases. Commercial real estate takes time to work off its excess capacity. Credit availability from banks increases only slowly as bank capital is rebuilt and restrictions on credit, as a number of you have pointed out, hold back spending by households and small businesses.

I think the risks around this outlook are considerably smaller than they were several months ago or certainly half a year ago, as the expansion proceeds roughly along the expected path, and I do think the risks are balanced. On the upside the latest data really could be signaling a breakthrough leading to higher confidence and a material improvement in labor markets that bolsters income and spending. On the downside, as a number of you have noted, I think there's the European situation. The problems in Greece lead to greater fiscal consolidation in a number of countries, and problems in sovereign debt markets weaken banks, including banks in the

United States, but most especially banks in Europe. And the decline in the euro means that some of the problems they're having over there are being exported to the rest of the world, including to the United States. I don't know what's happening in the U.S. stock market today, but yesterday the decline just showed our vulnerability to problems over there. And I also worry about the U.S. fiscal situation as a potential downside risk. In the short run, instability in Europe will enhance the demand for dollars and drive up the prices of U.S. Treasury securities.

But we are in a risky position, I think, as investors look around the world at fiscal sustainability. You spoke eloquently to this yesterday, Mr. Chairman. I certainly agreed with your testimony. Odds on an adverse accident here are not trivial, with rising risk premiums on U.S. securities. I think the U.S. needs to get serious soon about dealing with the longer-term deficit—I think we're taking huge risks by not doing that.

Despite stronger growth, the outlook is for inflation remaining quite low for a number of years. I read the incoming data as showing very damped core inflation, which tends to confirm the sense that excess labor and capital capacity are putting considerable downward pressure on inflation. With energy prices rising more slowly over recent months, headline inflation will come down towards core. Anchored inflation expectations are all that is keeping inflation from dropping much further. I think here, President Plosser, the reason for seeing the glass half full is that inflation expectations are as high as they are. This is keeping inflation from falling. That's where you see it half empty. So we switched on that one.

I think there are upside risks to inflation. Strong growth in emerging Asia could raise energy prices with elevated headline inflation affecting inflation expectations, and any perception that we are reluctant to tighten in a timely way could also raise inflation expectations. And I think there is some risk that if growth is a lot stronger, there could be bottlenecks, and it

could take a while to put that capital and labor back to work. President Lacker cited 2003 and 2004 as an inflation situation, and I was thinking of 1982 to 1986 where we did have pretty strong economic growth and declining inflation. Now, some of that was because the dollar was stronger, and, in early 1986 anyhow, oil prices came down sharply. But I remember thinking at the time that it demonstrated that there is power to this slack variable, that even with strong growth, you can have declining inflation if there's a lot of excess capacity in the economy. I also think there are downside risks to inflation, particularly, as I noted, as inflation expectations follow actual inflation downward.

In sum, stronger output data are welcome but still not enough to suggest a fundamentally different trajectory for the economy. Weak inflation data are a little concerning, but so long as inflation expectations are anchored and the economy is moving along, disinflation should not be a problem, say, by raising real rates inappropriately. I hope I'm wrong about the outlook. I hope that we have stronger economic growth and that inflation turns out higher than I think it will, but it still looks to me like a long period of unemployment well in excess of the steady state and inflation below most of our mandate-consistent targets. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Warsh.

MR. WARSH. Thank you, Mr. Chairman. I would discard my prepared remarks, but I don't have any. [Laughter] So I will underscore my old remarks today. I have two themes, one of which we talked about briefly yesterday and then again this morning, and that's the situation in Greece; the other is the domestic economy.

First, it is striking to me how long it has taken policymakers around the world to take this Greece situation seriously. Going back many, many months in many nations' capitals across almost all financial markets and across major multinational businesses, this Greece situation has



been constantly dismissed as a unique situation to a southern European country that hasn't had its finances straight in a couple thousand years, so things now aren't that different, and I think that that misunderstanding will turn out to be quite severe for Europe, with a real possibility of impacts here in the U.S. I also happen to think that part of the reason that it has taken the world so long to think about Greece is a misunderstanding of the narrative of the last couple of years. I think Europeans have believed that this is still largely about the U.S. and subprime mortgages. That misunderstanding of the narrative by politicians across the world, and by policymakers and economists, I think, led them to be far too complacent about their fiscal problems and about the European Union.

I think the situation is every bit as serious as financial markets do—I've thought that, as you know, for a long time. I think that the banking situation in Europe is very tenuous. I think that the difference—and, in some ways, it's more troubling now than it was a year ago—is that the markets could get very crowded in the next several months. For example, think about sovereigns that need to go to the market for debt issuance and about the recapitalization of the banking sector outside of the U.S.—Chinese banks are coming back into markets in size; Japanese banks are; most of the Asian banks are; and, I think, through some pressure, European banks will. This market will get very crowded. Whether there is sufficient demand at something like current market prices I think is less certain than I wish it were. So I think the Greek situation is very serious, and it's quite important for us to take quite seriously the prospects of nonlinear outcomes both for Europe and for the U.S.

There's a preoccupation now in markets about spreads between riskier countries and those that are more austere, like the Germans. At some point there will certainly be flights to safety, and that could continue to push German yields down, and even do some favors for

Treasury issuance in the near term. But I think that the hard question will be whether, over the not too distant horizon, we might see a step function move in sovereign credits from the safest sovereigns in the world, and that isn't so far out in my expectations over the course of the next several quarters. So I think it's possible that German and French money will get quite a bit more expensive, even after the situation improves a bit. Markets are going to continue to test these implied guarantees, and I don't think there's a policy response at this point that is up to that challenge. In sum, that situation is serious, and I think we are prudent to be perhaps even a little more cautious in making sure that, as the world is looking around for certainty, as the world is looking around to make sure that they understand first principles and understand that policymakers respond, we go to great lengths to communicate and not to surprise, at least in this environment between now and June.

Let me go from a bit of darkness to a bit of light. I've been of the view, maybe since last fall—I think I've said at every FOMC meeting—that I feel a lot better about the next few quarters than the next few years, and I think the data have borne that out. I think we are in the throes of a cyclical recovery. It certainly could be cast aside by what's going on in Europe, but I take a touch more signal, even given the gravity of that situation, from the recent evidence both on the real side and in financial markets in the U.S. I think this GDP recovery probably has a quarter or two more in it than the Greenbook and the Blue Chip suggest. Whether this recovery is ultimately durable, whether we see labor incomes ultimately rise, whether the unemployment rate comes down with more speed, it looks to me as if GDP math looks better in the U.S. over at least the second and maybe the third quarter than some expectations. It looks to me as if it might be a recovery led by big business and high finance, a recovery which isn't ultimately durable, but is durable until the bill comes due, and it might not come due for a couple of quarters.

Financial market performance, I think, is probably the linchpin to this. If U.S. financial markets can stay resistant to the viruses around the world, then I'd put the "over" on an over/under bet on what GDP performance, at least, is going to do. As I've mentioned before, corporate profits and balance sheets among the Fortune 1000—outside of financial services—is nothing short of extraordinary, and big business CEO confidence in the last couple of months has surged, even as we see small businesses that are still struggling.

So the nature of this recovery strikes me as quite different from what we've experienced in prior recessions, and I won't read into this as much as some forecasters may about what this tells us about 2011 and 2012, but I'd say it still probably tells us something pretty positive about 2010. The PCE that we saw in March surprised markets on the upside, and from the discussions I've had with a couple of big credit card companies, April looks just as strong if not stronger. They're as puzzled as I think many of us are, but the facts are the facts, and I think consumption in April looks better than okay. Tax revenues to a range of states have surprised in the last 60 days on the upside. Tax revenues to the federal government have also surprised. We can tell stories about it, but my experience, at least coming out of the last recession, is that tax revenues were a really, really good guide that something real was going on, an improvement. Consumer confidence continues to trend higher. Consumer durables look better than we expected. Business cap-ex trends are positive, all of which suggests to me that, if we can avoid getting hit by the European virus over the course of the next several months, we might see GDP prints that are well above consensus, but financial markets will give us some indication of this, I think, in the next few weeks. My suspicion is that we will have a special video conference call before our next June meeting to survey results, which is probably not the greatest thing to be projecting, but I wouldn't bet against that.

I think the challenges beyond the next couple quarters in the U.S. are very real. Small businesses and small banks continue to be struggling. I don't think there's much in the regulatory reform bill that would suggest that that will change, and I don't think that there's that much that governments are going to be able to do to change that in the near term.

So I'm light about the U.S. the next couple of quarters. I'm dark about Europe in the next couple of quarters. Just as a way to try to reconcile this, I can't help but think back to our own recent experience. If we think back to how we were feeling around this table in late 2007 through the first half of 2008, we were feeling very serious about what the situations were, even before Lehman Brothers, and the Europeans said, "Well, this is all about the U.S. Things here are just swell." These policies converge. These economies converge, and this one will, too. So I don't want to take too much signal from what is going on. I want us to be very aware of the risks. But we might well sneak ahead for a couple of quarters before the bill comes due. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I would remind everybody that my reference group of bankers includes those that primarily lend directly to people and businesses rather than those that trade debt, and for that group it is really springtime in the banking business. The banks' optimism about the current state of their credit risk showed through in first-quarter earnings reports. Most did show higher than expected earnings or lower than expected losses, and, in the banking part of their businesses, higher net interest margins and reserve releases accounted for the improvement. Even the banks that reported a loss seemed pretty confident about their path to profitability, as their credit costs are projected to fall below their pre-provision net revenues generally sometime this year. While most seem pretty confident about their own

portfolios, quite a few expressed skepticism about the justification of reserve releases by others. Even the smaller banks reported progress on existing known problem credits. However, they did report new unexpected problems popping up. Looking ahead, the biggest concerns were regulatory reform, loan growth, and interest rates rising ahead of economic improvement, putting new pressure on struggling borrowers.

Bank loan balances continue to fall, but the SLOOS data indicate improvement on the horizon for credit availability. In trying to reconcile my conversations with bankers with the data in the still falling bank loan balances and measured improvements, I think the banks that reported easing standards generally cited an improved economic outlook. That optimistic tilt feeds my belief that credit is going to be available to meet whatever demand develops in the consumer and the commercial credit space. The limiting condition to this would be the population of creditworthy borrowers, as that term is normally defined, and credit for real estate loans will lag significantly behind.

Auto loans generally have an average life of 18 to 24 months, so those portfolios are now dominated by recently underwritten credits with high quality and good spreads. Pricing for used cars is firm, so the loss severities have declined, and loans are available even to subprime borrowers. Spreads are declining, and the ABS market seems healthy.

In the credit card market, the divergence between responses on credit cards and other consumer loans seems likely to reflect level re-setting in response to the CARD act. Solicitations for new cards are up from the low seen in 2009, and this holds true for all income levels and to a lesser extent even to those with lower credit scores. However, the response rates to those solicitations are down, and the issuers report low attrition rates and continued paydowns, so that there is likely less movement between card issuers. Terms offered in the solicitations are likely

to be somewhat jumpy as issuers experiment with new offers and new business models. Charge-off rates react very quickly in credit cards, because there's no collateral to liquidate and the regulations require charge-offs at specific stages of delinquency. So I would expect competition for high-quality customers with high profit behavior to pick up quite rapidly. And funding is still very available.

Turning to commercial loans, the story seems driven entirely by demand from creditworthy customers. With the exception of some loans to small businesses, loss rates on these loans did not climb, so ongoing losses are not a factor. About half of the banks report that the customers they talk to are very cautious and waiting for signs of revenue durability before they will make moves. Others report a lot of conversation about spending plans but complain that so far there has been no actual movement of money. All expect to see a reduction in the unusually high deposit balances before a return of loan demand, and almost every bank continues to complain about very low and declining line utilization. They point out that a substantial amount of bank debt has been refinanced in credit markets or paid down from internal cash, and competition is driving down spreads and easing terms. This phenomenon is moving down the size spectrum as firms see competition from debt markets in very weak demand. Second look programs are common for small businesses and slightly larger companies. Banks are competing for customers and looking for the balances to come later, with credit still expensive for weaker companies. And credit is quite scarce in the lower end of the asset base, as many lenders failed and others pulled back.

All conversations about mortgage lending get muddled up with political considerations, from loan modifications to principal write-downs to GSEs. A fair number of loans were refinanced last year, but that seems to be coming to a halt, as most borrowers who are eligible

and for whom refinance was advantageous have now already refinanced. Purchase mortgage originations are at very low levels. Originations of home equity loans are only about a half to a third of what they were at the peak, depending on the bank, and there are still no signs of loans exiting the delinquency pipeline. New discussions on principal reductions on underwater mortgages actually have the potential to attract more defaults.

Commercial real estate, which generally gets the worst rap of all, seems to me likely to cycle through before the residential piece, as it remains out of the political spotlight and sensitive to an improving economy. While delinquencies continue to increase, unlike the case of the residential pipeline, bankers report that this is due to new delinquencies coming in as older delinquencies are resolved. A significant amount of debt has been reduced through loan sales, foreclosures, refinances, and some paydowns, and the loss severities are stabilizing as the real estate fundamentals, such as sales, prices, rents, and vacancies show signs of stability at weak levels. Very little new supply is coming on line, which should benefit existing properties as economic conditions strengthen and absorption improves.

The outlier here is residential construction. With the exception of entry-level housing and some deeply discounted lots, inventory is not moving. New lending is scarce and made to strong capitalized builders with cash equity at more expensive terms. The builders are anxious to continue to make interest-only payments in hope that prices will recover, and their lenders are equally anxious to let them. However, regulators have been unwilling to play along. While credit is likely to be scarce in this market for some time, the demand for new houses at a price that exceeds the cost of construction may also lag. Meanwhile banks with large homebuilder portfolios will continue to fail. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. The factors relevant to the economic outlook that are of particular importance to me have been expressed well around the table already. The recovery is now better grounded, though judging by the package of our forecasts presented by Brian yesterday, everyone agrees that, considering the severity of the recession, the recovery will likely continue at no more than a moderate pace. During the intermeeting period, the strength of personal consumption expenditures was a particularly pleasant surprise, though, as has already been noted, there is some question as to how sustainable that strength is. Another significant uncertainty is the pace of the housing recovery. The good number on housing starts began from a very low baseline, and signs of firmness may be offset to some degree by inventory pressures resulting from increased foreclosures. Since our last meeting, inflation has, if anything, become more subdued.

I join with all of those who find the biggest new threat to come from the Greek situation and potential contagion effects in Europe and possibly elsewhere. A couple of months ago, it was reassuring that markets reacted to the Greek problems with relative equanimity, but, unfortunately, the lessons that some of us learned the hard way in 1997 have not been internalized in the rest of the world. The risk now is that, in the face of prolonged inaction, markets will scrutinize and test countries in roughly similar circumstances even if a fairly robust assistance package for Greece is eventually approved. As of this moment, CDS spreads for sovereign debt outside the euro zone are generally lower than they were at the beginning of the year. That may seem reassuring, but it's worth recalling that Russian bond spreads didn't move much in the late summer of 1997.

I want to direct my remaining comments to the issue of employment or, more precisely, unemployment. As Michael Elsby and his colleagues concluded in their paper for the March



Brookings panel, there is little doubt that the present downturn is the deepest postwar recession from the perspective of the labor market. In one sense, the recent recession followed the typical pattern of disproportionately affecting less-educated workers and racial minorities. The unemployment rate of high-school dropouts over the age of 25 shot up 7.9 percentage points from early 2007 to what we hope was its peak of 15.6 percent in February of this year. Similarly, teenage unemployment rose nearly 10 percentage points.

But another perspective reveals just how broad-based the impact on the labor market was. If we look at percentage increases in unemployment rates, we note an interesting fact. For each category of more-educated workers over age 25—those with high-school diplomas, those with associate degrees or some college, and those with college degrees or post-baccalaureate degrees—the percentage increases in unemployment rates rose by a factor of between 2.4 and 2.5. So, for example, the unemployment rate for workers over 25 with high-school diplomas but no college rose from 4.7 percent in January 2008 to a peak of 11.2 percent last October. Of course, the unemployment rates for the especially vulnerable went up by more percentage points from already higher levels, but the increase in the ranks of the unemployed within those demographic groups was by a factor of between 1.6 and 2.0 as opposed to 2.4 to 2.5.

I rehearse these selective statistics only to emphasize the point that there is a lot of slack in virtually every segment of our labor market, including among the better-educated—and, as a group, presumably more adaptable—workers. Moreover, for all the talk of upturns in employment prospects, we are still not very far from the bottom. We have barely begun to have net job growth. Anecdotal information about hiring plans is better than it has been, to be sure, but it continues to reflect cautiousness. The growth in temporary employment in the first quarter may well presage a near-term stream of permanent hiring, but, in some past recessions, such

effects have lagged by up to a year. The very magnitude, speed, and scope of layoffs during the recession have led some to ask whether structural unemployment has increased significantly, particularly in light of expectations that a good portion of the layoffs came from industries that either were associated with the housing bubble or in which employment is in apparently secular decline. This question, of course, is a way of asking whether significant increases in employment will be inflationary, or, at least, whether they will become inflationary at an earlier stage of the recovery than might be expected if the historic relationship between output growth and employment growth had not broken down in the second half of 2009.

The recent nonpredictive nature of Okun's law may well be transient, an artifact of an unexpectedly high leap in productivity during the depths of the recession that probably will not be replicated in the coming quarters. Moreover, there are few concrete signs that structural unemployment has, in fact, increased substantially. There is actually a little data pointing in the other direction. The Elsby paper to which I referred earlier drives the admittedly provisional conclusion that, at least to date, workers who lost their jobs in declining economic sectors have exited from unemployment at about the same rate as workers as a whole. Ultimately, of course, it's too early to say whether Okun's law has just been violated or actually amended and thus, among other things, how much structural unemployment may have increased. But even if we stipulate that the NAIRU has gone up by a full percentage point, double the Greenbook estimate, there would still be a big difference between the NAIRU and current unemployment levels.

In the end, the degree to which structural unemployment rises may depend as much on policy as on levels of job-worker mismatch. The specter of large numbers of workers remaining unemployed for long periods surely does loom as a possibility and with it the likelihood of skill erosion and increased aversion to those workers by potential employers. If policy continues to

support aggregate demand growth and the availability of credit for new and growing businesses, the severity of both short- and longer-term unemployment problems can be limited. If not, we may experience elevated unemployment levels for some time to come with consequent negative effects on potential economic growth and on fiscal conditions. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you very much. I understand that coffee is ready. Why don't we take 20 minutes and come back after that? Thank you.

[Coffee break]

CHAIRMAN BERNANKE. Okay, we're ready to recommence. Let me thank you again for your useful input and discussion in the go-round. Let me try, as usual, to summarize a lot of information in a short space.

Intermeeting data tended to support the view that a moderate and sustainable recovery is under way, albeit from a low base, with final demand replacing the inventory cycle and fiscal stimulus as the principal sources of impetus. There are risks to the economic growth outlook in both directions, but overall they have shifted somewhat to the upside. Inflation has generally been slowing and is expected to stay low, though medium-term risks continue in both directions.

Retail sales, and household spending more generally, have recently picked up, despite sluggish income and wage growth and a still low savings rate. Pent-up demand may be in evidence, and consumers are still looking for value and focusing on necessities. The sustainability of consumption spending is a key issue. Considerable slack remains in the labor market, including among the most-educated workers, as well as those usually hit by cyclical downturns. Longer-term unemployment may have longer-term consequences. Wage pressures remain low. Despite these negatives, there are some early and modest signs of stabilization. I will return to that point. Housing activity is mixed, with some positive indicators such as those

from furniture producers—that was in Richmond. Delinquencies and foreclosures, which could be inadvertently extended by restructuring programs, will put downward pressure on house prices and consumer wealth. Nonresidential construction continues to be moribund.

Financial markets generally continue to improve, supportive of recovery, with stock prices up and bond spreads down. Large firms have little difficulty accessing credit. Financial conditions overall are close to neutral, though, despite very low policy rates. The Greek situation has revived concerns about sovereign debt and worsened prospects for Europe— and potentially, for the United States as well. In the banking sector, banks are somewhat more optimistic than they have been recently, as profits have returned and the economy has looked a bit better. Banks view credit as being constrained primarily by a lack of credit demand and creditworthy borrowers, but, on the other hand, the Senior Loan Officers Survey and other anecdotes suggest that credit remains quite tight for bank-dependent borrowers such as small firms and consumers. Commercial real estate remains an important concern for smaller banks, especially community banks.

Firms continue to worry about economic and regulatory uncertainty, but there are more expressions of optimism. Investment in equipment and software, notably IT, has picked up. Sectors that were cited as showing strength include manufacturing, energy excluding natural gas, temporary help, transportation, and agriculture. Firms continue to pursue productivity enhancements and offshoring. Employment plans are somewhat muted, though there were reports of employee callbacks. State and local government finances remain strained, with some small signs of improvement.

On the inflation front, energy and commodity prices have risen further, reflecting global demand. However, overall inflation continues to decelerate and is expected to remain low in the

near term. This decline is broad-based, as reflected in the median CPI, although distortions in the housing market and rents may be masking inflation trends to some extent.

Inflation expectations are generally well anchored, though forward breakevens have risen some recently. The ability of firms to pass through higher costs seems limited, given slack in product markets, but some diffusion indexes show a modest increase in expected prices received. There are a number of risks, including the risk of further disinflation, though that is constrained by stable expectations. Risks to the upside include more rapid economic growth than expected, threats to Fed independence, the size of the balance sheet, and the fiscal situation.

Any reactions? [No response.] Seeing none, I have a handout for my remarks.<sup>6</sup> I thought I'd add some color to the discussion here. Very briefly, I share the view that we have increased confidence at this point that a recovery has begun. At the risk of sounding like I'm looking at a half-empty glass, though, I think we shouldn't put this one in the books yet.

Notably, we're putting a lot of weight on consumer spending, and, for reasons discussed today, the strength we've seen in consumer spending recently is not necessarily sustainable. One indicator of that is the very low saving rate, 3.3 percent, which suggests that there's little scope for further strength and that there may be some need for consumers to raise saving rates and to build wealth. The other related risk, of course, is the labor market, where, as I'll discuss in more detail in a moment, the actual net job gains at this point are very limited, and that, of course, interacts with consumer spending. So overall, again, I share the view that we have more confidence now about the recovery under way. It still appears to be moderate, which means that it will have a relatively slow impact on the unemployment rate, but I think there remain some uncertainties about the sustainability of final demand and improvements in the labor market.

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<sup>6</sup> The handout used by Chairman Bernanke is appended to this transcript (appendix 6).

I thought I would just take a minute or two to try to talk about how to gauge our policy stance, recognizing that there are many considerations, including nonstandard policies, which need to be taken into account. In the handout, the part that says “Comparison of Taylor Rule Prescriptions” is just a simple attempt to look at basic Taylor rules to see where we are relative to the tightening cycle. Instead of using the sophisticated estimated Taylor rules and the Taylor rules using lagged interest rates, etc., I have just used the most basic Taylor rules here. The Taylor 1993 rules, which are shown as dashed lines, are just the basic Taylor rule with a real interest rate of 2, a weight on inflation  $1\frac{1}{2}$ , and a weight on the output gap of 0.5. The only differences are which inflation rate is used to measure inflation. The solid lines show the Taylor rule, but with the coefficient on the output gap changed from 0.5 to 1.0, which is a somewhat more activist rule that Taylor himself supported in his discussion of papers in a 1999 volume on Taylor rule prescriptions.

Looking at this, I’d like to make some observations. Only one inflation measure puts the optimal inflation rate at this point, on this metric, above zero, and that measure is the overall CPI using the 1993 rule—the dashed red line in the top diagram. However, I think it’s important to note, for what it’s worth, that that particular version of the rule doesn’t describe our own historical behavior very well. There is, of course, the period from 2003 to 2006, where the black line, which is the actual funds rate, was below this prescription; of course, Taylor views that as a mistake. But another example is mid-2008; this rule would have suggested that we should have raised interest rates substantially then because of the high oil prices; obviously we did not do that, and I think we agree that was the right decision. All the other inflation measures, however, suggest that we are still below zero in terms of where policy ought to be. The original Taylor rule of 1993—the dashed blue line in the top diagram—uses his original price measure, the GDP

deflator, which shows the optimal interest rate still at about minus 2 percent. Alternatively, if you use core measures, as shown in the bottom diagram, note how much better that fits our actual behavior. I think that reflects our tendency to focus more on forecasts—whether or not those are good forecasts, as President Bullard has commented—and that, in turn, has reflected our tendency to treat oil price increases as transitory, for better or worse. So I hope this is some comfort to those of you who are concerned that we are behind the curve. Based on this very simple indicator, at least, we're not, evidently, too easy at this point.

I also have some comments on the rest of the handout. The table at the very bottom shows the recent evolution of consumer prices and M2. The Taylor rules that I already showed you use four-quarter moving inflation rates. If you used current-quarter inflation rates, the results would be much more dramatic. According to this table, any reasonable measure of inflation—including the CPI excluding owners' equivalent rent—has showed substantial deceleration from the twelve-month to the three-month horizon. And that is associated, in addition, with a slowdown in monetary growth—M2 over the last three months was -1.5 percent. Related to that, nominal GDP growth in 2009 was, I believe, 0.7 percent, which is very slow.

I also made an attempt to look at the timing of the initial tightening of policy relative to what's going on in the labor market. In the figure, the blue line is the real-time Greenbook estimate of the unemployment gap, and the red line plots a retrospective. Let's focus on the blue line, because we are living in real time, of course. It gives some indication of where policy began to tighten after the peak in unemployment. Looking strictly at the unemployment rate, some of these results suggest that we may be getting close to the point of tightening; for example, in 2003–2004, we tightened a year after the peak, and, at 7/10 of a decline from the

peak in unemployment; that would suggest something like late this year as the tightening point, which is certainly a possibility.

But another perspective is given by the table in the middle of the page that shows the net changes in nonfarm payrolls from the peak in unemployment to the first move in policy for each of the four episodes. It's measured both in millions of workers and in percent of employment. You can see that, in both the 1982 and the 2003 episodes, more than a million jobs were created before the first move in policy. In the 1992 episode, four million jobs were created before the first move in policy. At this point, net job increases since the peak in the unemployment rate in October are about 120,000. So we're clearly not very far along in the job-creation process in terms of the timing of our policy response.

I don't want to take this as at all definitive. There are lots of things happening. I myself have argued against using oversimplified Taylor rules, because we want to look at the full outlook and look at all of the considerations. But I hoped these charts and tables would be useful.

One issue, of course, which Tom and others have cited, is whether we're creating asset price imbalances. I also agree very much with President Rosengren's suggestion earlier that we incorporate more explicitly financial stability issues into our meetings and into our analysis. A certain amount of that has been going on. A number of Board staff, and staff in New York, and some others have done some analysis. Although, admittedly, it's very difficult analysis to do, it appears that financial conditions are not excessively easy at this point, that risk premiums and spreads are not excessively thin, and that measures of leverage do not yet show any significant move in a worrisome direction. That being said, these are very difficult matters to measure, and



we will have to continue paying attention to them. Let me stop there, and turn to Bill English, who will introduce the policy go-round.

MR. ENGLISH.<sup>7</sup> Thank you, Mr. Chairman. I'll be referring to the package labeled "Material for Briefing on Monetary Policy Alternatives" that was distributed. The wording of the alternatives hasn't changed since the publication of the Bluebook.

Even taking into account the recent market concerns regarding the situation in Greece, financial markets appear to have become more upbeat about economic prospects over the intermeeting period, with stock prices higher on balance and financing conditions easing, particularly for larger firms. Moreover, markets seem to have taken the end of the LSAPs in stride. Still, the staff anticipates a gradual recovery, with the unemployment rate at 8¼ percent late next year. And with considerable resource slack expected to prevail and inflation expectations steady, the staff sees core inflation edging below 1 percent this year and holding at that rate next year.

As Brian noted yesterday, your projections are broadly similar to the staff's view. The central tendency of your forecasts is for unemployment of roughly 8 to 8½ percent at the end of next year and PCE inflation next year between 1 and 2 percent. Because your projections for unemployment and inflation over the longer run suggest that most of you see an unemployment rate of 5 to 5¼ percent and an inflation rate of 1¾ to 2 percent as consistent with your dual mandate, you may find the current outlook unsatisfactory and, all else equal, want to foster financial conditions that are more supportive of economic growth. However, discussion at recent meetings suggests that the Committee sees the costs of additional large-scale asset purchases as likely to outweigh the benefits except, perhaps, if the economy were to weaken notably. As a result, alternative A, on page 2, would provide additional monetary stimulus not by resuming asset purchases but by sharpening the conditionality in the extended period language to suggest that an increase in the federal funds rate is likely to come later than markets now expect.

The description of the economic backdrop in paragraphs 1 and 2 would generally be similar to that in the March statement. The first paragraph would note that the labor market is showing signs of improving and that household spending has picked up recently but is likely to remain constrained by high unemployment, modest income growth, lower housing wealth, and tight credit. It would also mention that housing starts have edged up but remain at a depressed level. The second paragraph would indicate that recent data suggest inflation has been trending down in response to substantial resource slack and would note that the Committee anticipates that inflation is likely to be "quite subdued" for some time, rather than just "subdued," suggesting that inflation may run below the level that some policymakers would prefer.

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<sup>7</sup> The materials used by Mr. English are appended to this transcript (appendix 7).

The statement would indicate that, to promote a more robust economic recovery, “the Committee anticipates maintaining the target range for the federal funds rate at 0 to ¼ percent for an extended period—until economic conditions, such as appreciably higher rates of resource utilization, increasing inflation pressures, or rising inflation expectations, warrant a less accommodative monetary policy.” As noted earlier, this formulation is intended to signal that monetary policy will remain unusually accommodative for longer than market participants currently appear to expect.

To reinforce that signal, the Committee might want to announce, as in paragraph 4, that it will continue on a more permanent basis the current practice of rolling over the proceeds of maturing Treasury securities even as it does not reinvest maturing agency debt and payments on mortgage-backed securities. Alternatively, the Committee may be content to continue the current practice for now, but without noting that decision in the statement. The Committee’s intention could instead be reported in the minutes, as it was in the minutes of the January and March meetings. By not including a decision in the statement released after this meeting, the Committee might feel that it retains greater flexibility regarding a future decision either to continue rolling over maturing Treasuries or to redeem them.

If the Committee did include paragraph 4 in the statement, then it would probably be desirable to move the final sentence of paragraph 3—that is, “The Committee will continue to monitor the economic outlook and financial developments and will employ its policy tools as necessary to promote economic recovery and price stability”—to the end of paragraph 4, thereby suggesting that the Committee could alter its plans for redeeming securities if conditions warranted.

The final paragraph of the statement under all three alternatives would continue the Committee’s recent practice of noting the winding down of the special liquidity facilities that were put in place to support markets during the crisis and would indicate that the TALF is still expected to close down on the previously specified schedule.

Market participants reportedly expect only minor changes in the wording of the statement at this meeting. As a result, a statement along the lines of alternative A, suggesting a longer period of accommodative policy than currently anticipated, would come as a surprise. Short- and intermediate-term interest rates would fall, stock prices would rise, and the dollar would depreciate. The Desk’s Survey of Primary Dealers indicates that about a third of market participants expect the Federal Reserve to begin redeeming at least some Treasury securities fairly soon, and so a statement ruling out such redemptions, at least for the time being, could increase the expected size of the SOMA portfolio somewhat, putting some further downward pressure on longer-term rates.

If the Committee has become more confident that the economic recovery is becoming self-sustaining and it sees a good chance that a higher target level of the

federal funds rate will be appropriate later this year or early next year as markets currently anticipate, then it may want to make only minor changes to the statement language regarding economic conditions and forward guidance, as in alternative B (page 3). Under this approach, the first paragraph of the statement would be a little more upbeat about economic conditions, noting that labor markets are beginning to improve, growth in household spending has picked up recently, and housing starts have edged up. In paragraph 2, the Committee would repeat the view that “with substantial resource slack continuing to restrain cost pressures and longer-term inflation expectations stable, inflation is likely to be subdued for some time.” In paragraph 3, the Committee would indicate that it is retaining the existing 0 to ¼ percent target range for the federal funds rate and would reiterate that it sees economic conditions as “likely to warrant exceptionally low levels of the federal funds rate for an extended period.” This forward guidance may seem appropriate in light of the optimal control exercises shown in the Bluebook, which suggest that the federal funds rate should remain at the effective lower bound through 2012.

The draft statement for alternative B offers two possible versions of paragraph 4 regarding the reinvestment of the proceeds of SOMA securities. The first would formalize current arrangements as in alternative A by indicating that the Committee will maintain its approach of not reinvesting the proceeds of maturing agency debt and payments on mortgage-backed securities, and that it is continuing to roll over maturing Treasury securities. Such an approach would be attractive if members saw the economic outlook as not yet calling for a reduction in policy accommodation. Policymakers might also be concerned that the macroeconomic effects of redeeming Treasuries could lead the Committee to make smaller sales of agency-related securities in the future, implying slower progress in ridding the Federal Reserve balance sheet of such securities.

Alternatively, the Committee could adopt the second version of paragraph 4, which would announce that the Committee would begin redeeming maturing Treasury securities and that it would continue not to reinvest the proceeds of maturing agency debt and payments on mortgage-backed securities. As Brian Madigan noted yesterday, the start date for redemptions might be pushed back from the May 3 date shown in the draft statement in order to allow for consultation with the Treasury and for the Treasury and market participants to plan for the change. Members might find Treasury redemptions appealing if they judged that the improving economic outlook meant that redeeming maturing Treasuries would not pose significant macroeconomic risks, and they saw significant benefits from beginning to reduce the size of the balance sheet and the supply of reserve balances somewhat more rapidly.

Of course, the Committee also could continue its interim practice of rolling over maturing Treasury securities, with that approach again noted in the minutes rather than in the statement. As the Chairman suggested, taking this step would allow the staff to provide additional information regarding possible redemption strategies at the June meeting.

As in the case of alternative A, if the Committee included one of the two options for paragraph 4 in the statement, then it would probably choose to move the final sentence of paragraph 3 to the end of paragraph 4.

With investors expecting only modest changes in the statement language at this meeting, a statement along the lines of alternative B—if it did not include an announcement that the Committee would stop rolling over maturing Treasuries—would probably result in little change in interest rates, equity prices, or the foreign exchange value of the dollar.

The size of the market reaction to a statement that included an announcement that the Federal Reserve will no longer roll over maturing Treasury securities is difficult to judge. As Brian described yesterday, staff estimates suggest that the direct effect on longer-term yields of a decision to redeem maturing Treasury securities likely would be fairly modest—on the order of 10 to 15 basis points. However, such a decision would come as a surprise to market participants. Investors might read the Committee’s decision as suggesting higher odds of future asset sales or a more rapid start to the process of increasing the federal funds target rate. In either case, the effect of the statement language on long-term yields would be magnified, perhaps significantly.

If policymakers are confident that the economic recovery will continue and see substantial upside risks to the medium-term inflation outlook—or significant risks that financial imbalances could emerge—in the absence of prompt monetary policy adjustments, then they might choose to issue a statement such as that proposed in alternative C, page 4. In paragraph 1, the statement would note various positive economic developments, delete the reference to factors constraining household spending, and indicate that economic recovery is under way. Paragraph 2 would recognize that energy prices have risen on balance in recent months, but then state that inflation has remained subdued. It would go on to say that “The Committee will adjust the stance of monetary policy as necessary over time to ensure that longer-term inflation expectations remain well anchored and that inflation outcomes are consistent with price stability.”

In paragraph 3, the Committee would indicate that its fed funds target range would remain unchanged for now but would modify its conditional expectation for exceptionally low levels of the federal funds rate such that it would last only “for some time” rather than “for an extended period.” This change in wording would signal that the timing of the first increase in the federal funds rate target is likely to be sooner than investors currently anticipate.

In paragraph 4, alternative C would state that the Committee will “stop reinvesting the proceeds of maturing Treasury securities,” and also that “the Committee anticipates that it will soon begin gradual sales of agency debt and mortgage-backed securities.”

Market participants do not expect a statement along the lines of alternative C. Investors would likely bring forward significantly the time at which they anticipate the funds rate target to begin to rise and possibly steepen their expected path of tightening. The message they took from the shift from “extended period” to “some time” would be reinforced by the Committee’s decision to redeem maturing Treasury securities and its indication that sales of agency debt and agency mortgage-backed securities would likely begin soon. Interest rates would rise notably across the yield curve, stock prices would fall sharply, and the foreign exchange value of the dollar could increase.

The draft directives for the three alternatives, shown on pages 6-8, include sentences pointing to the possible plans regarding redemptions. Since sales are not contemplated immediately under alternative C, they are not noted in the directive language. Thank you, Mr. Chairman.

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

If not, let me say first, as I noted this morning—and with apologies for the head fake—my recommendation to the Committee is that we let the staff have one more intermeeting period to evaluate the implications of various redemption strategies for the evolution of the maturity structure of our balance sheet—for the size of the balance sheet and its composition—and to make sure that there are no unexpected problems with Treasury auctions and similar considerations. If you disagree with that, and you would like to reconsider, please feel free to say so in your commentary. Or, if you have suggestions or recommendations to the staff for their analysis, please make them as well. Let’s begin the go-round, and I’ll start with President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. I believe that a sustained economic recovery is, in fact, under way. I believe that economic growth risks, as I stated earlier, are slightly to the upside, and inflation risks are tilted to the upside over the medium to longer term. I think we have to recognize that unemployment, C&I lending, and commercial real estate lending are all historically lagging indicators to the economy, not leading indicators. And I

anticipate that, as the economy gains strength, those indicators will recover, as they normally do during a cyclical recovery.

Thus, I think it is time for taking initial steps to normalize interest rates and the size and composition of our balance sheet. I think that time is rapidly approaching. It's not too soon, I think, to consider changes in our statement language to prepare the public and the markets for an eventual start of our exit from this period of extraordinary policy accommodation. We have exited from our extraordinary liquidity facilities, and I think we should prepare to exit from our extraordinary balance sheet policies.

I view the start of moving rates up from zero or selling assets from our portfolio not necessarily as a tightening of policy in the usual sense but as a step towards normalization of policy, in the same way that unwinding our liquidity facilities was a step towards normalization. With the size of our balance sheet, with interest rates near zero, policy will remain accommodative for some time to come, well after we begin the normalization process. Moreover, as I said earlier, by the time of our next meeting, we will have experienced four quarters of fairly strong output growth, according to the forecast, at least one additional quarter of employment growth, and, from my perspective, that means the underlying equilibrium real rates of interest will be rising. If we don't adjust policy in response to such growth, we will implicitly be increasing the degree of accommodation, not just holding it constant. As I mentioned earlier, some may be perfectly happy with letting policy become more accommodative in this manner. But we should acknowledge that that's our intention, not suggest that we don't want to tighten.

Once again, I'm in favor of alternative C. I think it's time for us seriously to consider backing away from our "extended period" language. The longer we maintain it, I think, the more

difficult it's going to become for us to unwind from it. We could consider using language such as the Bank of Canada did in its last meeting, where the time for extraordinary low rates "is passing"—maybe not past, but passing. So I favor including something like paragraph 4 in alternative C into B, which I suspect will be our choice here, which indicates the Committee will be using asset sales to begin restoring the balance sheet to a more normal size and composition. But the timing and pace of those sales will be contingent on the economic outlook.

The majority of the Committee, I'm sure, will prefer alternative B to C. But, in that case, I would like to make sure that the statement includes the message that asset sales are, in fact, on the table. We may not be ready for them yet, but they are an important tool for our exit. Thus, I do support moving ahead with redemptions of Treasuries. I understand, Mr. Chairman, that we may want to wait another period, but I think that would be the first step we could take, and a modest one at that, to emphasize our efforts to shrink our balance sheet.

Finally, I would hope we could get to further discussions of our longer-term operating framework, including our operating target, how long we think we will want to be on a floor system, and whether we're going to have a corridor system or continue on the floor system. I think those decisions have important implications for how we approach the shrinking of our balance sheet as we go forward. I hope we can continue to have a discussion of that to help guide those decisions about our exit and our communication strategies as we exit. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you, we will certainly continue those discussions. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. I support alternative B, though I am sympathetic to some of the language expressed in alternative A. While there has been some

improvement in the economy, the recovery remains fragile, despite the significant support from monetary and fiscal stimulus. Should the economy weaken as accommodation is removed, or as a result of an external shock, such as what we've been discussing this morning, our tools to offset such adverse circumstances are quite limited. In addition, disinflation in prices and wages continues, which should provide us the flexibility to maintain accommodative policy until we make much more progress on bringing the unemployment rate down. To avoid an erosion of central bank credibility, we should seek to minimize the time that we're missing on both elements of our mandate. This will require maintaining our accommodative policy for an extended period of time. I support postponing the Treasury decision until we can more fully discuss the options at the next meeting, and I would signal in the minutes that mortgage-backed securities sales will only occur after tightening in short-term interest rates has begun. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I favor alternative B. While it's good news that economic growth is picking up, we're climbing out of a very deep hole. The economy is operating far below maximum sustainable employment, and inflation is undesirably low. Like the Greenbook, I expect both sets of circumstances to persist for several years. It does not make sense to tighten just because we are beginning to move in the right direction. Policy must take into account the enormous gap that exists between where we are and where we ought to be. These gaps explain why the Bluebook's optimal policy path and, as you noted, Mr. Chairman, rule-based recommendations almost without exception call for the funds rate to remain at zero for quite a long time.



There is one exception in the rule-based recommendations, and that is the difference rule, which, according to the Bluebook, would raise rates in response to more rapid economic growth. But the computation reported in the Bluebook takes no account of the fact that we have been constrained from cutting rates in line with the rule as conditions deteriorated. Taking the zero-bound constraint into account, even a difference rule would recommend that the time to withdraw stimulus remains a long way off. Because I see no case for tightening monetary policy soon, I support maintaining the “extended period” language.

In my view, the risks associated with tightening policy prematurely far exceed any risks from tightening policy too late. That owes to the zero bound on interest rates. The Greenbook alternative simulations illustrate the point. In the scenarios that feature weaker economic growth, or lower inflation, the zero bound constrains the ability of policy to react. In contrast, in those scenarios where economic growth is stronger, or inflation is higher, there is no corresponding constraint on raising rates. Thus, the inherent uncertainty about the outlook, coupled with the asymmetric nature of the zero bound, creates an option value to waiting and argues for greater patience in raising rates.

I believe, with respect to our “extended period” language, that we have sent the message loud and clear that this does not imply an unconditional commitment to a zero interest rate for any fixed calendar period. This is apparent in conversations I’m having with market participants, and it’s consistent with the market responses that we see to news concerning economic conditions. For example, the implied probability of an increase in the funds rate at an eight-month horizon clearly responds to economic surprises. We see strong upward movements in response to positive surprises, particularly those concerning unemployment. So I remain comfortable with the “extended period” language.

On the issue of Treasury redemptions, Mr. Chairman, I support your suggestion. I have an open mind on this issue, as I indicated yesterday, about what we ultimately do, but I'd like to wait and see further staff analysis. On asset sales, I think the minutes will and should contain a complete treatment of our discussion on this, and I wouldn't include anything in the statement on it.

CHAIRMAN BERNANKE. Thank you. President Kocherlakota.

MR. KOCHERLAKOTA. Thank you, Mr. Chairman. When I wrote this, we faced three substantive questions. I think one of them has been taken off the table to a certain extent. The first is: Should we weaken the extended period language? The second is: Should we reinvest maturing Treasuries? The third is: Should we include any language about sales in the statement?

In addressing these questions, I focused on four elements of our current situation: Unemployment is high; inflation is low; near-term expectations of inflation are also low; but longer-run expectations of inflation have drifted upwards. These four elements led me to say, first, that I do not think we should weaken the "extended period" language. Unemployment is high; inflation and near-term expectations of inflation are both low; the recovery is in its early stages. It is true that longer-run inflation expectations have drifted up, but what I was looking at is inflation 10 years hence. I think the best way to correct that problem is to offer forward guidance about the balance sheet and, as many of you have been doing, including the Chairman, to counsel the Congress to exhibit fiscal responsibility.

Should we reinvest our maturing Treasuries? I guess we're going to see more analysis of that. My own presumption right now is that I would be inclined to do that, but I'll wait to see further analysis by the staff.

Finally, let me talk a little bit about sales. I was very struck with what Governor Warsh said yesterday. I think that we should be conveying to the public the degree of consensus around this table—no more than that and no less than that. I believe the way we should be communicating is through the statement, not through the minutes or through our speeches or through our testimony. We have actual consensus around this table about what we're going to be doing. I think we owe it to the public to convey that. And the right way to do it is through our direct statement to the public.

What would that look like? Right up front, I would say it would not look like paragraph 4 of alternative C—I'm not arguing for that. But I think we should state clearly what we have agreed upon, as I understood from the conversation yesterday: "The Committee's long-run goal is to normalize the balance sheet in terms of both scale and composition. In keeping with that objective, it expects to undertake a five-year program of gradual asset sales once the recovery is firmly established. The initiation and exact timing of these transactions will depend on market conditions."

I think there is a fair amount of heterogeneity about when we're going to start and how we're going to pace the sales, but I believe these three sentences that I've described encapsulate the full range of opinion around the table. And if we have reached that conclusion, I think we owe it, as I say, to the public to convey that to them and not to have it hidden away in the minutes somewhere and not hidden away in different ways in our speeches, where the press ends up focusing on the differences among us as opposed to the similarities.

I was going to say one last thing about asset sales, and it's in response to President Rosengren's statement about when we're going to start. As I heard it, and others can correct me if I'm wrong, it seemed that a majority of people did want to wait to start sales, at least at this

moment, until after we start to tighten with other policies. But I don't think that was a consensus view around the table by any means, and I think it would be unwise for the minutes to show that that kind of consensus had been reached. That's my own perspective. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. You were a bit ambiguous. Did you say you favored redemptions or not?

MR. KOCHERLAKOTA. I am in favor of redemptions, but it's always good to have more analysis, so I'm certainly happy to see more analysis.

CHAIRMAN BERNANKE. Thank you. First Vice President Holcomb.

MS. HOLCOMB. Thank you, Mr. Chairman. In looking at policy options, it's somewhat easier for me to speak on behalf of President Fisher because, as Governor Duke reminded me yesterday, his views are not unknown to this group. [Laughter] Were he here, I believe he would speak strongly and advocate for a policy approach consistent with that expressed in policy alternative B. In addition, he would favor the approach represented in the second alternative for paragraph 4, which would stop reinvestment of maturing Treasuries. The only caveat, however, and I'm advised that I may sound somewhat like a broken record, is that Richard would prefer removal of the "extended period" language and substitute "for some time" as is used in alternative C as a way to set up changes to come. Finally, Richard would appreciate the opportunity to participate in the Committee's further discussion on redemptions and asset sales. Thank you.

CHAIRMAN BERNANKE. Thank you. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. I favor alternative B with the "extended period" language and the implication in the first paragraph that the economy is gradually

strengthening—I think it’s well conveyed in that paragraph. I guess that it has been eight years of meetings, and I’ve never done anything but alternative B.

CHAIRMAN BERNANKE. What are the odds? [Laughter]

MR. KOHN. I think alternative B is both doing the right thing and consistent with what the Vice Chairman and Governor Warsh noted, namely, that we shouldn’t be surprising markets at this current time.

I think it’s the right thing because, even with exceptionally low rates for an extended period, the economic recovery, in my view, is expected to be gradual, with very low resource utilization for quite some time and with very low inflation and stable inflation expectations. President Kocherlakota cited the ten-by-ten inflation outlook. I’ve never actually looked at that, and if there is some longer-run inflation increase, it’s probably, as you noted, Narayana, related to some extent to fiscal policy. The five-by-fives have been stable, and I would expect them to stay that way. In fact, we miss both parts of our dual mandate through 2012 pretty much.

I think there is a possibility that economic growth is faster and that we’re on a much stronger path—I think we can’t deny that, given the incoming information. But the output gaps and the inflation gaps are so large that, even if growth does turn out to be faster, even if we’re on the cusp of something much stronger, we won’t lose anything by waiting. The risk of being too late to tighten is exceedingly small, even allowing for time to change language and to evolve to warning markets, if that becomes necessary, and if we are a little too late we can always tighten more vigorously. So I don’t see any risk to waiting at this point and to retaining the “extended period” language.

It is possible that low rates will create asset price distortions. I’d like to make a couple of points on that. I think, to a considerable extent, that’s what they’re supposed to do, right? That’s

the channel through which monetary policy affects the economy—we raise asset prices and lower bond yields. We've got these really low interest rates in order to stimulate the economy through loose financial conditions. Second, it's not clear that asset prices are out of line with fundamentals. I agreed with your analysis, Mr. Chairman, and with that of others around the table, as you talked about equity prices and bond yields. Usually the difficult distortions in asset prices—the ones where the movie ends very poorly—are accompanied by rapid credit growth and increasing leverage. We've got very sluggish credit growth and, as best we can determine, leverage that is, if anything, still contracting, both in the financial sector and in the nonfinancial sector. It's possible that at some point these asset prices could get so out of line that their correction would itself create an economic problem, and I suppose that raising rates before that happens is a form of insurance against it. But, given the size of the output gap and given the size of the inflation gap, this insurance would have a very, very high price and we would do better to aim our macro and micro prudential regulatory tools at any of these distortions rather than sacrifice macroeconomic stability.

On the redemptions, I agree with your recommendation to get more staff analysis before making a final decision. I agree with President Plosser—this would be a first step in tightening. Obviously, given my outlook, I'd prefer not to take that step, but I also agree with President Plosser that you need a fuller analysis of how this is going to fit into the whole portfolio.

On asset sales, I think we do agree that they will be part of the exit strategy at some point, but what the market is really interested in is when. And, as President Kocherlakota noted, we haven't agreed on whether it will be before or after tightening. So I think we can get at the nuances of this discussion much better in the minutes than by trying to find two or three

sentences that define the center of gravity of the Committee in the announcement. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Before I start, I want to say a few words on the comparison of Taylor rule prescriptions that was handed out. I would just stress that the Taylor rule was estimated over a period where interest rate policy was the only policy on the table, and during this period we've had our quantitative easing policy in tandem with interest rate policy, so I'm not quite sure what to make of graphs like this. Presumably, to some extent, our quantitative easing has been substituting for the fact that we couldn't move our short-term interest rate below zero. So it seems to me that would have implications for when you would move off zero as well—you would try to use both instruments to do that. I know you also warned that one probably shouldn't take simple prescriptions like this as more than just a visual impression.

I support alternative B, Mr. Chairman, with many changes, so it's going to be, as it was last time, an unrecognizable alternative B.

On Treasury redemptions, I agree with your judgment, Mr. Chairman, and with the Vice Chairman, that we should not make any announcement on Treasury redemption policy at this juncture. It could be disruptive, given what's going on in markets. We could do that in June. I see no problem with that and with getting further analysis. I look forward to seeing that analysis, but I do think the issues are clear and that it's mostly up to us to decide how we want to weight various objectives. As I said yesterday, I think we should give substantial consideration to the idea of state-contingent MBS adjustments to manage macroeconomic shocks during the extended period of a near-zero policy rate. We've had a lot of success in removing emergency measures

one by one. Surely the quantitative easing policy is a special action undertaken only because of the very large shocks sustained by the U.S. economy. We have two tools on the table. As I was just mentioning, we should use both of them to engineer the best outcomes we can relative to our dual mandate.

Concerns about communication are overstated, in my view. Markets will have little difficulty understanding what we are doing. Temporary dustups in markets because of communications issues should not drive policy decisions. We are trying to do what's best for the American people, not what is best for financial markets.

Now let me turn to the long list of changes I have to alternative B. In paragraph 2 on inflation, I would change that, as I've been advocating for several meetings, to a version of paragraph 2 from alternative C. The paragraph in alternative C has the Committee taking responsibility for inflation in the medium term, which I think is important. Expectations of inflation are stable today but may not remain so, given high fiscal deficits and the super-easy monetary policy that we are pursuing. The statement in alternative C asserts that we intend to take action to keep inflation near target, both if inflation is too low or if it is too high relative to the Committee's views of the appropriate long-term level. I like this language because it gets rid of the idea that the Committee is a passive observer concerning medium-term inflation developments.

In paragraph 3, I propose that we take the conditionality from alternative A and omit the "extended period" language. The language would go like this: "...maintain the target range for the federal funds rate at 0 to ¼ percent until economic conditions, such as," and then list the three conditions, "warrant a less accommodative policy." I like that because it makes it even clearer to markets that this depends on how the data come in and on how the recovery proceeds.



We do want the recovery to be on firmer footing than it is right now before we take a tightening action, and this would emphasize that and get us out of the “extended period” language.

Let me suggest some food for thought at this point. Many members have expressed reservations about asset bubbles and what to do about asset bubbles in the future. We may want to include some kind of language in this list of conditions that would at least vaguely refer to the possibility that we might take action because we thought that some type of bubble had developed that was posing a lot of risk to the macroeconomy. I think there’s a lot more sentiment around the table than there once was that in some conceivable circumstances we might take an action like that. So that’s just some food for thought about the possibility of putting that kind of language in the statement.

Next, replace paragraph 4 in alternative B with paragraph 4 from alternative C. This paragraph addresses asset sales and reinvestment of the proceeds from maturing Treasuries. Of course, I’m not completely happy with that paragraph either, so I have some suggestions. First, if we actually did this we would have to omit the second sentence which refers to Treasury redemptions. The third sentence refers to asset sales. I would replace the language “will soon begin” with “may soon begin.” It gives us a little more leeway to react to developments as they come in. I’d replace “gradual” with “very gradual” to help assuage concerns that are apparently popular in financial markets about whether we would do this slowly enough or whether we might somehow sell too much of the portfolio all at once. The state-contingency is appropriate in the next sentence on the timing and pace. The last sentence would then be redundant, which is what I’ve suggested for paragraph 3. That’s my unrecognizable alternative. Thank you.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. I'm not sure if I agree with Jim or not. [Laughter] I prefer alternative C, and I think we need to get rid of the "extended period" language. I acknowledge that we've tried to clarify that we can always change course, but that language is there for a purpose—it does give a clear signal as to our intentions.

I also want to say, before I go into more detail, that I truly have the same goals that the Committee as a whole has in terms of the dual mandate. My perspective is longer run. I do feel that maintaining excessively low rates over an extended period of time—we're not going to be tight any time soon; I can't imagine it—raises the question of the degree of accommodation that then builds the imbalances forward, the excess and the credit growth that you can't catch up with at the other end. That's what I worry about, having experienced it.

On the tail risks, I fully appreciate the concerns about the situation in Europe, and Bill's comments this morning were very sobering. I think we need to be very proactive this time in monitoring and discussing these developments, with—I don't know what we're calling them now—LFI briefings at our meetings going forward on where these institutions lie along the risk scale to help us engage on financial stability issues. Our power of lender of last resort and as liquidity provider could come into play, and I encourage thinking about that for the June meeting, if we can. Hopefully, we don't need to do it sooner than that.

Now I want to pick up from where we were yesterday and suggest to the Committee that we continue our efforts to chart a course of strategy where we normalize the stance of monetary policy within five years. It's my view that, by taking careful and deliberate steps, we can return the economy and the markets to a more normal environment with the best long-run benefits or consequences. The achievement of this goal will be reflected in the realization of a nominal fed funds rate close to whatever we judge to be neutral—probably a quarter above 2 percent and a

combined Federal Reserve balance sheet half its current size—and an economy growing steadily with less chance of creating a new set of imbalances and longer-run issues, either in terms of inflation or asset valuation.

I realize these are outcomes we all want. I propose that we describe this as an exit strategy of two fundamental steps. The first step would work off the fact that we are well down the road in terms of unwinding the extraordinary policy actions that we introduced in response to the intensification of the financial turmoil that began in the fall of 2008—we have closed the special liquidity facilities and returned the discount window to more normal operations. To complete this step, we should let the public know—if not at this meeting, then soon—that we intend to carefully raise the fed funds rate towards 1 percent as early as this September, or in the early fall of this year. In doing so, we also would make it known that, at that point, we would pause and take stock before we move rates further, that we would judge where we are and what conditions are; of course, this is all subject to conditions changing.

This process has risks, I realize, but risks are unavoidable. Saying and doing nothing has risks also, because waiting until we are certain everything is right could be too late. I think this course offers us the best likely outcome, since most people realize rates have to move, and these very low rates have serious risks. I think there are benefits to announcing the first step of our exit strategy as a movement towards 1 percent, after which we will pause. It can legitimately be explained as a continuation of the unwinding. The markets don't have to be disrupted as much. It can also be explained as a rational move to take the fed funds rate from an unsustainable level of between zero and a quarter percent. Of course, that means getting rid of the “extended period” language now.

The second step for normalizing policy would then begin only after a pause and an assessment of the outlook. We would explain this to the public and the markets, giving them clear guidance. And we would explain that further moves would depend on our views on conditions and would not necessarily proceed in a stairstep manner. The policy rate would then increase from 1 percent toward 2 percent and then on to neutral, as conditions allowed. Indeed, depending on economic and financial conditions, I can envision that the Committee would begin raising rates beyond 1 percent at some point in 2011. Also, as part of normalizing the balance sheet, we would wait and then—as we move the fed funds rate up and confidence in the economy builds—we would begin selling the MBS portfolio. As I noted in yesterday’s go-round, I recommend that we eliminate MBS from our balance sheet within that five-year period, depending on the circumstances, of course.

With this proposal, I urge the Committee to set out publicly its longer-run strategy for monetary policy soon, because the fact is that the economy is recovering. Yes, it has a long climb, but it is recovering. Real policy rates are exceptionally low. In regard to the actions outlined here, policy will remain accommodative for years to come. The strategy outlined here would reasonably parallel the likely decline in the unemployment rate, so, as it moves, we’re moving the rate up, and that will preclude the likely steady increase in imbalances and longer-run inflationary pressures that otherwise will occur over the quarters and years ahead. I think this is a reasonable, balanced exit that reduces the longer-run event of pushing rates on the other side of the cycle—which we tend to do—too high. It gives us a more level, systematic approach, once it is announced and clarified, that is subject to the shocks that we have to deal with as a Committee. So I offer that up as the way to think ahead. Thank you.

CHAIRMAN BERNANKE. Thank you. That's very thought-provoking. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. I support alternative B. My interpretation of Bill English's very good summary and analysis of the market reaction to alternatives is that language changes today equal tightening itself, not preparation for tightening. And I believe the economic recovery is too tentative to move away from the current accommodative position, so I continue to believe we're well served by the "extended period" language. I'm also satisfied with the description of economic conditions in alternative B.

Regarding the Treasury reinvestment options in paragraph 4, I take it that the recommendation to postpone that for further study and analysis, in my mind, takes paragraph 4 off the table, which I agree with. But for what it's worth, I would have supported, and do support, the status quo of reinvesting maturing Treasury securities, and I'm not in favor of allowing Treasuries to roll off. I think the impact would be modest, and the gains would not be substantial. I would have also recommended that it's better to communicate the reinvestment strategy in the minutes or the directive, than to elevate that discussion essentially to the policy levels reflected in the statement. Having said that, I'm flexible about addressing redemptions or asset sales in the statement. But, considering my assessment of the current state of the economy and outlook and the sobering issues of financial stability risk that the Vice Chairman, among others example, discussed regarding the contagion risk from Greece, at this meeting, in this statement, I prefer a plain vanilla approach. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. My main concern with our path for policy in the coming quarters is that we be prepared and well positioned to raise rates when the time

comes. And I continue to believe, as I've said at previous meetings, that the time to raise rates is likely to come far sooner than the Greenbook assumes. A time later this year seems quite likely, at least to me. I've said I'm going to be looking for a time when economic growth is strong enough and well enough established. If the Greenbook forecast plays out without any unanticipated adverse shocks, I think that by the fourth quarter final demand is going to look as if it has been pretty strong for a pretty long time. I think the experience of 2003 and 2004 provides a cautionary tale. I note the citation by Governor Kohn of the episode of the early 1980s in which strong economic growth accompanied declining inflation. But I'll note that the chief claim to fame of the early 1980s episode in the historical narrative of the Phillips curve relationship is the demonstration that the amount of inflation associated with a given amount of slack was larger than expected, so for me that example might cut the other way. The other thing is that the evolution of inflation expectations were quite important.

I disagree with the notion that moving too soon is likely to be costlier than moving too late, an idea that came up at our last meeting. I think some are concerned that, with the levels of slack we're seeing, a tightening could produce disinflation or deflation or force us back to the zero bound. But I think we've demonstrated our ability and our willingness to use quantitative easing tools to provide stimulus at the zero bound. I don't think people are likely to view us as reluctant to try to increase inflation, should that occur. So overall, I just don't think we would face outside challenges if we experienced a little more disinflation.

On the other hand, I think the risks associated with delaying tightening—moving too late, or moving in a way that turns out to be too late—could be substantial. I think the risks associated with that are that inflation expectations might ratchet up, and the process of getting those down is nonlinear, the way policy at the zero bound is. I think there's a danger that, if

inflation ratcheted up and inflation expectations ratcheted up, the public could come to the conclusion that we're willing to let our inflation objective drift up. The current environment, where prominent economists are talking about how we ought to have a 4 percent inflation objective, or whatever, just adds to that.

I'm comfortable holding rates steady at this meeting, although, as I've indicated, I think we're likely going to need to raise rates later this year. I think that we should, as I said, begin draining reserves, begin asset sales, over the summer. I was persuaded by Governor Warsh's suggestion that we provide a framework, some statement of our overall goals, when the time comes. I think June would be a good time for that. I find President Kocherlakota's argument fairly compelling for telling people what we know when we know it, as it were, or what we have a workable consensus on when we have a workable consensus. But I can be patient and let a little bit more economic growth establish itself and let a little bit of dust settle in the halls of the Congress.

Why do I think we should commence asset sales very rapidly and go pretty aggressively? Well, I have three or four reasons. The first is that our movements on the interest rate on excess reserves are likely to be more effective, and we're likely to find their effects more predictable, both on market rates and on the economy, with much lower reserve balances—substantially lower than we have now. So, if, as I believe is true, we're likely to want to raise rates by the end of the year, I think that argues for getting those reserve balances down as soon as we can.

Second, I think the job we were trying to do with our program of purchasing agency and mortgage-backed securities, has been done and is no longer needed, and we ought to pack up and go home. The housing market has stabilized—prices are moving up, moving down, but they're no longer plummeting, as they were from 2006 to early 2009. Price discovery, as a result, has

essentially reestablished itself—individual buyers can now do a much better job of figuring out what a house is worth relative to the market, because they don't have the huge trend in overall market prices to deal with and to disentangle from. Sure, there's an overhang of vacant homes and there are foreclosures and short sales coming down the pike, but current prices seem to be consistent with a broad awareness that there is this overhang. I think most Americans are aware of a huge amount of foreclosures coming on the market, and, if not, their real estate agent is likely to help them understand that fact. Still, prices seem to be moving sideways, even with that overhang. So it seems to me that we're likely to get the housing market moving sideways at a low level of construction and with some fluctuating level of sales of existing homes for some time.

Third, the effect of announcing a program of MBS sales on mortgage rates is highly uncertain. The staff's estimate is 10 or 15 basis points. In the last few months, mortgage rates have gone up anyway and by more than that. So I don't think the effect is likely to be large. But even if it were, whatever the size of the subsidy, I think it's bad policy to continue it any further into the recovery than we need to, because it just results in an imbalance in investment flows further out into the recovery.

The argument is raised that, as soon as we announce asset sales, there's going to be a tightening and markets are going to react, and so we should wait until we are ready to tighten policy. I think there are many in financial markets who will naturally prick up their ears and who are eagerly awaiting that first shoe to drop, that is, for us to announce asset sales. But I think a broad segment of the public views tightening as beginning when we raise interest rates, so they're not going to notice when we announce asset sales. We've wound down and closed a number of credit programs, and we've ended our credit purchases. Admittedly, these events



were a gigantic preoccupation for the very important market professionals that the New York Fed contacts on a regular basis. But for a lot of Americans, I think, tightening policy is raising rates, so while it will have some announcement effect, I don't think it ought to make us shy about making some announcement like that.

The fourth set of reasons is uncomfortable to talk about, but it's essentially political economy concerns. I won't go into a lot of detail, but I think we're going to have a window of opportunity in the second half of this year, after regulatory reform gets done but before legislative disposition of Fannie Mae and Freddie Mac is taken up, which, if it ever happens, would be early next year. I think we should take that opportunity to set a rapid course for the exits. I think not doing so risks perpetuating the political entanglements that are the very unfortunate fallout of this whole episode for us.

On redemptions, I'm okay leaving it out of the statement, obviously. I'm personally favoring a more aggressive approach, as you'll note, to reserve balance draining. Aggressive sales and redemptions would be ideal from my point of view. If we're not going to do redemptions, or if we are going to consider selling MBS at a slower pace, I'd prefer a more rapid pace and no redemptions than a slower pace and redemptions, since the composition of our portfolio won't shift as rapidly. So I'm happy with deleting paragraph 4. I continue to favor language in alternative C, paragraph 2 over that in alternative B, paragraph 2. That concludes my remarks. Thank you very much, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I generally have no change in my policy recommendation. I favor alternative B as written, which I take to be without paragraph 4 on the Treasury redemptions issue. I support your proposal to continue to study the Treasury

redemptions—a very important issue. I take this position because my inflation outlook continues to envision underrunning my version of price stability for—I'd say "some time," but that means "less than six months"—a very long period of time [laughter]. In addition, the unemployment rate is high, and there's a tremendous amount of slack out there. I think the U.S. economy is performing better today, so that's a good sign, but I am growing increasingly concerned about the international risks. It's difficult to see how that ends well, so, on balance, I think this continues to be a good time to wait and monitor the situation.

Because my comments were so brief, I wanted to take a moment to comment on what President Bullard said—I thought he raised a number of very interesting issues. I didn't write down all your proposed language changes, but I did have two thoughts. One is on the question about the Taylor rule and the fact that we're at the zero bound. The staff has done a lot of very innovative things in trying to assess the implications of our asset purchase programs. It seems to me there's a possibility to take our 80 basis point estimate of the quantitative easing effect on longer-term Treasuries and ask, "Well, if I wanted to create a synthetic funds rate, what would that mean?" You know, five to one is a pretty conservative estimate of the effect of the federal funds rate on longer-term rates, if it were based on a monetary policy shock, and that would translate into 400 basis points on the funds rate. During the period when the funds rate is at zero, such a synthetic funds rate would look a little bit more like the Taylor rule, if that were a reasonable thing to do. So I think that could be an interesting approach for puzzling through these things.

On the "extended period" language, I continue to think that it's a guideline. A lot of us have gone out and indicated the state-contingency of that language, and that message seems to be coming across—for example, President Yellen commented that markets seem to be responding

to news beyond the six-month horizon—so that indicates that they are thinking that there is that contingency. President Bullard had suggested adding more state-contingency, along the lines of the language in alternative A. In principle, I like being more explicit, I like putting markers out there. But I just worry—I’m not optimistic that the Fed and market watchers would get that right if we tried to make that type of change. I don’t think they’d get it right initially, and, over the longer term, it might get caught up in some of the confusion over the European situation. So while I can be sympathetic to that, I like the “extended period” language. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I support alternative B. In my view, policy needs to remain accommodative until we see clearer evidence that the recovery is self-sustaining and we see the abatement of any further deflationary pressures. I also support your suggestion to postpone the decision on Treasury securities reinvestments until we see further staff analysis. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Warsh.

MR. WARSH. Thank you, Mr. Chairman. Let me start with a couple of substantive notes before turning to the statement. The first I’ll mention is asset sales. The way I think about our asset purchases is that we bought assets people didn’t want at prices they wouldn’t pay. To the extent that markets are now interested in buying these assets at prices that are substantially similar to prices at which we’d be willing to sell, we should take them up on that rare opportunity. So I’m an opportunistic seller of assets, just as a substantive matter. I don’t think that the unwinding of our balance sheet would constitute a material tightening of monetary

policy so long as we followed the Bernanke adjectives: gradual, well communicated, well understood, no fire sales, all the things we talked about yesterday.

Second is the “extended period” language. I don’t feel constrained by what that does to our options going forward. I think that, if conditions change, we can change policies as quickly as we need to. So the literalist in me is uncomfortable, and that might be true for others around this table, but I must say that I think markets have come, after a long period of deliberation, to understand what that means. I do have sympathy with the view expressed by a few around this table that if we are too loose for too long, we could see bubbles. I would state it maybe even more simply, and it’s the hard question I think we’re going to need to analyze in the next few months: Are we seeing misallocations of capital, even if they’re short of bubbles? In particular, I would keep good track of what’s happening to funds that are racing out of money market mutual funds yielding nothing and where they’re going next. I would say that, to the extent we see material misallocations of capital and we have not yet moved policy, it should concern us. At this point, those misallocations are hard to see, though it’s not impossible to come up with an anecdote about them.

Let me turn now to the tactics and process and parlance of how we move forward. I can support alternative B, and I do think we are wise to await further resolution, as it were, of the European shock. I don’t think we’re really giving up much by waiting until June, but I think we should be using the period between now and June, principally in the minutes, to see whether we can’t describe what our policy alternatives might be in June and thereafter. I think that I heard some kind of broad consensus consistent with what Narayana said about how we think about asset sales vis-à-vis the rest of our policy tools. I hope that we are not conflating two policy tools into one. I don’t think it’s prudent for us to say that we’ll only move one after we’ve

moved the other. I think there are too many nonlinear events, too many changes in mortgage finance—too many that might hit us. It would be better to think about asset sales and communicate our plans for asset sales in the context of what’s going on in the real economy and financial markets.

As a result, I’m more agnostic about whether that will precede or follow changes in the policy rates. I think that if markets understood that consensus, which is not focused on LIFO or FIFO or anything else, but which instead is focused on what we really see in the economy, then we would be doing ourselves and markets a good favor. One of the few benefits of the extraordinary period we’ve been in is that we’ve created lots of products. It turns out that they gave us lots of options on ways to unwind the liquidity measures we’ve put in place. I think it’s giving us some greater room, some greater flexibility, in the conduct of monetary policy, and I wouldn’t want to conflate them. I would tie them to real economic and financial conditions, and I think laying down a goal post of five years as a medium-term prospect sounds fine. We don’t have to say, nor should we say, when that process begins.

Finally, on redemptions, again, I think we should be communicating the robustness of our discussion on redemptions, because what matters most about that is what it signals. I think the minutes and our speeches can help us, but I would be presumptively in favor of Treasury redemptions pending further analysis and our June discussion. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Duke.

MS. DUKE. Thank you, Mr. Chairman. I also favor alternative B. I have to say I am sad to note that this is the last time I can shorten my remarks by piggybacking onto the reasons that were cited by Governor Kohn, and I’ll have to come up with my own reasons in the future.

My banking experience has taught me that execution does matter and that strong execution of an okay plan is actually better than weak execution of a great plan. So I would reiterate rather than repeat my comments from the last meeting and join Governor Warsh in saying that the clarity and consistency of our communication is, in my mind, every bit as important as the ultimate policy path that we choose. I would also agree with President Kocherlakota that once we've reached a consensus, we should put it in our statement very clearly. But I don't think we should put it in there until we've reached a consensus, so I don't think we should do it now.

Finally, with the situation in Europe, markets have plenty to wonder about and speculate about, so this is certainly not a time for us to add something else for them to chew on. Governor Tarullo has now taught me to count the red words on the page, so in order to get down to the appropriate number of red words, I would leave out paragraph 4. Thank you.

CHAIRMAN BERNANKE. I'll double-cross you and put them in blue next time.

[Laughter] Governor Tarullo.

MR. TARULLO. Thank you, Mr. Chairman. I favor alternative B with the language in paragraphs 1, 2, 3 and 5 precisely as they are. I continue to be sympathetic to President Bullard's desire both to do policy in a more state-contingent fashion and to say so, but I agree with President Evans that the interpretation of any such move in that direction now is likely to be wrongly interpreted by the markets.

I'm against inclusion of anything from alternatives A, B, or C in paragraph 4. For reasons some of you have said, I think we're not at a point where it is useful to communicate such consensus as there is in the Delphic tones that the FOMC statements take. So, for the present, a rich description in the minutes plus, again, I hope, the opportunity for the Chairman to

Speak to these issues with the assurance of being backed up by the Committee is probably the best way to go until June. Thank you.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you. I just want to give you an update on the Greece situation as it continues to unfold. There was a press conference in Berlin today that went pretty well—the market reacted favorably. It's because they basically reinforced the idea that they are going to do this thing for Greece without restructuring. There was an unconfirmed press report that the size would be scaled up—there were numbers as high as €120 billion, but subsequent to that Spain was downgraded a notch by S&P to AA from AA+, and the enthusiasm then evaporated completely. This just tells you that this is a very fluid situation. Even though there are some upticks in the mood occasionally, it's still getting worse, generally, and I think we're going to have to keep our eye on this very, very closely over the near term. As I said before, I think it really reinforces the notion of not doing much at this meeting.

I think the outlook is also broadly consistent with that. The near-term economic growth outlook is a little bit better. Inflation is a little bit lower than what we want. The medium-term outlook hasn't changed appreciably since the last meeting. In the Bluebook, most of the unconstrained federal funds rates are below the current rate, and most of them haven't changed much, either, since the last meeting. So it seems to me that, given that the Greek situation is creating a huge amount of uncertainty, and given that we don't want to create any drama, and considering everything that has happened since the last meeting, it all points to alternative B and keeping the “extended period” language in. My sense is that the Committee's view is that, if we're not going to do anything about Treasury redemptions, then we don't need paragraph 4 at this meeting, and I would concur with that.

CHAIRMAN BERNANKE. Thank you very much. I would like to recommend alternative B, which I think most people were comfortable with. We would exclude entirely paragraph 4. There's no reason to make reference to it if we're not undertaking redemptions at this time.

I'd like to make a few comments and a general observation, and then I'll come back to a language question. First of all, on the "extended period" language, I do really feel, as was mentioned by Governor Warsh, that this is not much of a constraint at this point. We have done a good job of expressing the conditionality associated with our policy. In addition, I think that at this point the language has kind of flipped—at one point it was pushing out our ease further than the data might otherwise imply, but at this point, I think we're in a situation where the removal of the language will bring the expected tightening up even more than the data would imply. So, to some extent, it's an historical accident that we're at this point. Now that we are at this point, I'd say that we need to think very carefully about the steps that we take as we come to the point where we change the language, because, when we do change the language, it will be de facto a tightening of policy. There is a piece of evidence in favor of what I'm saying. If you look at dealers' expectations, on the one hand they do not expect any change in this language at this meeting; on the other hand, a very substantial number of them expect a tightening before the end of the year. So those two things are not inconsistent, and, again, we need to think carefully before we take that step since, it will have a lot of information in it.

Second, on communications about sales, let me say to President Kocherlakota that I appreciated your comments, and you've been very constructive on this whole topic. I do think that, although we have a broad consensus, we have not yet identified a specific plan, so we will be better off putting this in the minutes and allowing some socialization in the markets and in the



public. Then, when the time comes for us to lay out a specific plan, this will not be a total shock—we will have done our job of communicating and warning the public in advance. I remind you that, when we began the purchases, the first reference we made to it was when we stated how much we were going to buy and over what time period. So I would advocate that strategy, while agreeing that there was a substantial consensus around the table that sales are needed in order both to normalize policy and to normalize our balance sheet.

Now let me make a general comment. I recognize that it might appear to some of you that I'm someone who has a weight of zero on inflation and a weight of one on employment. That's certainly not the case. I believe I have a balanced view of both sides of our dual mandate. But I think there's kind of a psychological problem. We have eight meetings a year, and therefore we have to do eight things every year—it's very hard psychologically to be patient. But right now I do believe that we are in a situation where we have real threats of weakness and of failure of the recovery and disinflation. While there are certainly real concerns on the other side of this—and I understand the concerns that those of you who would like to move more quickly have raised—they're still more prospective than real. Financial imbalances and inflation are risks, and we need to pay attention to them, but I don't think that at this point they quite outweigh the real and present danger that we face in the economy. So that's why I would like to maintain the low policy rate for now. When the appropriate time comes, of course, we will move.

I'd also like to point out that, as President Hoenig mentioned, we have been in a gradual process of normalization and tightening. This goes back to last year, and I think it has been very successful. I would just encourage everyone to think of it in those terms, namely, that we will continue to move forward as economic conditions warrant, conditionally, in a process of

normalization. If there is no large, discrete jump in market prices— I think that will be a sign of good communication, good preparation, and good management. So I'm very much in agreement that we need to normalize. I think that we need to be patient in terms of looking at the relative risks that we face, but, of course, we will move at the appropriate time and will continue to move toward a more normal level of the policy rate. So, again, my recommendation is to hold off on any significant change in the policy statement. We will have two job reports between now and June, and it's entirely possible that we're going to have a different perspective at that time, but right now I think, again, we are still very early in the recovery process.

With respect to language, the most creativity was exhibited by President Bullard. Again, I'm not in favor of dropping "extended period." However, President Bullard did suggest replacing the second paragraph of alternative B with the inflation paragraph from alternative C. I believe we actually discussed this last time and decided not to make the change. But I personally do not have any credible objection to the second paragraph of C. If anyone else wants to speak in favor or against, I'd be happy to put that on the table.

President Plosser.

MR. PLOSSER. Surprise, I would think that would be a good move.

CHAIRMAN BERNANKE. Anyone else interested?

MR. KOHN. I think we already make that point in the last sentence of paragraph 3. I don't see how someone could interpret this as purely passive when we say the Committee will "monitor the outlook" and "employ its policy tools as necessary to promote economic recovery and price stability." If we're going to add something to paragraph 2, I would add something to paragraph 1 and symmetrically take responsibility for employment.

CHAIRMAN BERNANKE. Vice Chair.

VICE CHAIRMAN DUDLEY. I favor doing as little as possible.

CHAIRMAN BERNANKE. All right. Anyone else?

MR. TARULLO. I'm with Vice Chairman Dudley.

CHAIRMAN BERNANKE. All right. Well, again, the basic point of alternative C paragraph 2 is entirely valid, and I don't object to our making that point frequently, but, once again, there's a little hysteresis, I think, in this process. Any comments? [No response] All right, let me then propose that we adopt alternative B, excluding paragraph 4. Matt.

MR. LUECKE. This vote will encompass the language in alternative B on page 3 of the monetary policy alternatives without the language in the brackets, as well as the language on page 8 in the directive, also without the language within brackets.

Chairman Bernanke	Yes
Vice Chairman Dudley	Yes
President Bullard	Yes
Governor Duke	Yes
President Hoenig	No
Governor Kohn	Yes
President Pianalto	Yes
President Rosengren	Yes
Governor Tarullo	Yes
Governor Warsh	Yes

CHAIRMAN BERNANKE. Thank you very much. The next meeting is June 22 and 23—a two-day meeting. It will be another opportunity to discuss important topics. President Hoenig.

MR. HOENIG. To follow up on what I said earlier, could we think about a more organized discussion around our systemic issues? Would that be possible?

CHAIRMAN BERNANKE. Do people agree that we will be ready at least to discuss plans on that issue? Although there is some constraint in terms of the amount of time that the staff has, I think that's a very, very useful suggestion. Anyone else?

MR. TARULLO. Mr. Chairman.

CHAIRMAN BERNANKE. Yes.

MR. TARULLO. Is it possible that Governor Kohn would say a few words for posterity?

MR. KOHN. I think he said 221 meetings' worth. [Laughter]

MR. TARULLO. Just a few more.

MR. KOHN. Good luck! [Laughter and extended applause.]

VICE CHAIRMAN DUDLEY. We should ask for a little more than those two words [laughter]. "You'll need it!"

CHAIRMAN BERNANKE. Thank you for your extraordinary service. Everyone is going to miss you very much, and you played a very important role in this Committee for many, many years, and we're all very grateful.

Again, lunch will be available, and Linda Robertson, I believe, is prepared to talk about current legislative developments. Thank you.

END OF MEETING