

**Meeting of the Federal Open Market Committee on
January 29–30, 2008**

A meeting of the Federal Open Market Committee was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, January 29, 2008, at 2:00 p.m., and continued on Wednesday, January 30, 2008, at 9:00 a.m. Those present were the following:

Mr. Bernanke, Chairman
Mr. Geithner, Vice Chairman
Mr. Fisher
Mr. Kohn
Mr. Kroszner
Mr. Mishkin
Ms. Pianalto
Mr. Plosser
Mr. Stern
Mr. Warsh

Messrs. Evans, Lacker, and Lockhart, and Ms. Yellen, Alternate Members of the Federal Open Market Committee

Messrs. Hoenig, Poole, and Rosengren, Presidents of the Federal Reserve Banks of Kansas City, St. Louis, and Boston, respectively

Mr. Madigan, Secretary and Economist
Ms. Danker, Deputy Secretary
Mr. Skidmore, Assistant Secretary
Ms. Smith, Assistant Secretary
Mr. Alvarez, General Counsel
Mr. Baxter, Deputy General Counsel
Mr. Sheets, Economist
Mr. Stockton, Economist

Messrs. Connors, English, and Kamin, Ms. Mester, Messrs. Rosenblum, Slifman, Sniderman, Tracy, and Wilcox, Associate Economists

Mr. Dudley, Manager, System Open Market Account

Mr. Parkinson,² Deputy Director, Division of Research and Statistics, Board of Governors

Mr. Struckmeyer,¹ Deputy Staff Director, Office of Staff Director for Management, Board of Governors

¹ Attended Wednesday's session only.

² Attended portion of the meeting relating to the analysis of policy issues raised by financial market developments.

Mr. Clouse, Senior Associate Director, Division of Monetary Affairs, Board of Governors

Ms. Liang and Messrs. Reifschneider and Wascher, Associate Directors, Division of Research and Statistics, Board of Governors

Ms. Barger² and Mr. Greenlee,² Associate Directors, Division of Banking Supervision and Regulation, Board of Governors

Mr. Gibson,² Deputy Associate Director, Division of Research and Statistics, Board of Governors

Mr. Dale, Senior Adviser, Division of Monetary Affairs, Board of Governors

Mr. Oliner, Senior Adviser, Division of Research and Statistics, Board of Governors

Messrs. Durham and Perli, Assistant Directors, Division of Monetary Affairs, Board of Governors

Mr. Blanchard, Assistant to the Board, Office of Board Members, Board of Governors

Mr. Small, Project Manager, Division of Monetary Affairs, Board of Governors

Mr. Bassett,³ Senior Economist, Division of Monetary Affairs, Board of Governors

Mr. Doyle,³ Senior Economist, Division of International Finance, Board of Governors

Ms. Kusko,³ Senior Economist, Division of Research and Statistics, Board of Governors

Mr. Luecke, Senior Financial Analyst, Division of Monetary Affairs, Board of Governors

Mr. Driscoll, Economist, Division of Monetary Affairs, Board of Governors

Ms. Low, Open Market Secretariat Specialist, Division of Monetary Affairs, Board of Governors

Ms. Green, First Vice President, Federal Reserve Bank of Richmond

Messrs. Fuhrer and Judd, Executive Vice Presidents, Federal Reserve Banks of Boston and San Francisco, respectively

² Attended portion of the meeting relating to the analysis of policy issues raised by financial market developments.

³ Attended portion of the meeting relating to the economic outlook and monetary policy decision.

Messrs. Altig and Angulo,² Ms. Hirtle² and Mosser, Messrs. Peters² and Rasche, Senior Vice Presidents, Federal Reserve Banks of Atlanta, New York, New York, New York, New York, and St. Louis, respectively

Mr. Hakkio, Senior Adviser, Federal Reserve Bank of Kansas City

Mr. Krane, Vice President, Federal Reserve Bank of Chicago

Mr. Weber, Senior Research Officer, Federal Reserve Bank of Minneapolis

² Attended portion of the meeting relating to the analysis of policy issues raised by financial market developments.

**Transcript of the Federal Open Market Committee Meeting of
January 29-30, 2008**

January 29, 2008—Afternoon Session

CHAIRMAN BERNANKE. Good afternoon, everybody. Today is the last meeting for our friend and colleague, Bill Poole. Bill has been here for 81 meetings, 80 as a Reserve Bank president and one as an adviser to the Federal Reserve Bank of Boston. I thought I would read to you the transcript from March 31, 1998, when Bill first joined the table.

“Chairman Greenspan. I especially want to welcome back an old colleague, Bill Poole. I didn’t realize the last time he sat in this room was 25 years ago.

Mr. Poole. I was sitting back there along the wall.

Chairman Greenspan. It has taken you 25 years to move from there to here?
[Laughter]

Mr. Poole. Baby steps.” [Laughter]

We’ll have a chance to honor Bill at our farewell luncheon on March 18, at our next meeting, but let’s take this opportunity to thank you for 10 years of service and collegiality.

MR. POOLE. Thanks, Mr. Chairman. I came here 10 years ago with a boom. I’m going out with a pause. [Laughter]

CHAIRMAN BERNANKE. We’ll let Bill have the last word on that. [Laughter] Okay. Today is the first regular meeting of the year. This is our organizational meeting, so we have some housekeeping things. Item one, nomination of the Chairman. Governor Kohn.

MR. KOHN. It’s an honor and a privilege to nominate Ben Bernanke to be the Chairman of this Committee.

CHAIRMAN BERNANKE. Thank you. Second?

SEVERAL. Second.

MR. KOHN. A pregnant pause.

CHAIRMAN BERNANKE. Other nominations? Without objection, thank you very much. We need a nomination for Vice Chairman.

MR. KOHN. I can do that, too. It's another honor and a privilege to nominate Tim Geithner to be the Vice Chairman of this Committee.

CHAIRMAN BERNANKE. Second?

MR. KROSZNER. Second.

CHAIRMAN BERNANKE. Other nominations? Without objection. Thank you. Ms. Danker will read the nominated staff officers for the Committee.

MS. DANKER. Secretary and Economist, Brian Madigan; Deputy Secretary, Deborah Danker; Assistant Secretaries, David Skidmore and Michelle Smith; General Counsel, Scott Alvarez; Deputy General Counsel, Thomas Baxter; Assistant General Counsel, Richard Ashton; Economists, Nathan Sheets and David Stockton; Associate Economists from the Board, Thomas Connors, William English, Steven Kamin, Lawrence Slifman, and David Wilcox; Associate Economists from the Banks, Loretta Mester, Arthur Rolnick, Harvey Rosenblum, Mark Sniderman, and Joseph Tracy.

CHAIRMAN BERNANKE. Any questions? We'll need a vote. All in favor? [Chorus of ayes] Opposed? [No response] Thank you.

Item two on the agenda: There are some cosmetic changes to the Committee rules. Scott Alvarez and Debbie Danker circulated a memorandum. Are there any questions? If not, I'll need a vote in favor. [Chorus of ayes] Opposed? [No response] Thank you.

Item three: We need to select a Federal Reserve Bank to execute transactions for the System Open Market Account. I have been informed that New York is again willing to serve. [Laughter] All in favor? [Chorus of ayes] Opposed? [No response] Thank you.

We need to select a manager for the System Open Market Account. Bill Dudley is the incumbent. Are there other nominations? Well, if not, in favor? [Chorus of ayes] Opposed? [No response] Thank you. All right.

We turn now to annual authorizations for Desk operations. Bill circulated a memo that had one revision to the authorization for foreign currency operations. Are there any questions about that change? If not, all in favor? [Chorus of ayes] Opposed? [No response] Thank you. There are no changes proposed for the authorization for domestic open market operations, the foreign currency directive, or the procedural instructions with respect to foreign currency operations. All in favor? [Chorus of ayes] Opposed? [No response] Thank you.

All right. We turn now to the business of the meeting. Let me call on Bill Dudley to give us the Desk report.

MR. DUDLEY.¹ Thank you, Mr. Chairman. I'll be referring to the handout that you should have in front of you. Over the past month, term funding pressures for banks have generally subsided. But the bigger story remains the continued pressure on bank balance sheets, the tightening of credit availability, and the impact of this tightening on the outlook for economic activity. The travails of the monoline financial guarantors—some of which have already been downgraded by one or more of the rating agencies—have exacerbated the worries about the potential for further bank writedowns and have created risks that some financial instruments that rely on monoline guarantees might no longer be viable. At this juncture, whether the major monoline guarantors will receive the new capital needed to keep or restore their AAA ratings remains uncertain.

I'll start today by noting that U.S. and global equity and fixed-income markets have behaved in a way consistent with a darker economic outlook. As shown in exhibit 1, the major U.S. indexes have fallen sharply since the December 11 FOMC meeting. These declines in the stock markets have been mostly matched abroad, as shown in exhibit 2. At the same time, corporate credit spreads have risen in tandem with the equity markets' decline. As shown in exhibit 3, high-yield corporate bond spreads are up more than 100 basis points since the December FOMC meeting, pulling the interest rates on high-yield debt significantly higher. Investment-grade spreads have also widened. But for investment-grade debt, the decline in Treasury yields has been larger than the rise in spreads, lowering somewhat the absolute level of yields. Global credit default swap spreads have also increased sharply, as shown in

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

exhibit 4. Market price risk has increased. This is most visible in the rise of most market measures of implied volatility. For example, the VIX, which measures implied volatility on the S&P 500 index, recently climbed back to the peak level reached in August (exhibit 5) and the MOVE index, which measures volatility in the Treasury coupon market, has climbed to its highest level since 1998.

The problems of the financial guarantors have been an important part of the story. In recent years, the major financial guarantors have diversified into insuring structured-finance products, including collateralized debt obligations (CDOs). Currently, their exposure to all structured-finance products is about \$780 billion. Exhibit 6 shows the distribution of exposure across three buckets: U.S. public finance, U.S. ABS and structured finance, and the total non-U.S. exposure for the six major monoline guarantors. Because the structured-finance guarantees have typically been issued against the highest rated tranches at the very top of the capital structure, until recently the rating agencies did not think that these guarantees would result in meaningful losses. However, as the housing outlook has continued to deteriorate and the rating agencies have increased their loss estimates on subprime and other types of residential mortgage loan products, the risk of significant losses has increased sharply. This is particularly the case with respect to these firms' collateralized debt obligation exposures—a portion of their total structured-finance exposure. As I discussed in an earlier briefing, given the highly nonlinear payoffs built into these products, modest changes in the loss assumptions on the underlying collateral can lead to a sharp rise in expected losses on super senior AAA-rated collateralized debt obligations. Unfortunately, the CDO exposures of several of these financial guarantors are quite large relative to their claims-paying resources. As shown in exhibit 7, statutory capital for even the biggest firm is less than \$7 billion; the total capital for the entire group is slightly more than \$20 billion; and total claims-paying resources for this group from all sources is about \$50 billion. Exhibit 8 compares these claims-paying resources with the subset of CDO exposures that contain some subprime mortgage-related collateral. For four of the six major guarantors, these CDO exposures represent more than 200 percent of their total claims-paying resources. These exposures and the uncertainty about how these exposures will actually translate into losses are the proximate cause for the collapse in the financial guarantor share prices and the widening in their credit default swap spreads. This is why new sources of capital have been either prohibitively expensive or dilutive or both to existing shareholders.

As I noted in last week's briefing, credit rating downgrades of the financial guarantors would likely lead to significant mark-to-market losses for those financial institutions that had purchased protection. For example, in its fourth-quarter earnings release, Merrill Lynch wrote down by \$3.1 billion its valuation related to its hedges with the financial guarantors; \$2.6 billion of this reflected writedowns related to super senior ABS CDO exposures. Unfortunately, there is not much transparency as to the counterparty exposures of the guarantors on a firm-by-firm, asset-class-by-asset-class, or security-by-security basis. However, major broker-dealers have considerable non-ABS CDO exposures to the financial guarantors. For example, they are thought to

have hedged an even larger amount of the super senior tranches of synthetic corporate CDOs with the financial guarantors. This suggests the potential for significant additional mark-to-market losses for commercial and investment bank counterparties should the financial guarantor credit ratings get further downgraded. In addition, such downgrades would increase market anxiety about counterparty risk because there would be considerable uncertainty about the magnitude and incidence of the prospective losses such downgrades might trigger. Financial institutions are also exposed to the monoline guarantors via the wraps these guarantors have issued on certain money market securities, including auction rate securities, tender option bonds, and variable rate demand notes. The amount of these securities outstanding is significant. The total market size for these three types of securities is estimated to be about \$900 billion. The major risk here is that the loss of the AAA-rated guarantee from the financial guarantor could undercut the demand for these securities. In the case of tender option bonds and variable rate demand notes, this could trigger the liquidity backstops provided by major commercial banks and dealers, leading to further demands on their balance sheets.

In the case of the auction rate securities market, the dealers would be faced with a difficult Hobson's choice. They could either allow the auction to fail or take the securities onto their books to prevent a failed auction. In the case of a failed auction, the investor receives a higher interest rate but has to wait until the next auction to try to redeem the securities. If failed auctions were to persist, as would be likely, then the securities would essentially become long-term rather than short-term obligations. Failed auctions would undoubtedly distress clients that had purchased the securities on the assumption that they would be liquid and could be redeemed easily. Failed auctions would also likely lead to broader distress in the associated municipal and student loan securities markets. We have already experienced a number of failed auctions for auction rate securities. Moreover, the recent downgrades of Ambac and FSA have led to significant market differentiation among tender option bonds and some upward pressure on municipal bonds wrapped by weaker monoline financial guarantors. If the monoline guarantors are unable to find additional equity or other forms of support, these pressures are likely to intensify in coming weeks.

The travails of the financial guarantors have added to the pressure on major commercial and investment banks. As shown in exhibits 9 and 10, commercial and investment bank equity prices and credit default swap spreads have generally continued to widen. The cumulative writedowns reported for a selected group of large banks has now reached \$100 billion over the past two quarters (exhibit 11). Coupled with balance sheet growth and other factors, such as acquisitions, these writedowns have put significant downward pressure on bank capital ratios. For example, although all of the top five U.S. commercial banks can still be characterized as "well capitalized," there has been significant erosion of their capital ratios over the past two quarters (exhibit 12). This balance sheet pressure helps to explain why commercial bank counterparties continue to complain about their access to credit, the tightening in lending standards, and the wider spreads for assets such as jumbo

residential mortgages, commercial mortgages, and leveraged loans that can no longer be readily securitized and distributed into the capital markets.

Shifting now to what market participants expect from us from this meeting: Monetary policy expectations continue to shift in the direction of more cuts that are delivered more quickly. As shown in exhibit 13, the federal funds rate futures market currently implies that market participants now expect additional rate cuts totaling about 100 basis points by midyear. Further out, as shown in exhibit 14, the Eurodollar futures curves indicate that about another 25 basis points is anticipated during the second half of the year. But these expectations are volatile and have been shifting considerably day to day. The primary dealer survey tells a similar story. The modal forecast of the primary dealers shows a federal funds rate trough slightly below 2.5 percent (exhibit 15). Compared with the previous dealers' survey conducted for the December FOMC meeting (exhibit 16), the trough has moved down about 75 basis points. As of last Friday, seventeen of the twenty primary dealers expected a 50 basis point rate cut at this meeting. This sentiment appears to be generally shared by market participants. As shown in exhibit 17, as of last Friday, options on federal funds rate futures implied a rate cut at today's meeting, with the highest probability on a 50 basis point rate cut to 3 percent. However, it is important to recognize that the probabilities shown in exhibit 17 put a zero weight on the notion of another intermeeting cut in February—so they should not be taken literally as to the outcome at today's meeting. The distribution of yields on Eurodollar futures 300 days ahead suggests that there has been a regime shift since the December FOMC meeting. As shown in exhibit 18, not only have expectations shifted down sharply, but the skew has reversed direction. The mode of the distribution is at 1.75 percent, and the skew of the distribution around that mode is toward less extreme rate outcomes. This could be viewed as market participants now pricing in considerable risk of a severe recession but maintaining some hope that a milder downturn might occur or that a recession could possibly be averted altogether.

As shown in exhibit 19, the intermeeting rate cut was accompanied by a rise in inflation compensation at the five-year to ten-year time horizon. However, it is unclear that this represents a genuine deterioration in inflation expectations for several reasons. First, the rise occurred, in part, because breakeven inflation at the five-year horizon has fallen as nominal five-year Treasury yields have dropped sharply. It is this decline that has lifted the five-year, five-year-forward measure. I would agree with the memo by Board staff that was distributed to the FOMC yesterday on this issue: The rise in five-year, five-year-forward inflation compensation likely reflects a greater liquidity premium for nominal Treasuries. The rise in interest rate volatility is also a factor. According to TIPS traders, the rise in five-year, five-year-forward inflation reflects technical factors such as a temporary increase in the demand for shorter-dated Treasuries, month-end index extension flows, and a greater liquidity premium for nominal, on-the-run Treasuries. The general rise in interest rate volatility is probably also a factor. Second, the rise in five-year, five-year-forward expectations has not been accompanied by a broad set of other signals consistent with deteriorating long-term inflation expectations. For

example, the four- to five-year-forward breakeven inflation measure shows a much smaller rise, the dollar has been relatively stable, and estimates of bond term risk premiums remain low. On the other side, gold prices have increased sharply in the past week. Third, in our primary dealers' survey, there was very little change in long-term inflation expectations. Finally, it is worth noting that following the 50 basis point rate cut in September, which was more aggressive than expected, the five-year, five-year-forward rate also rose, but the rise proved temporary.

I would also like to briefly discuss the state of play in bank term funding markets—some good news. As shown in exhibit 20, the spreads between the one-month LIBOR and the one-month OIS rate and the three-month LIBOR and the three-month OIS rate have fallen sharply since year-end. However, over the past week, there has been considerable volatility in these spreads. This could be due to a variety of factors—including a temporary increase in the demand by Société Générale for term funds and the sharp shift in expectations about the near-term federal funds rate path. Currently, these spreads are close to the narrowest we have seen since the market turmoil began last August. Although the passage of year-end was the predominant factor behind the decline in term funding spreads, the term auction facility (TAF) also appears to have been helpful. Exhibit 21 shows the results for the first three U.S. auctions. Completing the exhibit, the results for the fourth auction, which was conducted yesterday, were minimum bid rate, 3.10 percent; stop-out rate, 3.12 percent; propositions, \$37.5 billion; bid-to-cover ratio, 1.25; and number of bidders, 52. In general, the pattern is one of declining bid-to-cover ratios and a declining spread between the stop-out rate and the overnight index swap rate. The results for the ECB and Swiss National Bank auctions show a similar pattern. At the latest auction, the ECB had \$12.4 billion of bids, a bid-to-cover ratio of 1.24, and their number of bidders fell to 19 from 22 at the previous auction. The Board of Governors has said that on February 1 it will announce plans for the TAF in February. The staff has recommended to the Chairman that the auctions continue on a biweekly basis, that the size be maintained at \$30 billion per auction, and that the minimum bid size be cut to \$5 million from \$10 million to make it easier for smaller institutions to participate.

Finally, there was no foreign currency intervention activity during this period. I request a vote to ratify the operations conducted by the System Open Market Account since the December 11 FOMC meeting. Of course, as always, I am happy to take any questions.

CHAIRMAN BERNANKE. Thank you, Bill. Are there questions? President Poole.

MR. POOLE. Bill, could you talk about the role of foreign banking organizations? What fraction roughly are they responsible for?

MR. DUDLEY. We have been very cautious about talking about the role of the foreign banks, but they're definitely a significant factor. The best way to look at it is just to look at the New York District, which is taking an overwhelming share of not all but most of these auctions, and most of that is foreign. Regarding the participation in terms of number of bidders, the split is more even between domestic and foreign; in terms of the actual takedown of dollars, it does skew a bit to the foreign side, but it has been variable. It is not the same in each auction.

MR. POOLE. If I may make a comment about that—I think everyone is aware of my view that the TAF does not change the marginal conditions. It's entirely an inframarginal operation. What it does is to save banks the spread between what their cost of funds otherwise would be and what they get at the TAF. So it increases bank earnings by that amount. It seems to me that there is potentially some reputational risk to the Federal Reserve in the long run if a significant share of the benefit is going to foreign banking organizations. I guess one question that I would pose is, If we think that this information would be terribly sensitive to release, shouldn't we be careful about whether we continue if the foreign banking organizations are taking a very large fraction?

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Yes, I have a couple of questions. I want to start with the issue about foreign banks, though. Why are we sensitive about talking about foreign banks—I mean, is this a public stance, or is this in the Committee? The information about the identity of the winning bidders was sent to every Reserve Bank.

MR. DUDLEY. I don't think we're particularly sensitive, but I think other central banks would be very sensitive.

MR. LACKER. Well, these are confidential proceedings—this is a consequential policy matter.

CHAIRMAN BERNANKE. Brian.

MR. MADIGAN. Mr. Chairman, if I could. I think, President Lacker, just one point is that the detailed information on the bidders was sent only to those Reserve Bank presidents and Board members who specifically asked for it, so it was not distributed unilaterally.

MR. LACKER. Just the winning bidders?

MR. MADIGAN. Yes. Well, the spreadsheet of bidders.

MR. LACKER. I thought that every Bank, all the discount officers, received the identity of the winning bidders, and the other information about all the bids went only to those who requested it.

MR. MADIGAN. That is correct, yes. The second point I would make is that I do not think there is particular sensitivity about foreign banks but instead sensitivity about taking any chance of identifying who the bidders are at all because of the great concern about avoiding stigma from the TAF.

MR. LACKER. I wanted to ask a couple of questions about the term auction facility. First, I'd like to hear more from you about what your understanding is of the effects the term auction facility had on the funding market. The first question under that would be, To your knowledge, were these completely sterilized or just partially sterilized? Another question would be, For the recipients, were these additional funds that they wouldn't have otherwise borrowed, or did they displace some other borrowing? The next question would be, This crowded out something, and if it didn't change materially the total amount of reserves in the system, some lending ought to be shifted from the recipients to someone else—so what do we know about other spillover effects in the markets? The focus of our attention probably for data reasons was the LIBOR market, but there was also discussion in December of the term fed funds market. What do we know about the

behavior of that since then? I'd be interested in your sense of whether bidders were riskier than nonbidders and whether riskier institutions bid more than nonrisky institutions. We've done a bit of empirical analysis—it's preliminary—but I'd be interested in your folks' sense of that. About the foreign institutions, I'm interested in learning about what the advantage was of our lending dollar balances via this mechanism to foreign banks versus the alternative of having them borrow dollar balances from their central bank, perhaps funded by a swap or out of the foreign central bank's own dollar balances. Finally—and this is sort of the most important question—how should we evaluate whether this has been a success or not? To what sort of objective evidence should we look to decide whether we achieved our objectives? Related to that, can a case be made for ending this facility soon in light of the fact that the LIBOR–OIS spread is now half of what it was in September, when we decided that it had come down enough to shelve the plan?

MR. DUDLEY. Those are a lot of questions. [Laughter] Okay, I'll take the easy one first. The TAF is completely sterilized. For every dollar that goes into the TAF we drain reserves, and we've been doing that mainly by redeeming maturing Treasury bills. Regarding whether these are additional funds to those entities, it is hard to know what they would have done if the TAF facilities hadn't been available. This may have funded some assets on their balance sheets that they otherwise would have decided not to fund. I think it is very difficult to know what that counterfactual is. It is hard to believe that in the system as a whole it led to a lot of additional funding. I would be surprised by that, especially given that we did sterilize reserves and didn't allow expansion of the balance sheet. In terms of the issue of crowding out, the way I think about the TAF is changing the composition of our balance sheet and changing the composition of the banking system's balance sheet. It's not crowding out. We are basically supplying Treasury securities by redeeming bills, and then the Treasury issues more bills that the markets want, and we

are essentially absorbing collateral from the marketplace that's hard for them to finance elsewhere. So it is a change in the composition of the balance sheet. That's how I would think of the way it works.

In terms of how we should evaluate the success, we don't know how much was the year-end. We don't know how much was monetary policy easing. But market participants view the TAF as very positive. I think that, if we were to discontinue it abruptly, they would be unhappy. There's no evidence to suggest that the TAF has caused any great harm. It looks as though the benefits, to my mind, are likely to significantly exceed the costs even though we can't measure those benefits very accurately. Regarding the foreign institutions issue—the choice between dollar balances from us versus dollar balances from foreign central banks—I think it was a little more complicated than that because, if I remember how we got to the foreign exchange swaps, they were essentially more or less conditional on our doing the TAF. They were willing to do the swaps if they could get the auctions in tandem with our term auction facilities. So my judgment would be that we probably didn't really have a choice of getting the dollars to those foreign banks through the ECB if we hadn't done the term auction facility.

MR. LACKER. If I could just follow up.

MR. DUDLEY. Did I miss any?

MR. LACKER. Well, on the last point, that's a matter of the ECB's willingness to lend to those institutions. You're saying that they would be willing to lend themselves to those institutions only if we did this. It's not about the economics of their borrowing from their central bank versus borrowing from us—nothing about the market functioning.

MR. DUDLEY. I wouldn't say it's about their willingness to lend to their institutions. It's their sense of what their responsibility is in terms of providing dollar liquidity to their institutions.

To the extent that they could just passively take the dollars and funnel them through this auction process in which their auction was very passive—their auction was essentially a noncompetitive auction that was based off ours—they were willing to do that. They were less willing to do something in which they were taking responsibility for the problem and saying that they were going to get the dollars and supply them to those banks.

MR. LACKER. Do market participants view foreign banking organizations as broadly riskier than comparable-sized institutions based in the United States?

MR. DUDLEY. Well, it's difficult to say. If you look at credit default swaps, that would say not. But as President Rosengren and I were talking before the meeting, those credit default swaps may also contain different appetites to recapitalize banks when they get in trouble in the United States versus abroad. So the one thing that we can probably say with confidence for the period is that there's more anxiety that things are hidden in certain foreign banks that are probably not as likely to be hidden in U.S. banks. There's better disclosure in the United States on a faster and more real-time basis. The market sense is that there isn't really the same kind of quarterly disclosure process abroad that happens for U.S. institutions.

MS. MOSSER. May I add one factual comment to that?

MR. LACKER. Absolutely.

MS. MOSSER. During the height of the dislocations in December, the fed funds rate overnight was regularly trading substantially higher early in the morning—this happened also in August for a while—either early in the U.S. trading session or before that. Our understanding from market participants was that the reason for those higher rates in the morning was excess demand from European-based institutions to borrow in the funds market, and when the U.S. institutions became more active later in the day, the funds rate would then go back down to the target.

MR. LACKER. Thanks. Going back to the LIBOR–OIS spread—that was what motivated this. It has fallen a lot. The bid-to-cover ratio is falling. If we try to lend \$30 billion three more times, we could get to a point at which we satiate the market in term funds.

MR. DUDLEY. Well, first of all, continuing that \$30 billion is not supplying any additional dollars, so we're just going to be rolling over maturing auctions.

MR. LACKER. Yes, but the bid-to-cover ratio keeps falling.

MR. DUDLEY. Right. But, second, I would caution you that this last auction was right before an FOMC meeting and that may have diminished the appetite. We don't know with certainty, but our supposition is that the demand would have been higher if the auction had been a week later, if that's how the schedule had fallen. Third, February might be fine, but March is a quarter-end. Lastly, the fact is that, while the term funding pressures seem to be better, a lot of other things seem to be worse, and clearly the pressure on bank balance sheets has not diminished at all. If anything, it has grown more intense. So to remove this prematurely would be a risk, especially when market participants view this as helpful and it gives them a sense of confidence that the Fed is there.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. The questions that President Lacker asked covered one of the questions I wanted to ask. But as we go down in terms of the number of bidders as we proceed, is the portion that is foreign increasing, relatively speaking? Do we know?

MR. DUDLEY. I don't remember any strong sense of that.

MR. LACKER. It's decreasing.

MR. DUDLEY. What has happened, as the auction has proceeded, is that people have bid more tightly around where they think it's going to come, except for a few institutions who just say,

“I want the money,” and they bid at very high rates because it’s a single price auction. You usually see some behavior like that.

MR. LACKER. Mr. Chairman.

CHAIRMAN BERNANKE. Yes.

MR. LACKER. Foreign banks were \$19 billion out of \$20 billion at the first auction; \$18 billion out of \$20 billion at the second auction; and a declining fraction thereafter, President Fisher.

MR. FISHER. Thank you, President Lacker.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. Bill, in your remarks, you devoted quite a bit of time to the deteriorating situation in the monolines, the implication being that the risks they may have affect the whole system. In the normal course, do we have direct contact with them to get any insight beyond what we get through analysts and rating agencies? I think you said that they are not terribly transparent in terms of asset class and individual securities as to what they really hold. Have we had any direct dialogue just to inform ourselves as to what the real situation is?

MR. DUDLEY. I haven’t had much contact with them. I don’t know if Tim has.

VICE CHAIRMAN GEITHNER. Mr. Chairman.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN GEITHNER. We have not been in touch with them directly to get a sense about their risk profile and so forth. We have had extensive conversations with the New York State Insurance Commissioner, who is the lead supervisor of many of them, but not all of them. It turns out that office also has very little information, particularly on the stuff that is on the leading edge of concern, which is to whom they sold credit protection and on what. But it is in the process

of trying to remedy that, and we have been giving them a little help in trying to figure out what they need to ask for.

MR. DUDLEY. Another thing that is not very well known is what their assets consist of. We have rating buckets, but we don't know what those ratings actually apply to. We don't know who they have reinsurance with. Some people think that they're reinsuring each other to an extent or they have reinsurance with subsidiaries that they own so that the insurance is not at arm's length. So there's quite a bit of cloudiness about what their true condition is.

VICE CHAIRMAN GEITHNER. We have better information on the protection that banks purchased from the monolines—by monoline and by underlying asset—and it is important, of course, to have that.

CHAIRMAN BERNANKE. President Rosengren.

MR. ROSENGREN. Yes. I would just note with the TAF experience, going back just for a minute, that the Boston financial community has been overwhelmingly supportive. I don't know whether you have gotten the same sense when you talk to the financial community in New York, but whether people were bidding or not, they actually thought that it was quite a fruitful exercise. In terms of the credit default swaps, just looking at some of the institutions that were involved, it seemed as if the U.S. institutions, if you look at individual organizations, may have had much higher credit default swap rates than many of the foreign institutions. As you noted, many of the foreign institutions were substantially lower than at least a couple of the U.S. ones that were involved, and we obviously thought the U.S. ones were sound, or we wouldn't have been willing to have them participate. We should look at the LIBOR rate, but I think we should also look at the Treasury securities market because you don't have to do as much in open market operations if you're doing some of it in the TAF, and we've had the interest rate on Treasury securities quite low.

So I'm wondering whether, when we think about the analysis, we look not only at things like LIBOR but also at the functioning of the Treasury market, and whether that was actually helped out by this process. I don't know if you've done any work on that, but it would be of interest to know if that had helped with the better functioning of the Treasury market.

MR. DUDLEY. Well, I think the presumption is very much that it went in the right direction in terms of the Treasury market because basically the Treasury has auctioned off larger weekly one-month, three-month, and six-month bills to replace those that we were redeeming. So the floating public supply of bills went up.

CHAIRMAN BERNANKE. President Poole.

MR. POOLE. Very quickly, we should not be surprised that banks like the TAF. It increases the bank's profits because of the difference between the funding costs. The issue is whether the TAF improves the way the markets are functioning, not whether it's feeding profits into the banks and whether they happen to like it.

VICE CHAIRMAN GEITHNER. Mr. Chairman.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN GEITHNER. I think it's clear in Bill's presentation that there's a very strong case that the TAF, the associated measures by other central banks, and, as important, the commitment and the signal that we would continue the TAF longer than was necessary have been very important to the improvement of market functioning and very important to the improvement and confidence in liquidity and markets going forward. It is very hard to know how important it has been to that, but I think it has absolutely been very important, and I think it is very important for us to continue it until we can comfortably say it is no longer necessary in this context. I think we are far from the point that we can claim that. It was 24 basis points in October, President Lacker, and

there are a lot of reasons that we should be expecting to be living with a long period of fragility in markets going forward. We all debated the merits of this going forward. There's a set of good, principled objections to this kind of stuff, and I didn't expect that those objections would change on the basis of the experience with this thing, and I don't think we've learned anything new about the merits of those objections, except that there's a very good basis of evidence for suggesting it has been important to the improvement in confidence and market functioning. One of our jobs is—and I think we've been pretty successful in doing it—trying to give some confidence to people that we as the central bank have provided a quality of liquidity insurance more powerful than we can through our classic instruments. I think it has been very successful in this context. To take it back prematurely would be damaging to the improvements we've achieved.

CHAIRMAN BERNANKE. Are there any other questions for Bill? If not, I need a vote to ratify domestic operations.

MR. KOHN. I move that we ratify the operations.

CHAIRMAN BERNANKE. Objections? Without objection. Thank you. We turn now to the economic situation. We begin with Dave Reifschneider, whenever you're ready.

MR. REIFSCHNEIDER.² Give me one second. On balance, the news we have received since the December Greenbook has been disappointing. The top panel of your first exhibit sorts some of the main indicators into two categories—those that were surprisingly weak and those that came in to the upside of our expectations. As you can see, the list to the left is long. Private payrolls fell in December, and the unemployment rate jumped to 5 percent. Manufacturing output has declined since the summer. Single-family housing starts, new permits, and home sales have fallen further. New orders and shipments of capital goods were disappointing, although a little less so after today's release of December data. Business sentiment deteriorated, joining already unusually low readings on consumer confidence. Finally, stock prices have tumbled, and credit conditions have tightened. Not all the news was bad. Nonresidential construction activity has continued to be surprisingly robust, and defense spending looks to have been higher last quarter than we anticipated. Moreover, retail sales in November came in stronger than we predicted, and the figures for September and October were revised up. Overall, we read the incoming

² The materials used by Mr. Reifschneider, Ms. Liang, and Mr. Sheets are appended to this transcript (appendix 2).

data as implying an increased risk of recession. The middle left panel provides some evidence for this assessment. As was discussed at yesterday's Board briefing, based on the signal provided by 85 nonfinancial indicators (the black line), the estimated probability of being in recession now or over the next six months stood at 45 percent in December, up from 19 percent in June. A similar exercise carried out using 20 financial indicators, the red line, yields an even bigger jump in the estimated likelihood of recession, from 14 percent at midyear to 63 percent this month.

As you know, we are not forecasting a recession. While the model estimates of the probability of recession have moved up, they are not uniform in their assessment that a recession is at hand. Another argument against forecasting recession is that, with the notable exception of housing, we see few signs of a significant inventory overhang. In addition, the recent weakness in the labor market and spending indicators is still limited; for example, initial claims have drifted down in recent weeks rather than surging as they typically do in a major downturn. Finally, a good deal of monetary and fiscal stimulus is now in process that should help support real activity. That said, it was a close call for us. Even without a recession, our assessment of the underlying strength of aggregate demand has revised down markedly since the summer. This is illustrated in the bottom panel by the recent decline in the Greenbook-consistent estimate of short-run r^* , the value of the real funds rate that would close the output gap in 12 quarters. By our estimate, short-run r^* has fallen more than 2 percentage points since the middle of last year and $1\frac{1}{4}$ percentage points since December. A jump in the equity premium accounts for most of the downward revision since the last Greenbook, although a further deterioration in the outlook for residential investment is also a factor.

Your next exhibit summarizes the current forecast. So, how did we respond to all this bad news? As shown in the panel at the top, we boosted real GDP growth a little from 2007 through 2009. In 2008 and 2009, however, this faster growth is not demand driven but instead reflects upward revisions to the supply side of our forecast that I will discuss in a moment. For 2007, the upward revision to real GDP in the fourth quarter—noted in the panel to the right—reflects the stronger data on nonresidential construction, defense spending, and retail sales that I just mentioned. However, because the incoming data point to a weaker trajectory for real activity in the near term, we have trimmed our forecast of GDP growth for the first half of 2008, and we have marked down final sales growth (not shown) quite a bit. Beyond the middle of the year, we project real output to expand at a rate close to its potential. Under these conditions, we project greater labor market slack than in December, with the unemployment rate—shown in the middle left panel—now expected to edge up to $5\frac{1}{4}$ percent by next year. And as shown in the bottom two panels, we continue to expect both core and total PCE prices to decelerate noticeably by 2009, although inflation this year is likely to run a little higher than we previously projected.

Your next exhibit provides an overview of some of the key factors influencing the outlook. As shown in the upper left panel, we conditioned our forecast on an additional 50 basis point cut in the funds rate at this meeting and then held it flat at

3 percent. We made this revision in response to the weaker underlying level of demand in this projection but with an eye to keeping inflation on a long-run path to 1¾ percent—the midpoint of the range of 2010 inflation projections that you provided in October. Another key element in the outlook is our assumption that concerns over financial stability and a possible recession will begin to abate once the economy gets through a rough patch in the first half of this year. As Nellie will discuss in more detail, this assumption implies that risk premiums on bonds and corporate equity should drift down over time. As a result, we project that equity prices, shown to the right, will stage a partial recovery over the second half of 2008 and in 2009. These and other financial market developments, coupled with an improvement in business and consumer sentiment, should help to support consumption and investment over time.

As regards fiscal policy, odds now seem high for the passage of a fiscal stimulus package, although the details are still up in the air. As a placeholder, we built a \$125 billion package into the baseline, with two components—\$75 billion in tax rebates that households will receive in the third quarter and a 30 percent one-year bonus depreciation allowance that should cost the Treasury about \$50 billion in 2008. Our judgment is that the rebate component will provide a significant, albeit temporary, boost to the level of consumer spending during the second half of this year and in early 2009, the period over which we expect most households to spend their checks. In contrast, we think that bonus depreciation will have only a small effect on equipment and software outlays. As indicated by the blue bars in the panel to the right, these assumptions imply a large fiscal-driven contribution from PCE and E&S to real GDP growth in the second half of this year, followed by a similar-sized negative contribution in the first half of 2009. As a result, the long-run contribution to real GDP growth from these two factors is essentially zero. We have assumed that inventories and imports in the short run will offset a substantial fraction of the swings in domestic demand, thereby muting the overall effect of the fiscal package on real GDP growth (the green bars).

As I noted earlier, we also have reassessed our supply-side assumptions—shown in the bottom left panel. Specifically, we have raised our estimate of potential output growth from 2005 to 2009 about ¼ percentage point per year, partly in response to the solid gains in output per hour recorded last year. These revised estimates have two important implications. First, the upward revision to potential output translates roughly one for one into faster growth in actual output during the projection period because of its implications for permanent income and hence consumption and investment. Second, the revisions to potential output in history imply that the output gap—shown to the right—currently is lower than we previously thought, and we expect it to remain lower.

Your next exhibit provides some details on the real-side outlook. As shown in the top left panel, we have once again revised down the projection for new home sales in light of weak incoming data, including those received after we put the Greenbook to bed. However, we continue to expect that sales will reach bottom in the first half of

this year and then begin to edge up as mortgage credit availability improves. This stabilization in demand should allow single-family housing starts (shown to the right) to level out at about 660,000 units by midyear, well below our December projection. Thereafter, we anticipate a slow pickup in starts. As shown in the middle left panel, builders still have a long way to go to bring the backlog of unsold homes down to a more comfortable level, and this overhang should restrain construction activity into next year. We have also revised down the near-term outlook for real business fixed investment—the middle right panel—in response to slowing sales, tighter credit conditions, and some deterioration of business sentiment, but we now expect a greater cyclical rebound starting in the second half of this year as overall conditions start to improve. The bottom left panel shows our projection for consumption, the blue bars, together with the profile for spending excluding the effects of fiscal stimulus, the green bars. Absent the stimulus package, we would expect consumer spending to increase only 1 percent this year but then to pick up around $2\frac{1}{4}$ percent in 2009 as confidence recovers and credit conditions ease. However, the tax rebates will likely obscure this cyclical pattern by inducing saw-tooth swings in spending, with actual growth realigning with longer-run fundamentals only in the second half of next year. As shown to the right, some of these fundamentals are less favorable than before; we estimate that wealth effects will hold down PCE spending growth by $\frac{1}{2}$ percentage point this year and almost $\frac{3}{4}$ percentage point in 2009.

Your next exhibit reviews the inflation outlook. As indicated by the blue line in the upper left panel, monthly readings on core PCE inflation have moved up since the summer. We are inclined to take only a small signal from this movement, much as we did early last year when price increases were unusually subdued. In part, this is because a portion of the recent pickup was attributable to the erratic nonmarket component and quarter-to-quarter fluctuations in this category tend to fade away quickly. In addition, while market-based prices also came in higher than expected, we are interpreting some of that surprise as a reversal of some earlier low readings in particular categories. That said, we also think that a portion represents somewhat more persistent inflation pressure coming into 2008. We project both core and total PCE inflation to moderate over time because of several factors. To begin with, futures prices for crude oil imply the sharp deceleration in energy prices shown to the right. We also expect food prices (the middle left panel) to decelerate into 2009, partly as result of the increased production of beef and poultry that is now under way. In addition, the impetus to inflation from core import prices (the middle right panel) should diminish over time, although by less than projected in December because we now anticipate a faster rate of dollar depreciation. These developments, coupled with the additional economic slack built into this projection, should help to keep inflation expectations anchored, allowing actual inflation to fall below 2 percent in the longer run. Indeed, survey measures of long-run inflation expectations (the blue and red lines of the bottom left panel) remain stable. TIPS inflation compensation (the black line) jumped following the intermeeting fed funds rate cut, as Bill pointed out. But as was discussed in the memo by Jonathan Wright and Jennifer Roush that was circulated to the Committee, we are inclined to attribute most of this increase to changes in inflation risk and liquidity premiums, not to a rise in inflation expectations

per se. Putting all this together, we project core inflation—the first column of the panel to the right—to remain at 2.1 percent this year but then to drop down to 1.9 percent next year, the same as in December. Similarly, we continue to expect that headline inflation will slow to 2¼ percent this year and slide to 1¾ percent in 2009 as energy prices moderate. I will now turn the floor over to Nellie.

MS. LIANG. As discussed earlier, Treasury yields and stock prices are down sharply since the December FOMC meeting on news that indicated greater odds of a recession and large writedowns at financial institutions. As shown by the blue line in the top left panel of exhibit 6, the fall in stock prices pushed up the ratio of trend forward earnings to price. The difference between this ratio and the real Treasury perpetuity yield, shown by the shaded area and plotted to the right, is a rough measure of the equity premium. As you can see, this measure jumped in the past few months and is now at the high end of its range of the past twenty years. In the corporate bond market, the spread on high-yield corporates, the black line in the middle panel, widened sharply, and investment-grade spreads, the red and blue lines, also rose. Forward spreads (not shown) rose especially in the near-term, suggesting particular concern about credit risk in the next few years. In the forecast, we assume that the equity premium and bond spreads will recede some from their recent peaks as the risk of recession recedes and activity picks up, but they will remain on the wide side of their historical averages. As shown in the bottom left panel, our most recent indicators suggest that the OFHEO national purchase-only house-price index, the black line, fell 2¾ percent in the fourth quarter; we project further declines of about 3¼ percent in both 2008 and 2009. In some states with many subprime mortgages—such as California, Arizona, Nevada, and Florida—house prices, the red line, began to fall earlier and have declined by more. Reports of spectacular writedowns from some financial firms may also have caused investors to assign greater odds of tighter financial conditions. As noted in the bottom right panel, financial firms took writedowns and loan-loss provisions of more than \$80 billion in the fourth quarter. Most of the reported losses were from subprime mortgages and related CDO exposures, but many banks also increased loss provisions for other types of loans. In response, financial firms raised substantial outside capital and cut dividends and share repurchases. Still, the risk remains that writedowns and provisioning will grow larger if house prices or economic activity will slow more than currently anticipated or if financial guarantors are downgraded further. Moreover, many of the largest firms are still at risk of further unplanned asset expansion from previous commitments for leveraged loans and their continued inability to securitize non-agency mortgages. Consequently, these firms are likely to be cautious in managing asset growth.

Your next exhibit focuses on business financial conditions. As shown by the black line in the top left panel, top-line operating earnings per share for S&P 500 firms for the fourth quarter are now estimated to be about 23 percent below their year-ago level, dragged down by losses at financial firms. For nonfinancial firms, the green line, earnings per share are estimated to be up 10 percent from a year ago. Analysts' estimates of Q1 earnings for nonfinancial firms were trimmed a bit last week but suggest continued growth. Robust profits since 2002 have put most

businesses in strong financial shape. As shown in the right panel, loss rates on high-yield corporate bonds, the black line, have been near zero for more than a year as very few bonds defaulted and recovery rates were high. However, we project that bond losses will rise gradually in the next two years as the nonfinancial profit share slips from its currently high level. In commercial real estate, the middle left panel, the net charge-off rate at banks, the black line, was low in the third quarter of last year despite a slight tilt up mostly from troubled loans related to residential land acquisition and construction. We project that this rate will rise fairly steeply, reflecting weakness in housing and expected softening in rents for commercial properties.

A similar outlook may lie behind the tighter standards for business loans reported in the January Senior Loan Officer Opinion Survey. As shown by the orange line in the middle right panel, the net percentage of domestic banks reporting having tightened standards on commercial real estate loans in the past three months reached 80 percent, a notable increase from the October survey. In addition, one-third of domestic banks tightened lending standards on C&I loans in the past three months. Large majorities of the respondents that tightened standards pointed to a less favorable or more uncertain outlook or a reduced tolerance for risk. Despite wider spreads, borrowing rates for investment-grade firms are lower than before the December FOMC meeting. As shown by the red line in the lower left panel, yields on ten-year BBB-rated bonds, the red line, fell about 25 basis points, and rates on thirty-day A2/P2 nonfinancial commercial paper, the blue line, have plummeted about 200 basis points since just before year-end. In contrast, yields on ten-year high-yield bonds, the black line, are up and now are close to 10 percent. Net borrowing by nonfinancial businesses, shown in the right panel, is on track in January to stay near the pace of recent months. Net bond issuance, the green bars, has been sizable in recent weeks with most of that issuance by investment-grade firms. Unsecured commercial paper, the yellow bars, rebounded after substantial paydowns ahead of year-end.

Your next exhibit focuses on the household sector. As shown in the top left panel, delinquency rates at commercial banks for credit cards, the blue line, and nonrevolving consumer loans, the black line, edged up in the third quarter, as did rates for auto loans at finance companies through November. Some of the recent rise in delinquency rates for credit cards is in states with the largest house-price declines, and could represent spillovers from weak housing markets. As shown to the right, delinquency rates on subprime adjustable-rate mortgages, the solid red line, continued to climb and topped 20 percent in November, and delinquency rates on fixed-rate subprime and on prime and near-prime mortgages also rose. Looking ahead, we expect delinquency rates on consumer loans to rise a bit from below-average levels as household resources are strained by higher unemployment and lower house prices. These developments have spurred lenders to tighten standards on consumer loans. As noted in the middle left panel, responses to the January Senior Loan Officer Opinion Survey indicate a further increase in the net percentage of banks tightening standards on credit cards and other consumer loans in the past three months. Banks also

reported substantial net tightening of standards for subprime and prime mortgages, with the latter up considerably from the October survey. In addition, spreads on lower-rated tranches of consumer auto and credit card ABS jumped in January amid news that lenders were increasing loan-loss provisions. That said, interest rates on auto loans and credit cards, not shown, are not up, and most households still appear to have access to these forms of credit. As shown to the right, issuance of securities backed by these loans was robust through January. Securitization of nonconforming mortgages, the grey bars in the lower left panel, was weak in the fourth quarter of last year, and there has been little, if any, this month. But agency-backed securitization, the red bars, was quite strong in the fourth quarter and appears to be again in January. Moreover, as shown to the right, interest rates have fallen appreciably. Rates on conforming thirty-year fixed-rate mortgages, the blue line, and one-year ARMs, the red line, fell, and offer rates on prime fixed-rate jumbo mortgages, the black line, are also down. The six-month LIBOR, the rate to which most subprime ARMs reset, plunged in January, although, even at this level, the first payment reset will still be substantial for many households.

The next exhibit presents our outlook for mortgage defaults. The top left panel shows cumulative default rates for subprime 2/28 ARMs by year of origination. A default here is defined as a loan termination that is not from a refinancing or sale. The default rates for mortgages originated in 2006 and 2007, the red and orange lines, respectively, have shot up, and for mortgages originated in 2006, about 18 percent will have defaulted by the loan age of eighteen months. This rate is higher at every comparable age than for mortgages made in 2005, the blue line, and the average rate for loans made in 2001 to 2004, shown by the black line, with the shaded area denoting the range across years. Softer house prices likely played an important role in defaults on 2006 and 2007 loans because borrowers had little home equity to tap when they lost their jobs or became ill, or they walked away when their mortgages turned upside-down. These mortgages have not yet faced their first interest rate reset. As shown to the right, we expect a sizable number of borrowers to reset to higher payments, about 375,000 each quarter this year, if these mortgages are not prepaid or rates are not reduced. While many borrowers still have time to refinance or sell before the first rate reset, lower house prices and tighter credit conditions are likely to damp this activity. As noted in the middle left panel, to project defaults on subprime ARMs, we use a loan-level model that jointly estimates prepayments and defaults. The model considers loan and borrower characteristics at origination, subsequent MSA- or state-level house prices and employment fluctuations, interest rates, and “vintage” effects. As shown to the right, with data for the first three quarters in hand, we estimate that defaults in 2007 about doubled from 2006 and predict that they will climb further in 2008 and stay elevated in 2009. These estimates imply that 40 percent of the current stock of subprime ARMs will default over the next two years.

An important source of uncertainty around our projections is how borrowers will behave if falling house prices push their loan-to-value ratios above 100 percent. As shown in the first line of the bottom left panel, we estimate that 20 percent of

subprime borrowers had a combined loan-to-value ratio of more than 100 percent in the third quarter of last year. If we assume that national house prices fall about 7 percent over the forecast period, as in the Greenbook, an estimated 44 percent of subprime mortgages would have combined LTVs above 100 percent. A similar calculation for prime and near-prime mortgages, shown in the second line, indicates that a not-inconsequential share, 15 percent, of these would also be upside-down by the end of 2009. While prime borrowers likely have other financial assets upon which to draw in the case of job loss or sickness, such high LTVs pose an upside risk to our baseline projection of defaults. Another source of uncertainty—this one on the positive side of the ledger—is how loan modifications can reduce defaults or loss of a home. We have limited information, but recent surveys indicate that loan workouts and modifications were modest through the third quarter of last year but likely accelerated in the fourth quarter. Servicers are strained working on the large number of loans that are delinquent before the first reset. One survey indicated that servicers assisted about 150,000 subprime borrowers in the third quarter, which would represent about 15 percent of those with past-due accounts, but were not addressing current accounts with an imminent reset.

As highlighted in the top panel of your next exhibit, we summarize our projections for credit losses in the next two years for major categories of business and household debt. These projections rely on the paths for house prices, unemployment, interest rates, and other factors from the Greenbook baseline. We also present projections based on the Greenbook recession alternative with the additional assumption that national house prices fall 20 percent. In this alternative scenario, real GDP growth turns negative in 2008, and the unemployment rate rises above 6 percent in 2009. As shown in the first column of the bottom panel, if we use the loss rates over the past decade or two as a guide to approximate losses under average economic conditions, total losses, line 6, would be projected to be \$440 billion over the next two years. Such losses could be considered what might be expected by lenders of risky debt in the normal conduct of business. But conditions over the next two years are not expected to be normal, even under the baseline scenario. As shown in the second column, losses under the Greenbook baseline are expected to be considerably higher than average and total \$727 billion, given our outlook for only modest growth. These losses might not greatly exceed the amounts that investors already have come to expect given signs of slowing activity. The above-average losses are especially large for residential mortgages, line 1, including those for nonprime mortgages, line 2. In contrast, losses for consumer credit, line 3, and business debt, line 4, are only a touch higher than normal. In the alternative scenario, in which business and household conditions worsen further, losses are projected to rise even more, not only for mortgages but also for other debt. Losses of this dimension would place considerable strains on both households and financial institutions, creating the potential for more-serious negative feedback on aggregate demand and activity than is captured by our standard macroeconomic models. Nathan will continue our presentation.

MR. SHEETS. Your first international exhibits focus on the recent strength of the U.S. external sector. As shown in the top panel of exhibit 11, U.S. exports are now seen to have expanded at a moderate $4\frac{1}{2}$ percent pace in the fourth quarter, following the 19 percent surge in the third quarter. With import growth in the fourth quarter stepping down to 2 percent, net exports are estimated—as shown on line 3—to have made a positive arithmetic contribution to real GDP growth of 0.2 percentage point. Going forward, we see the external sector contributing 0.5 percentage point to GDP growth in 2008 and 0.3 percentage point in 2009. Exports are expected to expand at a crisp $7\frac{1}{4}$ percent pace in both years, supported by stimulus from the weaker dollar. The pace of import growth, after stepping down on average in the first half of this year, should pick up some through the forecast period, broadly mirroring the contour of U.S. growth. As shown in the bottom left panel, some additional impetus to import growth should come from a projected decline in core import price inflation, due to moderation in both exchange-rate-adjusted foreign prices (the red bars) and commodity price increases (the blue bars). Returning to line 4 of the upper panel, we estimate that the current account deficit increased to $5\frac{1}{2}$ percent of GDP during the fourth quarter, driven up by a surge in the oil import bill. We see the deficit declining to $4\frac{3}{4}$ percent of GDP in 2009, as the non-oil trade deficit narrows to just $1\frac{1}{2}$ percent of GDP. As shown on the bottom right, the oil import bill—which has increased from around 1 percent of GDP early this decade to about 3 percent of GDP at present—looms as an increasingly important factor influencing the evolution of the current account balance.

Your next exhibit examines U.S. external performance from a longer-term perspective. As shown in the top panel, the arithmetic contribution from net exports was persistently negative from 1997 to 2005, subtracting $\frac{3}{4}$ percentage point on average from the growth of U.S. real GDP. The contribution from net exports, however, has swung into positive territory over the past two years, adding about $\frac{1}{2}$ percentage point to growth, and we expect net exports to continue to make a positive contribution over the next two years. As shown in the middle left panel, this upswing in the net export contribution has reflected—in roughly equal measure—an acceleration in exports and a slowing of import growth. Over the past two years, export growth has stepped up to $8\frac{1}{2}$ percent, more than twice its average 1997-2005 pace, and it is projected to moderate only slightly in 2008 and 2009. In contrast, import growth over the past couple of years has fallen off to less than half its 1997-2005 average and is expected to remain soft through the forecast period. The individual contributions of exports and imports to U.S. GDP growth have both risen about $\frac{1}{2}$ percentage point in recent years. This swing in U.S. external performance has been driven in large measure by the cumulative effects of the decline in the dollar (shown on the middle right). Since its peak in early 2002, the dollar is down more than 20 percent in broad real terms, including a 30 percent fall against the major currencies. We project that going forward the broad real dollar will depreciate at a pace of a little less than 3 percent a year, with this decline coming disproportionately against many of the emerging market currencies (including the Chinese renminbi), which have moved less since the dollar's peak in early 2002. The bottom panel highlights another factor that has supported the shift in U.S. external performance.

From 1997 to 2005, U.S. growth was on average just $\frac{1}{4}$ percentage point below that of our trading partners. In recent years, U.S. growth has slowed relative to foreign growth, and this gap has widened substantially, reaching $1\frac{1}{2}$ percentage points on average in 2006 and 2007. This has, consequently, restrained imports relative to exports. Our forecast calls for this gap to narrow only slightly through the forecast period. But this projection depends crucially on the resilience of growth abroad—an issue that is examined in your next exhibit.

Recent data have confirmed our expectation that foreign activity slowed markedly in the fourth quarter. As shown in the top left panel of exhibit 13, economic sentiment in the euro area fell in December for the seventh consecutive month, and the ECB's survey of bank lending pointed to further tightening of credit standards for both households and firms. In addition, euro-area retail sales volumes and industrial production (not shown) have moved down in recent months. In the United Kingdom, the preliminary reading on fourth-quarter GDP growth was surprisingly strong, but other indicators seem to point to some softness going forward. As shown on the right, the Bank of England's new survey of credit conditions indicates a further decline in the availability of credit to corporations during the fourth quarter, and the level of new mortgage lending has plunged. Other indicators, including consumer confidence, have also slid of late. The Japanese economy may be weakening as well. As shown in the middle left panel, the December Tankan survey showed a further retreat in business confidence, including a softening of sentiment among both large manufacturers and large nonmanufacturers. Housing starts have declined dramatically lately, as the construction sector adjusts to new, tighter building standards. We also see signs that labor market conditions may be weakening. As shown in the bottom panel, our assessment is that total foreign GDP growth slowed to about $2\frac{3}{4}$ percent during the fourth quarter, distinctly down from the 4 to $4\frac{1}{2}$ percent pace recorded through 2006 and the first three quarters of 2007. Notably, the fourth-quarter slowdown was broadly based. We estimate that growth in Mexico (line 8) declined sharply, in line with a contraction in U.S. manufacturing output. Chinese GDP data, which were reported after the Greenbook went to press, indicate that growth in the fourth quarter remained below its double-digit pace in the first half of the year, with exports posting a contraction.

The middle right panel summarizes what we see as the key sources of this near-term slowing. First, a number of countries have experienced headwinds from the ongoing financial turmoil; this is particularly the case for the euro area, the United Kingdom, and Canada. In addition, sharp recent declines in equity markets have occurred in a much broader set of countries. The softening of U.S. growth is a second factor weighing on activity abroad, especially for countries like Canada and Mexico and many in emerging Asia that have sizable trade linkages with the United States. Third, through 2006 and 2007, many of the foreign economies enjoyed exceptionally rapid cyclical expansions, so some eventual moderation in the pace of growth seemed inevitable, and we have been projecting a deceleration for some time. Returning to the bottom panel, we see these factors as continuing to weigh on foreign activity through the first half of the year. Thereafter, growth should gradually strengthen, to

3 percent in the second half and to 3.4 percent in 2009, as financial turmoil subsides and as the U.S. economy rebounds. Nevertheless, we expect that growth will remain well below the heady pace recorded over the past two years.

As shown in the top left panel of exhibit 14, our foreign outlook is also supported by projected easing of monetary policy abroad. Given mounting evidence of economic weakness and continued financial stress, we see the ECB and the Bank of Canada cutting policy rates 50 basis points by the middle of the year, and the Bank of England easing 75 basis points. Given the persisting inflation risks, this is admittedly an aggressive call. But we see the case for monetary action as compelling and believe that these central banks will be persuaded, notwithstanding their recent hawkish rhetoric. The futures markets also appear to be pricing in some easing, albeit at a more gradual pace than we envision. Finally, we now expect the BoJ to remain on hold until the end of 2009. To be sure, there are a number of risks surrounding our forecast, most of which are on the downside. First, the prevailing financial headwinds or the slowing of U.S. growth may be larger or more protracted than we currently project. Second, we do not yet have a good sense of the extent to which many foreign financial institutions have been affected by the recent turmoil, and the release of year-end financial statements over the next six weeks or so could bring some bad news. A third risk is that overly optimistic expectations of decoupling may lead to policy mistakes. Specifically, to the extent that foreign authorities are convinced that they have decoupled from the United States—or that they are immune from spillovers due to the financial turmoil—they may be too slow to ease policy to address weakening demand. Policy abroad may also be restrained by too narrow a focus on the recent rise in inflation, a topic to which I will return momentarily. Finally, housing markets in some countries may be vulnerable. As shown in the bottom left panel, many countries have experienced run-ups in house prices in recent years that are similar to or even exceed those recorded in the United States, and house prices are now decelerating sharply in a number of these countries. Further weakening of house prices poses the risk of adverse wealth effects. Notably, of the major economies shown in the right panel, only the United States has yet seen a marked downward swing in the contributions from residential investment to GDP growth.

Your final international exhibit discusses our projections for foreign inflation. As shown in the top panel of exhibit 15, average foreign inflation jumped up to an annual rate of 4½ percent in the fourth quarter, with marked increases in both the advanced foreign economies (line 2) and the emerging markets (line 7). The sources of this rise in inflation—including rapid increases in the prices of food and oil—have been well documented. Going forward, we see average foreign inflation moving back down to an annual rate of 2½ percent in the second half of this year and continuing at that pace in 2009. Despite the run-up in realized inflation rates, readings on long-term inflation expectations have remained well anchored. As shown in the middle left panel, breakeven inflation rates for the advanced foreign economies have continued to hover around 2.3 percent on average, and long-term inflation forecasts have stayed near 2 percent. For the emerging markets, average long-term inflation forecasts (shown on

the middle right) have remained between 3 and 3½ percent in recent years. The bottom panels show four-quarter percent changes for the prices of oil, food, and metals. Given the marked slowing of global activity, the stage seems set for some deceleration in commodity prices; indeed, metals prices are already on a downward trajectory. Thus, in line with quotes from futures markets, we see the pace of increases in oil prices and food prices as declining significantly over the next few quarters. Nevertheless, we have been wrong on this score before and freely acknowledge that there are upside risks to this projection. Brian Madigan will now continue our presentation.

MR. MADIGAN.³ I will be referring to the separate package labeled “Material for FOMC Briefing on Economic Projections.” Table 1 shows the central tendencies and ranges of your current forecasts for 2008, 2009, and 2010. Central tendencies and ranges of the projections made by the Committee last October are shown in italics. As for conditioning assumptions, most of you see the appropriate near-term path of the federal funds rate as at or below that assumed in the Greenbook. Eight policymakers explicitly assumed somewhat more near-term easing than in the Greenbook. However, several of you assumed that policy would need to begin firming no later than 2009. Many of you also projected that the funds rate would exceed the level forecasted in the Greenbook by the end of the forecast period.

As shown in the first row, first column, of table 1, the central tendency of your forecasts of real growth for 2008 has been marked down about ½ percentage point since last October. Most of you remarked that a range of factors had prompted you to lower your growth expectations for the current year, including the continued turmoil in financial markets and the resulting tightening of credit conditions, the persistent deterioration in the housing market, incoming data suggesting slower consumption expenditures and business investment growth, and higher oil prices. A few of you suggested that stronger export demand as well as fiscal stimulus would provide some offset to weakness in private domestic demand, particularly beginning later this year. Your half-yearly projections, not shown, suggest that you all think that, more likely than not, the economy will skirt recession. On average, you see real GDP growing at an annual rate of about ¾ percentage point over the first half before picking up to a 2½ percent pace in the second half. As shown in the second row, in view of the weak growth forecast for this year, most of you revised up your expectations for the unemployment rate in the fourth quarter about 0.4 percentage point, to around 5¼ percent. Most of you project slightly brisker growth this year than the Greenbook does—perhaps partly reflecting the assumption that a number of you made that there would be more near-term monetary ease than the staff assumed. As shown in the third and fourth sets of rows, with incoming inflation data a bit higher than previously expected and despite projected weaker real activity, the central tendencies of your projections for total and core PCE inflation this year have increased about 0.3 percentage point. That upward revision is a bit larger than the 0.2 percentage point upward revision to the Greenbook inflation forecasts but leaves the level of your projections close to those in the Greenbook: Most of you see total and core

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

inflation this year at a little above 2 percent. But as shown in the bottom section, the upper limit of the range of your overall inflation projections for this year has moved up to 2.8 percent. Your forecasts for total PCE inflation this year remain a bit higher than for core inflation, reflecting the expectation of higher energy, food, and in some cases, import price inflation.

Looking ahead to next year, your forecasts indicate that you expect economic growth to pick up as the drag from the housing sector dissipates and credit conditions improve. The midpoint of the central tendency of your forecasts for real GDP growth is 2.4 percent. Your growth forecasts for next year are mostly above the staff's forecast of 2.2 percent, perhaps again because a number of you assumed more-aggressive policy easing in the near term and perhaps because at least some of you appear to see potential output growth as a bit brisker than the staff does. With most of you evidently seeing growth a bit above trend next year, the unemployment rate begins to edge lower, but the central tendency of your unemployment projections still remains distinctly above that in October. Although you are generally optimistic about improving conditions next year, your views have become considerably more dispersed: As shown in the lower section, the width of the range of the growth projections for 2009 has nearly doubled, as has the width of the range of the unemployment projections. The third and fourth sets of rows in the upper panel indicate that most of you see overall and core inflation as moving below 2 percent next year. Some of you said that those declines reflect less pressure from energy prices and, with the unemployment rate above the NAIRU, the emergence of some slack in the labor market. It is worth noting, however, that despite the easing of pressure on resources during 2008 and 2009, the central tendencies of your inflation projections for next year are essentially unchanged from October. This development presumably reflects your perception of some deterioration in the near-term inflation-output tradeoff, perhaps prompted in part by the publication of surprisingly high inflation data for the fourth quarter of 2007 and an expectation that those effects will linger in 2009.

Turning to 2010, the interpretation of your longer-term projections is a bit less straightforward than it was in October. It was noted during the trial-run phase that a time may come when the economy is seen as unlikely to be in a steady state by the third year of the projection. To some extent, that time seems to have already arrived. In particular, a comparison of the central tendencies for unemployment in 2010 from your January and October projections suggests that you now see a bit of slack persisting that year. The central tendencies and ranges of your total and core inflation projections for 2010 have changed just a bit from those in October, but those changes might be viewed by outside analysts as significant. In particular, the central tendency for total inflation in 2010 has inched up 0.1 percentage point, and the lower limit of the central tendency for core inflation has increased the same amount. Absent guidance to the contrary, some analysts might now conclude that your "comfort zone" has edged up to $1\frac{3}{4}$ to 2 percent from $1\frac{1}{2}$ to 2 percent. To counter this impression, presumably the published "Summary of Economic Projections" should suggest that, because a bit of economic slack is expected to persist at the end of 2010, inflation

could continue to edge lower beyond the projection period. This discussion, however, raises not only a presentational point but also a substantive one, and that is, Why should your inflation projections for 2010 have revised up at all? True, the inflation-output tradeoff appears to have deteriorated a little recently, but as Dave Reifschneider noted, some of that deterioration is likely to be temporary. Also, higher inflation than otherwise might in principle be a consequence of taking out some insurance now against especially weak economic outcomes. But given the significant *negative* shock to aggregate demand embedded in your modal forecasts and the associated upward revision to slack across all three years of your projections, as well as the absence of any upward revision to your inflation projections for 2009, even the small upward revision to your inflation projections in 2010 seems somewhat surprising.

Turning to the uncertainties in the outlook, the upper panel of exhibit 2 shows that even more of you than in October judge that uncertainty regarding prospects for economic activity is higher than its historical level. Even with the significant reductions in the target funds rate already in place and, for many of you, an assumption of more easing to come, the lower panel illustrates that most of you still see the risks to growth as tilted to the downside. As reasons, you again cited tighter credit conditions for households and businesses emanating from further disruptions in financial markets as well as the persistently deteriorating housing outlook. As shown in the upper panel of exhibit 3, more of you than in October see the uncertainty around your total inflation forecasts as close to that of the past two decades, while a smaller minority viewed uncertainty as greater than in the past. As shown in the lower panel, fewer of you now see the inflation risks as predominantly to the upside. On balance, as in October, downside risks to growth were more frequently cited than upside risks to inflation, which seems broadly consistent with each of the alternative policy statements that were in Bluebook table 1. Thank you.

CHAIRMAN BERNANKE. Thank you. That's quite a bit of information to digest. Does anyone have questions for our colleagues? President Evans.

MR. EVANS. Thank you, Mr. Chairman. I have a couple of questions that are somewhat different. On the labor front, I'm curious if you could offer some thoughts on how deterioration in the labor market might be coming about—whether or not it would be from the hiring front or the job-destruction front. As the research literature has evolved over a long time, I think it has moved a bit away from job destruction playing the key role and more toward reductions in hiring. I wonder how this informs the way you look at the data. Any insights you have into that would be quite helpful. Then I wonder if you could just talk a bit more about the interesting memo that was

distributed on inflation compensation and the implications for expectations. As I read it, it seemed to indicate that inflation expectations, if anything, were coming down from the five-year forward but that inflation compensation was higher. So does that mean that the variance of inflation is higher? Are people talking about the possibility of disinflation during this period? I would expect it to come with that type of compensation. Your thoughts on that would be great.

MR. REIFSCHNEIDER. Do you want me to take that last question, or do you want to?

MR. MADIGAN. Well, I could start if you would like.

MR. REIFSCHNEIDER. Go ahead.

MR. MADIGAN. I think the points we are trying to make in that memo regarding inflation compensation were that, first of all, it's very difficult to make these judgments about what is going on with inflation expectations, inflation risk premiums, and so on; but our best reading of the evidence was that probably inflation expectations have not moved up significantly recently. We base that on a variety of indicators. I won't go through all of them now, but to me the most compelling evidence to support that point is that inflation compensation over the next five years has actually come down over the intermeeting period, and it is a little hard to rationalize why inflation expectations would have risen so far out, whereas in the near term they seem, if anything, to be declining. Of course, various factors can affect inflation compensation, including relative liquidity and inflation risk premiums, and we certainly don't want to exaggerate our ability to decompose these changes into these various factors. It is possible that inflation risk premiums, in particular, have moved up, and some evidence does suggest that.

MR. EVANS. I neglected to say how interesting that memo was. The analysis is really very good. I look forward to seeing more of it.

MR. REIFSCHNEIDER. The only thing I would add to Brian's statement is that I think uncertainty about inflation in the long run could be moving up noticeably without really bringing into play disinflation or something like that. In other words, you could be more worried about going down to $1\frac{1}{2}$ or $1\frac{1}{4}$ than you were before—I don't know—it could be more just as it was in the forecast.

MR. MISHKIN. May I have a two-hander on this?

CHAIRMAN BERNANKE. Governor Mishkin.

MR. MISHKIN. When you think about what's going on, it is plausible that it is both up and down. That's the key point here. Because if you also look at the projections, there is a lot more uncertainty about what's going on in the real side of the economy. That could mean that inflation could drift down and longer-run inflation expectations could drift down if, in fact, there's some uncertainty about what the objectives of this Committee are. On the other hand, we actually did take a very sharp interest rate cut, and that could indicate that the Committee might tolerate somewhat higher inflation. So even though the action that was related to the big jump in inflation compensation was a cut in interest rates, I think there is a plausible argument that it could be symmetric in terms of increasing uncertainty on both sides.

MR. EVANS. That's what I was focusing on—the mean-preserving nature of that.

MR. MISHKIN. I think it is consistent with your view, but I just wanted to clarify.

MR. REIFSCHNEIDER. On job destruction versus a slower pace of new job creation, it's hard to answer that one. Some of those patterns have changed over time; and in monitoring labor market developments, we're trying to keep track of those two elements and that sort of thing. Whether that would materially change the way we would look at, say, just what payroll employment growth was doing, it would still be one of our main reads coming in. As to exactly how that worked

out behind it, I'm not sure it would make too much of a difference. I don't know whether Dave might want to add something to that.

MR. STOCKTON. Obviously, we would be monitoring those developments. We are monitoring the gross flows in the labor market, and I think to a large extent the slowing that we have seen thus far in employment growth has come more from a slower pace of hiring than it has from an increase in layoffs. More recently, in the JOLTS data as of November, there has been a significant increase in layoffs and discharges, and there has been some further slowing in hiring. If we were to truly move into a recession, you would still see a lot of layoffs, and there would be a fair amount of job destruction, so the cyclical aspect would still likely show through pretty strongly.

MR. EVANS. I guess I was thinking that, if you talk to people, you hear more about the job destruction aspect, but you don't hear quite the same information about hiring, except you might hear more nervousness. That's all.

MR. STOCKTON. Hiring plans have come off a bit in most of the surveys that we follow, but just a bit—not a lot yet.

CHAIRMAN BERNANKE. President Lockhart, did you have an interjection?

MR. LOCKHART. Yes. My staff is suspicious that the employment numbers have actually been weaker than the data have shown. They have been focusing on the birth-death model and the payroll survey is based upon assumptions related to the birth of construction firms, which logically would not be creating jobs in this environment. Do you have a take on that issue?

MR. STOCKTON. Well, if Bill Wascher, who is our expert in this area, wanted to say something, I would certainly let him go ahead and say something.

MR. WASCHER. Sure. The birth-death model basically assumes that the cyclical properties of births and deaths are the same as for continuing establishments. The BLS has only about five years of experience with the birth-death model, so I think it is pretty difficult to judge whether they need to make any additional adjustments in births and deaths, other than the same pattern that occurs in terms of net employment changes in continuing firms. But without much to go on, they don't take a very strong stand on whether they do a very good job of picking up the turning points because they don't have any history on which to base their analysis. So I think there are reasons to suspect that that is possibly the case, but I don't think there is any strong evidence that it is, and it is important to note that they do assume some cyclicalities in births and deaths in their procedures.

CHAIRMAN BERNANKE. President Poole.

MR. POOLE. Thank you, Mr. Chairman. Brian, I want to ask you about the projections. Well, it is more than an exercise now—the projections that we are offering are for real. What is the message that comes out of the projections—that is, if I am talking to the press or to others and they say, “What do I make of all of this?” My question to you is, What do you make of all of this? What is the message for the implications for policy or the implications for anything? You know, the data don't really speak for themselves. We are throwing out a lot of stuff here to the market, and what is the market supposed to make of it?

MR. MADIGAN. Well, that is a hard question, actually. You know, obviously in some sense the numbers at some level do speak for themselves.

MR. POOLE. Okay. What are they telling us? [Laughter]

MR. MADIGAN. I think they say that the Committee is expecting relatively slow growth in the period immediately ahead but that the economy avoids a recession. There is some

recovery over the subsequent years. It is not extraordinarily brisk. It is a fairly gradual recovery in terms of growth. The unemployment rate moves up a little, as you would expect with a period of growth below trend, but does not get extraordinarily high; and inflation, after coming under some upward pressure of late, gradually edges back down to levels below 2 percent. I am not sure that I am saying anything terribly enlightening here. Of course, one point that I should emphasize is that the full summary of economic projections, we hope, gives more texture than I was just able to give to the Committee's views about the modal outcome and to the Committee's concerns about the risks to both growth and inflation.

MR. POOLE. The reason I raise the question is that it seems to me very important that we have some interpretation as to what we make of all this and what we want the market to make of all this. In particular, let's say the observation that the projections or the risks are weighted to the downside. You might get some people saying, "Well, if we get some employment reports or others that in fact come in weaker than anticipated, that means that the Committee is on the edge of pulling the trigger to respond to it." That might be a possible message that people would take from this. If that is not the message that we want to convey, then we had better be very careful how we talk about these.

CHAIRMAN BERNANKE. President Poole, I would just point out that when these are released it will be simultaneous with my testimony to the Congress, and so I will have opportunities to put some context on it at that time.

MR. POOLE. I guess my question is directed as much to the Chairman as it is to Brian, which you will answer in the testimony.

CHAIRMAN BERNANKE. I will answer in the testimony. [Laughter] President Fisher.

MR. FISHER. First, I, too, wanted to thank you all for the paper on forward inflation compensation. I agree with the conclusion that it is difficult. Especially in times of strained trading conditions, I think that is the conclusion—whether you interpret the outcome the way it was interpreted in the paper or the way I do it more cynically, I think that is the key underlying point. I thought that was a very valuable, useful paper, and I want to thank you, Governor Mishkin, for commissioning it.

My question is to Nathan on your inflation projections. Reading through the Greenbook—even though the section on the international side is very thin—with the exception of China, where I think we can sell a lot of “Whip Inflation Now” buttons, and of Argentina, where the numbers are rigged, but even in those countries, what I took home was that everybody was surprised on the upside in every country ranging from the advanced countries, as we call them, to Turkey. Then, if you look at the exhibit 15 that you just presented to us, those numbers are confirmed in the fourth quarter, and then there is a sharp falloff proceeding from there. You gave us a good analysis of the risk to the foreign outlook in growth, and then you concluded your comment on inflation by saying that we have been wrong before, that there is some upside risk. So my question is, What are the risks on the inflation side? Could you elaborate on them, just as you elaborated on the risks to growth in the foreign outlook?

MR. SHEETS. We are happy to hear that there is demand for a bigger international section. [Laughter] You had better be careful what you wish for.

MR. FISHER. But I am very serious about this. Suddenly there is a falloff. Would you give us a sense of the risk? It can't be all one-sided.

MR. SHEETS. Right. Just a word of background. The rationale for the falloff is the expected decline in these commodity prices and the expected slowing of global demand. Now,

thinking about the risks, I am reasonably convinced that global demand is going to slow, which I believe will translate into reduced demand for many of these commodities that have driven up inflation. However, that says something only about the demand side of these commodity markets. There is also a lot going on on the supply side. At the last FOMC meeting, we talked about ethanol and the fact that many of these emerging-market countries are wealthier, that they want to eat better than they used to, that the relative price of energy has risen, and that it takes a lot of energy to raise these crops. So there are supply factors as well as demand factors at work in driving up these commodity prices. It is very hard for us to forecast the supply side of these markets. It is driven by things like weather and geopolitical developments and so on and so forth. On the commodities, my sense is that demand is going to shift in to some extent. As long as the supply doesn't shift in as well, we should be able to see a decline, or at least a slower rate of increase, in these prices. A very important point here is that, in order to get less of an impetus coming from commodity prices and inflation in these countries, we don't necessarily need oil prices to come down in level terms. We just need them to stop going up at such rapid rates. If we get slower rates of price increases, that will be disinflationary relative to where we have been. That is how I would characterize the risks around this forecast, mainly on the supply side of these commodity markets.

MR. FISHER. Thank you.

CHAIRMAN BERNANKE. Vice Chairman?

VICE CHAIRMAN GEITHNER. Thank you, Mr. Chairman. Nellie, I have two questions for you. One is on exhibit 9, where you forecast in the middle right panel the rate of increase in defaults on subprime ARMs. If you compare that with your reset rate estimate and your house-price assumption or the house-price assumption in the market, I wonder whether that

looks a little optimistic. Can you just say a little more about why, under the baseline scenario, given what has happened to house prices already and what is ahead, you wouldn't think that would be substantially greater?

MS. LIANG. We have revised this forecast up quite a bit since the first time we looked at this maybe in June or August, in part because of lower house prices and tighter credit conditions. The model requires as inputs defaults and prepayments, and the prepayment rates have been fairly slow but not zero. The 2006 vintage, as it approaches its first reset, has been that 20 to 25 percent are able to prepay. They are able to find something. So we don't want to assume that none of them will be able to. The model would approach both of those, so that is the positive side. The downside is that our forecast, with the national house-price assumption of roughly minus 7 over the forecast period, does imply house-price declines on the order of minus 20 percent a year or more in California, Florida, and some other places. That does leave the loan-to-value ratio, as I mentioned, pretty high for many borrowers. We have never had this kind of episode, so we have to make a judgment about the point at which subprime borrowers walk away from their houses. The current assumption is that at about 140 percent we just say you are out; but it has to be almost an assumption that, if by then you hadn't defaulted, we would push you out. So there is an upside. On the other hand, saying 40 percent of the outstanding stock will default over two years sounds like a big projection as well. So we tried to balance. There are risks on both sides, for sure.

VICE CHAIRMAN GEITHNER. Thank you. My second question is about your projected credit loss, and I apologize if you said this in your introduction. Are these losses across all holders of that credit risk?

MS. LIANG. Yes. We have not distinguished between who is holding the securities—banks or investors—so mortgages would include the 20 percent or so that are commercial banks, and it would also include those held by investors in the primary form.

VICE CHAIRMAN GEITHNER. We, being the Fed, know a fair amount about what banks hold. Do you have a crude estimate of what share of this banks hold, or what share of this would end up being eaten by banks?

MS. LIANG. In mortgages, 20 percent is actually probably a pretty good estimate.

VICE CHAIRMAN GEITHNER. For all the credit?

MS. LIANG. They have that much of the business sector and that much of the mortgages, so that pretty much covers it.

VICE CHAIRMAN GEITHNER. I am just trying to get at how you interpret this. So 20 percent of the additional \$600 billion relative to normal or relative to bank capital cushions now, is what? Is it a lot or not so much?

MS. LIANG. One issue here is whether you want to do it relative to current capital cushions. Banks can raise capital. If they anticipate that they will need to raise capital, they can cut dividends further. I haven't done that sort of exercise. One way to think about this is that the average long-run rate is about 60 basis points on debt; in the Greenbook baseline it runs to about 1 percent, and in the alternative, it gets close to about 1½ percent of debt. So, it is not outside the realm of history. It is on the high side.

VICE CHAIRMAN GEITHNER. We have had some bad points in history. I am not trying to force you to give a prediction, but were you reassured by this or troubled by it, fundamentally, in terms of the capacity of the financial system to absorb it?

MS. LIANG. No, I understand. I think the third alternative gets beyond what most are expecting at this point.

VICE CHAIRMAN GEITHNER. Yes, I would agree with that.

MS. LIANG. In that sense, it does represent a risk that you are going to get dynamic feedback between losses and household spending and lending—it is a high risk. So I wouldn't say "comforted." I think we were saying that this is beyond probably what our models could respond to in our typical way or it would be another dynamic feedback loop of some sort that we don't typically adjust for.

CHAIRMAN BERNANKE. President Plosser. Oh, I am sorry—a two-hander.

MR. ROSENGREN. Just a quick followup, this doesn't include losses from securities. It is only the loans, right?

MS. LIANG. The loans could be packaged in securities. This is debt. It includes all debt. Now, whether it is repackaged into an MBS, it would be there. It wouldn't be if it got in a CDO or something.

MR. ROSENGREN. Just in corporate bonds, for example.

MS. LIANG. Yes. It includes corporate bonds.

MR. ROSENGREN. Okay. Thank you.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. I have three questions. Let me go to Brian first. This is more of a comment. In your description of the forecast, you referred several times to the notion that there might be slack in the economy in 2010 based on these numbers. I guess my reaction to that, while I was kind of skeptical, I am not sure exactly how you infer that from what was reported. Certainly, that seems to be true in the Greenbook forecast, but trend growth

seems to be as good as or better than it was in the last projection. In 2010, inflation—true—is a little higher. The unemployment rate may be a 0.1 or 0.2 percentage point higher. But unless you infer something about what people thought the NAIRU might be, I don't know how you would necessarily infer that the reason inflation went up in these forecasts was that there was slack in the economy in these projections. So I just wanted to caution about the language we use in how we describe what we see here without necessarily inferring something about whether, in any individual person's forecast, there may or may not have been slack. In mine, there wasn't in 2010, but I don't see that necessarily follows from what these numbers look like. That was my only observation here.

MR. MADIGAN. Maybe I can respond to that. It is very inferential, and it is based partly on the two-tenths' difference from the October exercise when it was actually clear—I think clearer at that time—from participants' forecasts that many participants characterized their NAIRU as being in the vicinity of $4\frac{3}{4}$ percent. Unfortunately, the writeups this time were not all that explicit on this point, but it is the comparison with October that I was leaning on fairly heavily.

MR. PLOSSER. I have two other questions that I would like to pose. One is the change in the Greenbook's assumption about the increase in potential GDP. In particular, I am curious because what it essentially does, it seems, is to build in a significant amount of slack or output gap in 2009 and 2010 that didn't exist in the last Greenbook. I am inferring that part of the reason the more-aggressive easing in the policy assumption does not have any effect on inflation to speak of is that it is offset by the increased gap that you have built in. So I would like a little more explanation about the justification for building in a greater gap or a higher potential. But I am also curious to know, if you hadn't done that, what your forecast for growth and inflation

would look like in, let's say, 2009 and 2010. Could you give some guesstimate of how that might have affected it?

MR. REIFSCHNEIDER. In terms of the rationale for increasing potential going back over history, some of that, as I think I mentioned, was just that actual productivity performance has been better than the last time we reviewed this in the summer, and we are taking that on board. That is part of the motivation. Another part of the motivation is what we perceive is a somewhat growing tension between the way we saw labor market slack developing and the way we were looking at slack in terms of the product side through the output gap. We had arrived at a point this round where those tensions had increased over time, and this revision mitigates some of that tension, so those two things are in better alignment with each other. We also were taking the opportunity, when we opened up, to look at some other technical factors we used that get involved in going from, say, the nonfarm business sector to GDP, that sort of thing, and those also pushed us in the direction of being a bit more optimistic on growth going back. So we did view it, if you look at it in terms of product markets, as that there was more slack now than we had previously been thinking and that there was also more slack in the labor market—but that was from the actual data that came in. Going forward, we have more slack. We have more slack just in the labor market because we have revised up the unemployment rate. With that, and taking on board these assumptions of potential output, we have more slack on the output side.

Now, one question would be, to address your second question, how would things have changed if we hadn't taken that on board? Well, going forward, we would have written down a lower GDP forecast because what we are really saying here is that it is not that households and firms have changed their perceptions; this is just us, the poor econometricians, trying to infer what is out there in the real world. So the poor econometricians have inferred that potential

output is growing stronger. We have to look at it and say, “Well, so the prospects going forward for permanent incomes, corporate earnings, and that sort of thing, will be stronger, and that implies basically a one-for-one ratcheting up.” If we had said, “Well, no, potential output growth going forward won’t be stronger,” we would have revised down the GDP growth rate with it, so there wouldn’t have been any change in the output gap from that. That would have been shifting one for one. It wouldn’t have changed our sense of what resource utilization would be going forward.

MR. PLOSSER. So are you saying that your path of the gap would have been unchanged?

MR. REIFSCHNEIDER. The path of the gap would have been to a first approximation unchanged going forward. Some of the greater resource utilization now and going forward is a combination of the fact that we haven’t really changed our view on the labor market, aside from once we took on board the new unemployment rate data, but that we did change on the product market. Going forward, the way it evolves further on, we see the labor market gap opening up a little more and the output gap opening up a little more—that is driven primarily by our sense that the economy in an underlying sense is weaker—and we have made an adjustment for that with the monetary policy assumption. But it is not quite enough. We haven’t lowered the funds rate as much as we would have needed to do to totally wipe out that fact and keep resource utilization constant going forward on the product side. This is a difficult question. It was a difficult one for us, definitely, going through it because we had many moving parts.

MR. PLOSSER. Well, it does really change the character of the forecast substantially, I think.

MR. REIFSCHNEIDER. If you think about the forecast as resource utilization and inflation, then it has an effect on resource utilization that is bigger now going forward in the product market. We also see a bigger effect in the labor market, and if that were the only thing, it would have put more downward pressure—but not a lot—on inflation. But as I mentioned, we are coming into this forecast with somewhat worse inflation performance lately, and we think that has some persistence. So that is helping balance it out.

MR. PLOSSER. My last question is also related to some adjustments that struck me in the panel you talked about where you constructed the revised estimates of r^* . The first item on your list that you talk about was that the equity premium had gone up, and that was a big factor. So I have a couple of questions. That was an adjustment factor. Now, the way I would think about the stock market declining would be primarily having a wealth effect that works its way through consumption—that would be the normal channel. Yet the Greenbook and this discussion seem to suggest that somehow there was an additional adjustment made because of the rise in the equity premium. Is that correct or not, or is it just the wealth effect that you are talking about? Are these separate?

MR. REIFSCHNEIDER. No, it is not separate; the equity premium is a large reason that we had the big drop in stock values.

MR. PLOSSER. But is the mechanism through a wealth effect on consumption growth?

MR. REIFSCHNEIDER. Mostly, but not totally.

MR. PLOSSER. Well, what does that mean?

MR. REIFSCHNEIDER. I would say a couple of things. One, you can think of the cost of raising capital through equity as having some small influence on business investment. That is pretty small. The big effect would be primarily on consumption, as you mentioned. Wealth

effects to a smaller extent would affect housing as well. But I think of that as a wealth channel. But there is a bit of a cost-of-capital effect through raising funds through equity that you might think of as well. Another thing I would say is that the difficulty here is distinguishing the equity premium from general risk concerns, risk premiums in general, or increased compensation for higher risk or default risk in a number of these credit spreads we are talking about; those are sort of related. It is hard to keep these things separate in any kind of an accounting. Also, these things tend to be correlated with consumer and business sentiment. Again, that is another thing that is hard to keep separate.

MR. PLOSSER. So are these “extra channels”—if you want to call them that—typically part of the forecast change and how you evaluate? That is to say, in the fall, when the stock market booms 10 percent, are we going to get another kicker upward in r^* due to these same factors?

MR. STOCKTON. Yes.

MR. REIFSCHNEIDER. It might not happen. I mean, you could have a situation in which business sentiment would not take a hit, for example, simultaneously with the stock market tumbling, and you would not see some risk premiums on bonds going up. That would be very unusual.

MR. PLOSSER. I am just reacting to this very large change in your estimate of r^* and attributing it to equity premiums, and I was just trying to figure out both.

MR. STOCKTON. We just had a really big drop in the stock market, and that is the biggest piece of what is going on. But we have also marked down considerably our housing forecast. That is in an exogenous shift in aggregate demand, the IS curve. That is another chunk of what is going on here. We have had some increase in risk spreads, not just in the equity

premium. Despite the fact that Treasury rates have fallen, corporate bond yields have not as much, and we don't have as much there, so there is in general a widening of risk premiums.

MR. PLOSSER. Well, I am just trying to sort out how much of this is really due to the stock market moving around.

MR. STOCKTON. A big chunk of this is due to the stock market, so I don't know what we can do other than to take that on board in our forecast. As Dave noted, there are a few other, small wrinkles, and we didn't just invent those extra wrinkles this time around. They have always been there. But most of this is working through the wealth effect on the consumer spending side. So it is a weaker stock market and much weaker consumption. That is the aggregate demand channel. The other piece is housing, which I don't want to minimize because, in fact, that is another nontrivial factor holding down demand and, we think, depressing our estimate of the equilibrium funds rate here over the intermediate term.

MR. PLOSSER. I didn't understand that this was just primarily the wealth effect or whether you were referring to something different.

MR. STOCKTON. No, nothing different. Again, the way the stock market and other elements of spending operate is a little more complicated than just a consumer spending channel, but it really is wealth effect.

CHAIRMAN BERNANKE. I wonder if I could entice anybody for a cup of coffee.
[Laughter] Why don't we take a fifteen-minute break, and then we'll commence with the go-round. Thank you.

[Coffee break]

CHAIRMAN BERNANKE. If it is okay with everybody, we can start the economic go-round at this point. President Poole, you are up.

MR. POOLE. Thank you, Mr. Chairman. I am not sure how I got to be first here, but I guess I was being unusually agreeable when Debbie asked me. [Laughter] The general tenor of comments that I hear from our directors and people around the Eighth Federal Reserve District—these are the community bankers and smaller firms—is that things are slow but not disastrously slow. The comments that I hear from a series of phone calls to much larger national companies are decidedly more pessimistic, with one exception that I will talk about in a moment. My contact at a large national trucking firm says that they are in a 20-month recession in transportation. They are cutting their capacity, cutting the number of trucks, and I think the numbers on their cap-ex illustrate the situation: for 2006, \$410 million; for 2007, \$336 million; and their plan for 2008 is \$200 million. That is down a little more than 50 percent in two years, so they are really cutting back. I also called friends at UPS and FedEx, and generally things are not a whole lot different but a little weaker than they have been. Neither firm has any particular issues with labor supply. Domestic express business is flat, and customers are switching to the lower-priced services instead of overnight delivery at the end of the afternoon, shifting to ground services, and that sort of thing. On international business, U.S.-outbound volume for FedEx is up 6 percent. That would be consistent with the export increases that we have seen. Reports are that Asia is a bit slower but is still growing very rapidly. Asia to the United States is up 80 percent, 20 percent to Europe and Latin America. The freight market is dead—that is the way my contact put it—down 5 percent year over year. That is consistent with my trucking industry contact—and pretty much the same with UPS. My contact with the fast food industry—the quick-serve restaurant, or QSR, business—says the demand there is definitely weak. They are coming in roughly flat, I guess, or actually down so far this year. Prices are up because of the increase in food costs. The casual dining industry is in worse shape than the fast food industry.

My contact also follows retail in general pretty closely and finds that retail business in general is weak. That is consistent with a lot of the reports that we have been receiving.

A major exception is in the IT area—software. I have contact with a large software company, and the contact noted that, as announced, Microsoft had a fantastic quarter. The earnings were up sharply. PC hardware sales are growing at a rate of 11 to 13 percent expected in the first half of this year, so we see strong growth in the PC market. Consumer demand is stronger than business demand. Both, however, are pretty strong. The international business is doing better, in part because the industry is having some success in reducing the amount of software piracy. The biggest problem is finding software engineers. This particular company is running 8 percent behind its hiring forecast and cannot find software engineers. Positive for us old guys; some of the retirees are coming back to write code. [Laughter] Thank you. That is all I have.

CHAIRMAN BERNANKE. Thank you. President Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I broadly agree with the Greenbook forecast for economic growth this year and with the assessment that the downside risks to that forecast are considerable. The severe and prolonged housing downturn and financial shock have put the economy at, if not beyond, the brink of recession. My forecast incorporates fiscal stimulus of the same magnitude as the Greenbook and monetary stimulus that is somewhat larger. I have assumed a 50 basis point cut at this meeting and an additional 25 basis point cut during the first half. My forecast shows growth of 1½ percent in 2008, like the Greenbook, but it has a more pronounced acceleration in 2009 as the monetary and fiscal stimulus kickstarts the economy. The unemployment rate edges up this year to 5¼ percent before dropping gradually next year toward the natural rate of 4¾. I am especially concerned about the outlook for consumer

spending. The combined hits to equity and housing wealth will extract a considerable toll, and consumer spending will be further depressed by slower growth in disposable income due to weaker employment growth. Delinquencies and charge-offs on most forms of consumer debt have already risen, and slower job growth seems likely to exacerbate this trend, prompting financial institutions to further tighten credit standards and terms. In my forecast, such developments reverberate back negatively onto economic activity.

Like the Greenbook, I downgraded my economic outlook substantially since our last in-person meeting. The December employment report was probably the single most shocking piece of real side news prompting this revision. But knowing that it is unwise to put too much weight on any single piece of data, I have been examining the question of whether that report was more signal or noise. The drop in initial UI claims to relatively low levels in recent weeks makes such an assessment important. Because the behavior of both series may have been affected by seasonal factors near year-end, it seems worthwhile to examine a broad range of data bearing on the labor market. My conclusion is that the labor market has indeed been weakening since mid-2007, and the extent of weakening, while relatively modest thus far, is quite typical of patterns seen when the economy is tipping into recession.

Independent evidence of a weakening in the labor market comes from the household survey. Even when adjusted for definitional and measurement differences from the payroll survey, the household survey shows a fairly smooth trend of declining employment growth during 2007. The drop in payroll employment in December helped bring the establishment data into closer alignment with the household employment data. In the payroll survey, the slowdown is concentrated in construction and finance. In the household series, higher unemployment is actually widespread across sectors. The household survey also contains other signs of a

weakening job market: a 25 percent increase in the unemployment rate for job losers, which accounts for the lion's share of the overall increase in aggregate unemployment; an increase in the number of newly unemployed job losers, which can be thought of as a broader measure than UI claims of inflows into unemployment; and an increase of 5 to 10 percent in the estimated expected completed duration of an unemployment spell, suggesting a reduced pace of outflows from unemployment. The labor force participation rate of men and women of age 16 to 24 years has also fallen notably in recent months. Labor force participation rates for this group have been edging down since the last recession, but the decline accelerated in 2007, and historically this group is among the first to respond to weakening labor market conditions.

Data from the JOLTS survey, which we discussed in the Q&A round, confirm the weakness revealed elsewhere. The job openings, or vacancy, rate is down, consistent with the reduced pace of outflows from unemployment, as reflected in continuing UI claims and unemployment durations, and layoffs and discharges are up sharply. Other data cited in the Greenbook, Part 2, such as net hiring plans for Manpower, and NFIB and survey measures of job availability and unemployment expectations further corroborate a slowdown. With the aggregate unemployment rate now up only 0.6 percentage point off its low, I would describe the deterioration in the labor market thus far as modest, but it is noteworthy that an increase in unemployment of this magnitude, in the space of 12 months, has occurred only twice since 1948 outside of recessions.

While my modal scenario contains a near-term slowdown rather than a contraction, it is actually pretty rosy compared with what I fear might happen. My contacts have turned decidedly negative in the past six to eight weeks, and further financial turmoil may still ensue. On consumer spending, two large retailers report very subdued expectations going forward

following the weak holiday season, which involved a lot of discounting. On hiring and capital spending, my contacts have emphasized restraint in their plans due to fears that the economy will continue to slow. A serious issue is whether the tightening of credit standards that is under way will deepen into a full-blown credit crunch. The new Senior Loan Officer Opinion Survey shows a noticeable tightening in lending standards, and this is confirmed by my contacts. For example, senior officers of a large bank in my District recently described a variety of new steps they are taking to protect against credit losses. They are tightening underwriting practices across the entire consumer lending and small business loan portfolio. A recent strategy has involved classifying MSAs according to whether their real estate markets are stable, soft, distressed, or severely distressed, using both historical and prospective views of property values. Based on these designations, the company has reduced permissible combined loan-to-value ratios in their home equity portfolio, and going forward they intend to apply them across the entire consumer portfolio. On the positive side, though, they note that lower interest rates have spurred a surge in applications for mortgage refinancing, and a recent analysis shows that the reduction in the prime rate is having a significant impact on ARM reset expectations, shifting a large number from increases to reductions at reset. In fact, an analysis conducted before our most recent rate cut that assumed a 7 percent prime rate in February 2008—and it is now at $6\frac{1}{2}$ —estimates that two-thirds of the subprime ARM portfolio would now experience a decrease in their monthly payments at reset. This is a sharp contrast from an analysis in June 2007 with a prime rate of 8 percent.

Now let me turn briefly to inflation and inflation expectations. I project that inflation will decline over the forecast period to around $1\frac{3}{4}$ percent, and I see the risks around that forecast as balanced. Admittedly, though, the recent data on inflation have been worrisome, and they raise

the issue of whether or not we can afford to cut rates as much as needed to fight a recession without seriously risking a persistently higher rate of inflation and inflation expectations. I tend to think this risk is manageable, largely because of the credibility we have built. It appears to me that this credibility has reduced the response of inflation to all the factors thought to influence it, including energy prices, the exchange rate, and business cycle conditions. Thus I consider it less likely that rising energy prices are going to push up core inflation very much or that the pass-through that does occur will easily get built into inflation expectations. So I view inflation as less persistent now than it once was, tending to revert fairly quickly to the public's view of our inflation objective. I do hope that our long-run inflation forecast will help people identify what that objective is. But even if inflation expectations turn out to be less well anchored than I think, I still see the inflation risk going forward as roughly balanced. With less well anchored inflation expectations, there is greater risk that higher energy and import prices will pass through into core inflation and inflation expectations. By the same token, there is also a greater likelihood that inflation will decline should a recession occur. We looked at the behavior of core and total inflation in the first three years following recessions from 1960 to the last one in 2001, and inflation declined in most of these episodes. The exception is 2001, when core inflation remained essentially unchanged—which seems consistent with my view that inflation has become less responsive to the business cycle over the past decade or so as we have acquired more credibility.

CHAIRMAN BERNANKE. Thank you. President Lacker.

VICE CHAIRMAN GEITHNER. Excuse me. Could I ask—

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN GEITHNER. President Yellen, I think you answered this, but could you say a bit more about your monetary policy assumption in your forecast. How did you get to an additional 75?

MS. YELLEN. We assumed 50 at this meeting.

VICE CHAIRMAN GEITHNER. Fifty plus 25.

MS. YELLEN. We assumed an additional 25, which would be held in place through 2009:Q1, and then a gradual rise.

VICE CHAIRMAN GEITHNER. I mean the “why,” not the “what.” Sorry.

MS. YELLEN. The “why”?

VICE CHAIRMAN GEITHNER. Yes. Why that much rather than—

MS. YELLEN. A larger amount? I wouldn’t attach too much significance to the precise figure—it’s somewhat more.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. The Fifth District economy has shown additional signs of softness in recent weeks. According to our surveys, manufacturing activity drifted lower in the past few months, although we also heard reports of stronger overseas demand for U.S. goods. Revenue growth in the District’s services firms also weakened in January, and our index for that sector dipped into negative territory for only the second time in the past four years. Our retail index, which in December had blipped up to neutral after three negative months, dived again in January. Our retail respondents say that the holiday sale season finished up weaker than expected and that big ticket categories continue to slump, especially furniture and appliances. Business spending seems to have softened as well in recent weeks, as an

increasing number of firms reported that they were delaying capital spending projects such as IT upgrades.

At our December meeting, I reported on a former director who headed a firm that owned a large portfolio of retail properties and said that he described the sector as in the best shape he had ever seen in his life. Well, he is singing a different tune. Although his portfolio is in good shape so far, he is hearing a lot about cancelled projects as a result of financial constraints from lenders or equity interests, and he says that the environment that he is operating in is completely different from what it was when he talked to me sixty days ago. We are hearing very similar comments from a wide range of contacts in commercial real estate and community bankers. Residential real estate markets in the District remain generally weak. Home sales and construction remain dormant in many markets. Several Realtors reported seeing more prospective buyers, but they seem interested only in kicking the tires, in part because of difficulties in selling their current homes.

Turning to prices, concerns about rising input costs were more widespread among our contacts in recent weeks. Our survey measure of manufacturing raw material prices was up sharply in January at 4.3 percent, the second highest reading in the fourteen-year history of the survey. The prices-paid measure in manufacturing was a touch lower but still in an elevated range. Expected price trends in manufacturing were off sharply, however, perhaps reflecting the softening in demand that many respondents said they expected. In the service sector, both current and future price trends picked up outside of retail. Labor market conditions in the Fifth District have deteriorated in the last month. In a noticeable shift from previous surveys, numerous contacts told us they had begun to trim payrolls. The job cuts were concentrated in machinery and building material manufacturers, financial services firms, and general contractors.

In some regions, however—Northern Virginia, for example—some labor markets remain tight, and we continue to hear of difficulty finding highly skilled workers.

I spent a bit more time than usual on our regional picture because right now I am placing a bit more weight than usual on our District reports and what I read in the Beige Book. One can be skeptical about the incremental value of anecdotal reports in typical times, but at times like these, I believe they can and do provide a more timely read on what is going on. These regional reports have shaded my outlook to the downside relative to the picture painted by the national data, which is itself a somewhat discouraging picture. Home construction has continued to decline, and the fall in permits last month suggests that further declines are in store. Consumer spending appears to have slowed somewhat at the end of last year and seems to be carrying less momentum into this quarter, as the Greenbook likes to put it. The December employment report certainly was weak and has added considerably to fears of a recession. The Greenbook forecast just skirts the border of an outright recession. My own projection is fairly similar but a bit weaker in the first half and with the weakness stretching out a bit longer this year. I am inclined to see the bottom in housing as occurring later than in the Greenbook, which has housing starts flattening out relatively soon, and I am a bit less hopeful about business investment, particularly structures. I agree with the Greenbook that the main effect of a stimulus package will be to shift consumption growth from '09 to late '08 but that the effects are uncertain. I think the risks are on the side of a smaller boost to spending, though. But there is a chance that many rule-of-thumb consumers will find that their rule is telling them to pay down debt. In sum, I expect very weak growth in the first half of this year with only gradual recovery to trend. While I think weak growth is the most likely scenario, similar to President Yellen, I do think that a recession is a

quite distinct possibility this year. If that happens, I think it will be due to a more sizable pullback in nonresidential construction than we are expecting right now.

Turning to inflation, it is hard to put a good face on the recent numbers. The Greenbook describes the recent upside surprise as transitory and expects inflation to diminish this year. Indeed, we have been getting some relief on retail gasoline prices in recent weeks. But I don't think our problems with inflation are transitory, and I don't want to lose sight of them in the midst of the current weakness. If you look back over the past four years, the overall PCE price index has averaged $2\frac{3}{4}$ percent. On a 12-month basis, the index has been below 2 percent only four months in that span. Now, one could interpret this as a regime of 2 percent inflation with a series of misses that happen to be virtually all on the plus side. Alternatively, you could view this as a regime in which inflation fluctuates around a mean of $2\frac{3}{4}$ percent. Market measures of inflation expectations seem more consistent with the former right now. But the longer that inflation averages well above 2 percent, the more risk we run of seeing expectations rising to match actual inflation rather than the other way around. Another way to see this is that the fragility we need to focus on now is our credibility. I mention all of this because it is why, in my economic projections this round, I wrote down a relatively sluggish recovery after the first half of this year. I am skeptical that we have seen nothing but positive inflation misses around a 2 percent trend for four years because of chance alone, and I am not optimistic about inflation coming down in a sustained way on its own. As a result, I believe that, in order to keep expectations from drifting up and to bring inflation down, we will need to raise rates later this year, even if that means a longer and slower recovery. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. You know, listening to the staff discussion I have certainly come to understand why everyone continues to believe that economics is a dismal science. [Laughter] It is quite a dismal picture. But more seriously, recent economic data have certainly helped feed that view, and the Third District is no exception. Economic activity has weakened in our District since December, and to double the fun, firms continue to face increasing price pressures—not a very comfortable position for monetary policymakers. The Philadelphia staff's state coincident indicators indicate that overall economic activity has been moderate in New Jersey, flat in Pennsylvania, and declining in Delaware over the past three months. Our Business Outlook Survey of manufacturers fell sharply in January. The index fell to minus 20.9 from minus 1.6 in December. Now, some of that we have to remember is sentiment, in the sense that the question has to do with general activity and doesn't necessarily reflect just their firm. But it is a sentiment of pessimism that certainly is more prevalent than it once was. A reading that low, of minus 20, indicates declining manufacturing activity in the region and is usually associated with very low GDP growth or perhaps even negative GDP growth at the national level. More related to the firms' own performance, though, the survey's indexes of new orders and shipments also declined in January, and both are now in negative territory, although much less so than the general activity index.

On the other hand, while expectations of activity six months from now have moved down somewhat this month, they remain firmly in positive territory, and firms' capital spending plans over the next six months remain relatively strong. District bankers are reporting weaker consumer loan demand, but business lending continues to advance at a moderate pace from their perspective. Loan quality has shown slight deterioration, mainly in residential real estate and auto loans, to a lesser extent in credit cards, and to an even lesser extent on the business loan

side. This downturn in quality follows a period of extraordinarily low delinquencies and default rates and thus is well within historical norms, so it has not greatly alarmed our banking community. Thus far, our District banks apparently have largely escaped the credit problems plaguing the larger money center banks and investment banks. While there has been some tightening in credit conditions and standards around the District, most non-real-estate-related firms I spoke with are not finding it difficult to obtain credit for any reasonable project they want to do, and so they have not identified largely with the credit crunch scenario.

Despite the softness in the activity, firms in our District report higher prices in their inputs and outputs. As President Lacker said, inflation seems to be alive and well. The current prices-paid and prices-received indexes in our Business Outlook Survey accelerated sharply in January and are at very high levels, almost record levels, of the past twenty years. Firms also expect prices to rise over the next six months. These forward-looking price indexes, too, are at very elevated levels relative to their twenty-year history. I am hearing from business contacts and from one of my directors, for example, that they are planning to implement price increases to pass along costs they are experiencing. Thus, even though they are pessimistic about growth in the future, they are not pessimistic about price increases. This adds to my skepticism about arguments that link inflation too closely with resource utilization.

The national near-term economic outlook is also deteriorating, as we have been hearing, and I have revised down my growth forecast for 2008 compared with my October submission. It is hard to find much positive news in the data released since our last meeting, and the Board staff has summarized that quite eloquently, and so I won't repeat them. Nevertheless, in general, my forecast is probably slightly less pessimistic than the Board's forecast. However, I must add that, at the same time that growth has slowed, inflation has trended up. Both the core CPI and the

core PCE accelerated in the second half of '07, compared with the first half. The core CPI advanced at a 2.6 percent rate in the second half of '07, compared with a 2.3 percent rate in the first half, and the core PCE was up at a 2.4 percent rate in the second half compared with 1.9 in the first half.

As we know, the PCE price index gets revised. Recent research by Dean Croushore, one of our visiting scholars, has shown that between 1995 and 2005 the average revision from initial release until the August release the following year was positive on average for both the core PCE and the total PCE. This suggests that inflation is likely to be even higher in the second half of '07 than the current estimates indicate. I am also concerned that, over the past 10 year period, core and headline inflation for both the PCE and the CPI have diverged on average about 50 basis points. Headline rates have exceeded core rates in 8 of the last 10 years for the CPI and 9 out of the last 10 years for the PCE. While I would like to believe that these two rates should be converging on average, I am concerned that core rates may not be as indicative of underlying trend inflation as we might have thought. This line of thinking also leads me to question estimates of ex post real funds rates calculated by the staff and presented in the Bluebook, which are based on subtracting core PCE from the nominal funds rate. I am not convinced that the core PCE is the right measure of inflation in this context. Even if you thought it was, then the reported real rates are likely to be overstated for recent quarters given the apparent systematic bias in the preliminary estimates of the PCE that I have noted before. Moreover, some measures of inflation expectations are not encouraging: In particular, the Michigan survey one-year-ahead measures and five-year-ahead measures are up. We have already discussed a bit the acceleration in some of the TIPS measures. I will return to that in a minute. The Livingston survey

participants have also raised their forecast for CPI inflation in 2008 from 2.3 percent to 3 percent.

My forecast overall is similar to the Greenbook's, and I expect a weak first half and a return toward trend growth later this year and into '09 and inflation at the 1.7 to 2 percent range. But the policy assumptions that I make to achieve the forecasted outcomes for the intermediate term are different from the Greenbook's. The ongoing housing correction and poor credit market conditions are a significant drag in the near term on the economy, and I expect growth in the first half of the year to be quite weak, probably around 1 percent. As conditions in the housing and financial markets begin to stabilize, I expect economic growth to improve in the second half of the year and move back toward trend, which I estimate to be about $2\frac{3}{4}$ percent, about 50 basis points higher than the Greenbook, I think, in 2009.

The slowdown in real activity suggests a lower equilibrium real rate. How much lower is difficult to measure with any precision. Ten-year TIPS have fallen about 100 basis points since the beginning of September. In such an environment, optimal policy calls for the FOMC to allow the funds rate to fall as well. And we have; the funds rate is down 175 basis points since September—or more if we cut today. But we also must remain committed to delivering on our goal of price stability in this environment of rising prices. To my mind, that means we must continue to communicate that commitment to the markets and to act in a manner that is consistent with that commitment. I want to stress that while many of us, myself included, have argued that inflation expectations remain well anchored, we cannot wait to act until we see contrary evidence to such a claim because by then it will be too late and we will have already lost some credibility. I also might add that the staff memo on inflation compensation, which I thought was very good, suggests that one reason for the increase in forward inflation

compensation might be a greater inflation risk premium rather than a rise in expected inflation.

That may, in fact, be true, and I think the memo was very well done. But if that is the case, if the rise is in the inflation risk premium, then I think it might be worth asking ourselves if the increase in inflation uncertainty might be an early warning sign of our waning credibility.

This perspective leads me to a different policy assumption from the Greenbook's. In particular, once the real economy is stabilized, the FOMC must act aggressively to take back the significant easing it has put in place in order to ensure that inflation is stabilized in 2010. Employment is a lagging indicator, so we will likely have to act before employment growth returns to trend, should output growth pick up in the second half of the year as forecasted. Thus, I expect we will need to begin raising rates by the fourth quarter of this year and perhaps aggressively so. In contrast, the Greenbook assumes a flat funds rate at 3 percent throughout the forecast period. Despite the real funds rate remaining below 1 percent—and well after the economy has returned to trend growth—inflation expectations remain anchored in the Greenbook. In my view, this seems somewhat implausible or, at best, a very risky bet. It appears that the Greenbook achieves this result through an output gap—related to the question I was asking earlier this afternoon. I think all of us understand the very real concerns that many researchers have with our ability to accurately estimate the level of potential GDP. Furthermore, in the recent research on inflation dynamics that we have discussed—and President Yellen was referring to this—inflation becomes less persistent and appears to be less related to other macroeconomic variables as well. We do not know whether these changes are an outcome of a more aggressive and credible stance of monetary policy against inflation or are due to some fundamental changes in the world economy. If the lower persistence is due to enhanced policy

credibility, then it is incumbent upon this Committee to maintain that credibility. Otherwise, we cannot expect inflation persistence to remain low.

Thus, if the economy performs as forecasted on the growth side, with a return toward trend growth in the second half, I would be very uncomfortable leaving a real funds rate below 1 percent. The Bluebook scenarios involving risk management indicate that the inflation outcome is poor when there is a gradual reversal of policy. Better outcomes are achieved under a prompt reversal strategy. Given that forecast, I believe we must begin thinking now about what our exit strategy from this insurance we have put in place is going to be. How we communicate our monetary policy strategy will also be crucially important because of the effects such communications will have on expectations. We need to better understand in our own minds, I think, what our reaction function looks like so that we can be more systematic and articulate in our implementation of policy. Thank you.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. In my view, the decision we took on January 21 reflected a broad consensus that economic fundamentals were weakening at a rapid pace in an environment of continuing, even heightened, concern about financial market stress and fragility. My contacts over this last week in the business and financial markets may add a little texture to the picture on which we based our January 21 policy action. Conversations with these contacts in various industries provide information generally consistent with a downward revision of the outlook. Forward-looking sentiment of the directors of the Federal Reserve Bank of Atlanta turned decidedly pessimistic in January. Retail contacts noted quite disappointing results through mid-January and are taking a conservative approach to 2008 in terms of hiring and inventory. Regarding the residential construction industry, regional weakness continues and

is spreading from coastal markets to interior markets. In addition, I had a conversation with the CEO of a large public homebuilder of national scope. He cited historically high contract cancellation rates, especially on the West Coast and the D.C. area, because of the buyers' difficulty selling existing homes and getting financing. This limits their market to first-time buyers. His judgment is that a change in market atmosphere will require inventories falling to around six months. He pointed out that the spring is traditionally the key season for sales, so the next several months will be particularly telling.

Weakness in the region's commercial real estate market appears to be spreading. The retail segment is continuing to experience declining leasing activity, and weakness is now emerging in the warehouse and office markets as well. In partial contrast, reports from the manufacturing sector are more mixed. Activity remains very weak in housing-related industries. One CEO, reflecting the concern of others, predicted business failures in lumberyards and construction supply firms because of excess capacity and the slow response to a lower building environment. The trucking sector continues to slump. However, industries related to oil and gas production; import-substituting industries, such as steel, aerospace, and defense; and the foreign brand auto sector are all performing quite well. Atlanta's national forecast is largely consistent with the Greenbook in direction, and our differences with the Greenbook in magnitude and timing are not material. Like the Greenbook, we premise our forecast on a lower funds rate at the level of 3 percent.

So the principal risk to the forecast in my view is the fragility of the financial markets. Uncertainty and fear continue to loom large. I made a number of calls to financial market players, and my counterparts cited a variety of concerns relevant to overall financial stability. For instance, one of the recent concerns, as Bill Dudley depicted, has been the situation of the

monoline credit insurers. Several of my contacts had comments, but I spoke to the newly appointed interim CEO of one of the two monoline insurance firms most prominent in the news, and he characterized the firm's solvency and liquidity fundamentals as in question only toward the far end of current independent forecasts of subprime losses. Perhaps predictably, he contrasted his assessment with what he views as alarmist atmospherics resulting from press coverage, quixotic rating agency actions, and state regulator political positioning. A regional bank's CFO cautioned that more data on actual mortgage performance in 2007 will soon be available, and that could force restatements in 2007 bank earnings. Commenting on market illiquidity, one source said that in some fixed-income markets, where many on the buy side currently depend on moderate leverage to achieve the required rates of return, banks have greatly reduced their lending. He also indicated that, even though there are real money investors—as he called them—interested in return to the structured-finance securities markets but currently on the sidelines, they are reluctant to expose themselves to volatility that arises under mark-to-market accounting using prices set in such illiquid markets. These anecdotal inputs simply point to the continuing uncertainty and risk to financial stability with some potential, I think, for self-feeding hysteria.

I share with my colleagues on the Committee worries about the heightened levels of inflation and uncertainties around my working forecast that inflation will moderate in 2008. The assumptions about energy prices are the most precarious. Nevertheless, I am prepared to take the position that the economy, with its apparently rapid deceleration compounded by continuing financial volatility, is a greater concern than inflation at this juncture. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. Let me talk a bit about the region. The Tenth District is generally moving forward at a fairly steady pace, but there are some mixed data. The obvious wide variances are in real estate. Housing is weak—not as weak as some parts of the country but still weak. Also, it is interesting that commercial real estate in each of our major cities right now continues to do well. I recently talked with several developers. They are all doing well but are very concerned, and they are beginning to cut back on their plans and move away from them. So you can see the worry carrying forward in terms of what actions they are taking. In the agricultural area and in the energy area, real estate is a different story. It is booming. Land values have gone up in the ag part—non-irrigated land, something like 20 percent over the past year. If you are near an ethanol plant, it has gone up 25 to 30 percent. It is also interesting that the ag credit system is helping to fund that. Their increase in lending was about 12 percent this past year. That is up from about 9 percent the year before, so they are providing that. They are also now involved in lending to these ethanol plants in a very significant way, helping to carry that boom forward. That gives me some pause in terms of what is going on in some of the rural areas. Related to that, the energy and lease values are also accelerating at a fairly high rate. I found it reminiscent and somewhat disturbing in talking to a couple of individuals when they noted that the land values have about doubled over the past two or three years in some areas, and they said that I should relax because on current ag prices they should have tripled. [Laughter] Where have I seen that before?

On the other side, actually, manufacturing in our region has held steady. We have a lot of aircraft manufacturing, which is really strong, and some other smaller manufacturers providing support in both ag and energy, and they seem to be doing well. Technology is also doing well in the region, especially in the mountain areas—the Colorado and Denver areas. Engineering firms

are still very strong—the strong demand for engineers and the unfilled positions continue. They are supplying that service across the globe and see continued demand there. So it is mixed, but overall probably our region is doing better than average relative to the rest of the nation.

On the national level, my projections suggest that we are going to grow below our potential growth rate. I am not as pessimistic as the Greenbook. I also have inflation coming down, but that is on the assumption that we are able to reverse our monetary policy at a fairly quick pace as we move through this year and into 2009. I will leave it there. Thank you.

CHAIRMAN BERNANKE. Thank you. President Stern.

MR. STERN. Thank you, Mr. Chairman. Let me talk about the economic outlook. My initial comments are organized kind of along the lines of Dave Reifschneider's exhibit 1. There are certainly still some positive things going on: growth in exports, and I think that is likely to continue; strength in the agricultural sector and in natural resources in general, outside of lumber and wood products; state and local construction spending—there seem to be a lot of schools, hospitals, sports stadiums, et cetera, being built now; and the labor market may be a bit better than the December household and payroll surveys depicted, given the low level of initial claims.

But I think those considerations are really overwhelmed by several factors on the negative side, and let me summarize those quickly. First is the breadth of the negative news on the national economy that we have received recently. The vast bulk of the news has been negative. It doesn't suggest to me that there is a lot of positive momentum or latent strength left in the economy. The second factor I would cite—and this is not new—is the persistence of a large volume of unsold, unoccupied houses, with implications for activity in that sector, for prices, for wealth, and for foreclosures. Of course, as somebody already noted, many recessions turn out to be inventory recessions. If we have one, this will be an inventory recession, too; and

the inventory in question is housing. Third, maybe even more important, are the financial conditions themselves—prominently but not exclusively, the impaired capital positions of large banks and likely prospects for growing credit quality problems in auto loans, in credit cards, in commercial real estate, and perhaps in other areas as well. Adding up those considerations, I think what we confront resembles the aftermath of the 1990-91 recession, when so-called headwinds restrained growth in real GDP, and my forecast anticipates something similar going forward, something like the persistent weakness scenario in the latest Greenbook. So I expect subpar growth both this year and next year before better growth resumes in 2010. I further expect lots of inertia in both core and overall measures of inflation this year and next before some diminution below 2 percent in 2010. Thank you.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. First, Mr. Chairman, I want to say a good word about President Poole. I have sat next to him since I got here. I would give him hyperbolic praise if he hadn't handed me the IT Oversight Committee; otherwise, I think he is a wonderful human being. [Laughter] Much of what I was going to say has been said. I think President Plosser, President Lacker, and others have summarized what I would have said about my own District. We continue to grow, but at a decelerated pace, and our current forecast is for employment growth of 2 percent for our District for 2008. That is relatively healthy, and I really am not going to take more time on that subject.

I am delighted to hear all this anecdotal evidence. We were talking, Governor Mishkin and I, about Woody Allen earlier. If I remember correctly, he had a wonderful quip—that he cheated on his metaphysics exam by looking into another boy's soul. [Laughter] Basically, what we are doing at this time of transition is almost cheating on the data by looking at the

anecdotal evidence. My broader CEO soundings indicate pretty much the same as what we are seeing in our District and what others have mentioned—shipping, rail, express delivery, manufacturing, and other activities are much slower. Retail sales are soft. As President Poole and others pointed out, truckers are suffering. Receivables are being stretched out.

Delinquencies are rising. I could bore you with specifics company by company, as I am tempted to do, but I will not unless you wish me to. The point is that, while there are tales of woe, none of the 30 CEOs to whom I talked, outside of housing, see the economy trending into negative territory. They see slower growth. Some of them see much slower growth. None of them at this juncture—the cover of *Newsweek* notwithstanding, a great contra-indicator, which by the way shows “the road to recession” on the issue that is about to come out—see us going into recession. I will just give you two indicators there. If you look at MasterCard and dig into their data, their December retail sales ex-auto, ex-gas, were up 5 percent and in January to date were up 4 percent. President Poole mentioned UPS, and President Lockhart has the incoming CEO of UPS on his board. Year over year to January, they are up 2 percent. So it is anemic. It is not negative. The expectation is not to be negative. My CEO soundings indicate pretty much what we have forecast as a group—much slower growth, not necessarily a recession.

Where the difference comes, Mr. Chairman, is on the inflation front. Others have spoken eloquently about inflation. I just want to make a couple of comments here. It is uncanny in the charts that we show in exhibit 5, for example, that we have food PCE prices and energy PCE prices peaking almost as we speak. That may be true in the spot markets. That is not the way it works in reality. AT&T has 100,000 trucks. Southwest Airlines has I don’t know how many airplanes. They contract and hedge out forward their energy costs, and the kick-in of any turndown does not occur immediately but rather is stretched out over a time period. I would ask

our staff, as we go forward, to try to get a better feeling for that. We are certainly struggling with that in Dallas. As far as food prices are concerned, which again I remind you are twice the weight of energy prices in the headline PCE and the CPI, I heard some very disturbing news. Frito-Lay, for example, which when we last met I reported was going to increase prices 3 percent, has inched them up another 3 percent, to 6 percent, and that is their planning for the year. This is the first time in memory, according to my contacts, that grocery prices are rising faster than restaurant food. Yet it is not simply food where we are seeing this kind of pressure, and I want to come back to the lag effect that occurs. This morning the CEO of Burlington Northern told me that the so-called rail adjustment factor, which captures fuel, labor, supply, and other costs from the previous quarter and is contractually input into contracts for the coming quarter, rose at the highest rate in history—11 percent. That means that even if you are shipping lumber, even if you are shipping whatever goes into housing, by contract—of course, that can be negotiated, I am sure—for the coming quarter the price rise from the shippers, the railers, will be 11 percent. Finally, going back to food and other items bought by consumers—when you drill down deep into Wal-Mart, which has 127 million customers, and you talk about the specifics of their sales, their expansion is not coming from unit sales, it is coming from price inflation. A senior official there tells me that they are budgeting a 2 to 3 percent increase for nonfood items for '08, 6 to 7 percent for food items. It is the first time in his fifteen-year history at the company that they are going to use their price leadership strategy on the plus side of the inflation ledger. So I do worry about inflation expectations, Mr. Chairman. I will summarize with the statement that was in today's *New York Times* by the CEO of Tyson Foods, who said, "Because of the unanticipated high corn and soybean meal costs, we have no choice but to raise prices

substantially.” That is my major concern besides the additional weakness we are seeing in the economy. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. My assessment of the national economy is that we are in the midst of a period of very weak growth and that there is a significant chance of a serious downturn. The three-month average of our Chicago Fed National Activity Index in December was minus 0.67. Historically, by my calculation, such a value has been associated with a recession about 70 percent of the time. Now, in the Board briefings yesterday and again today, I noticed that Thomas Laubach’s estimate is 45 percent based on the same data, and that is certainly large enough for concern.

Reports from my business contacts seem broadly consistent with this slow but positive growth scenario. The most positive news I received was from firms whose international businesses were strong. As one would expect, the most dire reports were from those in residential construction and related industries. While I was surprised to hear from the CEO of a national specialty retail chain that its business over the past 60 days was the worst he has seen in 45 years, much of his business is in housewares and furniture; but he indicated that many other segments of the retail sector were also struggling. I also spoke with the CEO of General Motors. His outlook was a lot like what President Fisher was just mentioning from other CEOs. They are looking for slow economic growth overall, and they are concerned about the risk of a serious downturn. That is not what they are planning on. The industry is clearly facing softer demand, but his expectation for 2008 as a whole is for only a moderate decline in light motor vehicle sales, down to a pace of about 15¾ million units. GM’s current production plans are not premised on recession-level sales, but they are prepared to cut production quickly if they see the

economy turning down. He also reported that, while the performance of GMAC's auto loans currently was okay, the credit quality of prospective buyers—people coming into showrooms—has declined and that lenders have tightened underwriting standards for those loans. In addition, if auto loans became more difficult to securitize, it would be a big additional problem. Apparently, so far they are robust, though.

Turning to the forecast details, my modal outlook for 2008 is close to that in the Greenbook. I expect that we will eke out positive growth in the first half of 2008. This expectation largely reflects the judgment that businesses have not begun to ratchet down spending plans in the nonlinear fashion that characterizes a recession. My assessment also has been influenced by some positive developments that we have seen. The most notable ones in my mind are that UI claims have moved down, that major banks are having some success raising capital from a variety of sources, and that the orders data today were better. For the second half of 2008, I see growth increasing toward potential by year-end. This assessment depends importantly on accommodative monetary policy and expansionary fiscal policy. Our cumulative actions following this meeting should provide noticeable stimulus to the economy by midyear. Tax rebates should also help somewhat this year. In addition, the financial system should continue to sort through its difficulties, making further headway in price discovery and repairing capital positions. So in the absence of further negative developments, growth should improve in the second half of this year. I then see real GDP rising at a pace a bit above potential in 2009.

Although this seems like a plausible projection, it has the feel of threading the needle, which brings to mind nimbleness, and Governor Kohn is our expert at nimbleness, so I start thinking about how his nimble fingers will be critical for threading this needle. The downside risks are large, and the recession scenarios are quite possible. Any of the factors currently

holding back growth could intensify. For example, a reduction in bank lending capacity could make financial conditions much more restrictive. This, along with increased business pessimism and caution, could cause a more pronounced cutback in investment and hiring. Even a moderately weaker job market would add to the factors already weighing on consumer spending.

Now, unfortunately, even while we are dealing with concerns on the growth front, the inflation picture is difficult and quite uncertain. The inflation outlook will likely be affected by more crosscurrents than usual. Headline inflation has been quite high, driven largely by increasingly high energy, food, and commodity prices. Although our best assessment is that these pressures will come off later this year, these influences have lasted longer than typical and could well continue to do so. I had calculated the same type of statistics that President Plosser calculated, but only since 1999. Headline PCE inflation has been running about 0.4 percentage point higher than core PCE since that time. This is a source of some concern and cautions us against relying too heavily on core inflation measures. I don't think that is a big issue today, but we need to be thinking about that in our inflation strategy. In addition, core inflation has not improved as much as I expected. As the Greenbook discusses, the decline during the second quarter of last year may have reflected technical quirks in the indexes rather than true improvements in underlying inflation as I had hoped. The weakening U.S. economy is likely to diminish inflation pressures somewhat in 2008, but it is unclear how big a factor this will be or, given our projection that growth improves, how long it will last. So I think that inflation risk will be rising next year. Consequently, recalibration of short-term interest rates will be an important element of monetary policy in 2009. Looking at the write-up, it seemed to me as though 10 out of 17 participants had that viewpoint—different timing. Our inflation projection has core PCE running 2.1 percent in 2008 and edging off to 2 percent by 2010. In the context of

what Brian was talking about in terms of slack, we have a higher inflation path and inflation coming down with a bit of slack. Much of the Committee's discussion today has suggested that 2 percent is slightly higher than most participants' benchmarks. For me, the trajectory of my outlook is satisfactory as long as I see inflation prospects continuing to improve as we move beyond the end of our current forecast period. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Pinalto.

MS. PIANALTO. Thank you, Mr. Chairman. In my view, economic conditions have deteriorated significantly since our December meeting. Taken as a whole, the stories that have been relayed to me by my Fourth District business contacts have been downbeat, and several of the contacts are concerned that we may be slipping into a recession. I'm hearing that consumer spending has declined appreciably since the soft December retail sales numbers were reported. The CFO of one of the nation's major department store chains told me last week that her company's January sales are shaping up to be the worst that they have seen in the past twenty years. She said that they had already cut back some of their buying plans because of the weak holiday sales, but after seeing the numbers for the first three weeks of January, she is concerned that they have not cut back buying plans enough. In December I had heard some upbeat assessments about the demand for capital goods and exports, but in January the incoming numbers are softer, and expectations for the coming year are less optimistic than they were just a month ago.

I'm also concerned that I'm now detecting the first signals of a credit crunch. Bankers in my District tell me that they're finding it much more difficult to issue debt and that they are safeguarding their capital. I've heard several motivations for this, depending on the institution. Some bankers are simply preparing for further losses. Some are expecting to have to bring some downgraded assets back onto their balance sheets. Even those bankers who have adequate capital

say that they have become much more disciplined about how they're going to allocate that capital. Collectively, the concerns that bankers have expressed to me about capital have convinced me that credit will be less available and more expensive than it has been in quite a while. Deals that bankers would have done for creditworthy borrowers not long ago are simply not being done today. Of course, it's possible that nonbank financial companies will step in and fill the gap, but it is not clear to me that they have the capital and the risk appetites to do so.

These developments have had a significant influence on the economic projection that I submitted for today's meeting. Like many around the table, I continue to mark down my outlook for residential and nonresidential investment in response to the incoming data and also in response to greater business pessimism about the economic prospects. In addition, I've built in a sharper and more protracted slowing in consumer spending stemming from greater deterioration in the household balance sheet and tighter credit market conditions. These adjustments have caused me to cut my 2008 GDP growth projection about 1 percentage point since the December meeting, and some of that weakness spills over to the out years. If credit conditions deteriorate further than I have expected, then my projection would more closely resemble the persistent weakness alternative scenario described in the Greenbook. But that isn't my projection for the economy. Rather, my projection is roughly in line with the Greenbook baseline.

My inflation outlook hasn't changed much from where it was in December—or October, for that matter. Like the Greenbook, I still project inflation to moderate as commodity prices level off and business activity wanes, but the risks to my inflation outlook have shifted to being weighted to the upside. The December CPI report was not much improved from the troubling November data, and my business contacts continue to report that commodity prices are being passed downstream. So I have less conviction in the inflation moderation than I did a month ago. That said, the

downside risks to the economy still dominate my thinking about the outlook today. I do believe, however, that our policy response to date combined with an additional rate cut tomorrow will allow the economy to regain some momentum as we move into the second half of 2008. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. The contours of our forecast are broadly in line with the Greenbook: Growth well below potential for the first half of this year results in additional slack in labor markets with a consequent reduction in the core rate of inflation over time. Our forecast returns to full employment by 2010 only if we reduce interest rates more than they are in the Greenbook. Thus, our baseline forecast assumes that we reduce rates 50 basis points at this meeting followed by additional easing in 2008, which eventually results in core inflation below 2 percent and the unemployment rate settling at our estimate of the NAIRU, somewhat below 5 percent. But even with this easing, there are significant downside risks to this forecast. Historically, increases in unemployment in excess of 0.6 percent and forecasts of two or more quarters of real GDP growth below 2 percent have almost always been followed by a recession. In fact, a variety of probit models looking at the probability of recession in 2008 indicate an uncomfortably high probability of recession, in most cases above 50 percent.

Several factors make me concerned that the outlook could be worse than our baseline forecast. First, we have consistently underestimated weakness in residential investment. While our forecast assumes a gradual decline in real estate prices, it does not have a substantial feedback between rising unemployment rates causing further downward pressure on real estate prices and the health of financial institutions. Were we to reach a tipping point of higher unemployment, higher home foreclosures, increased financial duress, and falling housing prices, we would likely have to

ease far more than if we were to act preemptively to insure against this risk. Second, our weak consumption is driven by negative wealth effects induced by weakness in equity markets and modest declines in real estate prices. However, the heightened discussion of a potential recession could easily result in a larger pullback by consumers. This would be consistent with the behavior of rates on credit default swaps of major retailers, which have risen significantly since the middle of December. Third, banks are seeing increasing problems with credit card debt. Capital One, one of the few concentrated credit card lenders, has had their credit default swap rate rise from less than 100 basis points to more than 400 basis points as investors have become increasingly concerned about the retail sector. While liquidity concerns have abated, credit risk for financial institutions has grown. Rates on credit default swaps for our largest banks have been rising since December, despite the announcement of additional equity investments. In addition, the greatest concern I hear raised by the financial community in Boston is a risk posed by the monoline guarantors. The movement in equity prices last week as a result of highly speculative statements on resolving the monoline problem indicates a sensitivity of the markets to significant further deterioration in the financial position of the monolines. Fourth, our model does not capture potential credit crunch problems, although supplementary empirical analysis conducted by the Boston staff suggests that such problems pose additional downside risks to our outlook. Bank balance sheets continue to expand as banks act in their traditional role of providing liquidity during economic slowdowns. While the balance sheet constraints are likely to be most acute at our largest institutions, further deterioration in real estate markets is likely to crimp smaller and midsize banks that have significant real estate exposures.

Given my concerns that we could soon be or may already be in a recession, I believe the risks around our forecast of core inflation settling below 2 percent are well balanced. Inflation rates

have fallen in previous recessions, and I expect that historical regularity to be maintained if growth is as slow as I expect. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Vice Chairman.

VICE CHAIRMAN GEITHNER. Thank you, Mr. Chairman. Let me just start by saying it's not all dark. [Laughter]

MR. MISHKIN. Don't worry; be happy?

VICE CHAIRMAN GEITHNER. I'm going to end dark, but it's not all dark. The world still seems likely to be a source of strength. You know, we have the implausible kind of Goldilocks view of the world, which is it's going to be a little slower, taking some of the edge off inflation risk, without being so slow that it's going to amplify downside risks to growth in the United States. That may be too optimistic, but the world still is looking pretty good. Central banks in a lot of places are starting to soften their link to the dollar so that they can get more freedom to direct monetary policy to respond to inflation pressure. That's a good thing. U.S. external imbalances are adjusting at a pace well ahead of expectations. That's all good, I think. As many people pointed out, the fact that we don't have a lot of imbalances outside of housing coming into this slowdown is helpful. There's a little sign of incipient optimism on the productivity outlook or maybe a little less pessimism that we're in a much slower structural productivity growth outlook than before. The market is building an expectation for housing prices that is very, very steep. That could be a source of darkness or strength, but some people are starting to call the bottom ahead, and that's the first time. It has been a long time since we've seen any sense that maybe the turn is ahead. It seems unlikely, but maybe they're right.

In the financial markets, I think it is true that there is some sign that the process of repair is starting. We have seen very, very substantial adjustment by the major financial institutions; very,

very substantial de-leveraging ahead as the institutions adjust to this much, much greater increase in macroeconomic uncertainty and downside risk; very, very substantial early equity raising by major firms; pretty substantial improvement in market functioning; and easing of liquidity pressure.

Those are useful, encouraging things. There is a huge amount of uncertainty about the size and the location of remaining credit losses across the system. But based on what we know, I think it's still true that the capital positions of the major U.S. institutions coming into this look pretty good relative to how they did in the early 1990s. Of course, as many people have said many times, there's a fair amount of money in the world willing and able to come in when investors see prices at sufficiently distressed levels. One more encouraging sign, of course, is that the timing, content, and design of the stimulus package look as though the package will be a modest positive. It could have been a worse balance of lateness and poor design, but I think it looks to be above expectations on both timing and design, and it will help a little on the downside and take out some of the downside risk.

Having said that, though, I think it is quite dark still out there. Like everyone else, we have revised down our growth forecast. We expect very little growth, if any, in the first half of the year before policy starts to bring growth back up to potential. The main risk, as has been true since August, is the dangerous self-reinforcing cycle, in which tighter financial conditions hurt confidence and raise recession probability, causing people to behave on the expectation that recession probably is higher, reinforcing the financial headwinds, et cetera. The dominant challenge to policy is still to arrest that dynamic and reduce the probability of the very adverse outcome on the growth side. Of course, we have to do that without risking too much damage to our inflation credibility and too much damage to future incentives and future resource allocation.

Like many of you, I think the inflation outlook for the reasons laid out in the Greenbook is better than it was. It's not terrific, but it's better. The risks are probably balanced around the

inflation outlook. Our inflation forecast still has core PCE coming down below 2 percent over the forecast period. There's obviously a lot of uncertainty around that, but I really think that you can look at inflation expectations in the markets as somewhat reassuring on the credibility front to date. So again, I think the key question for policy is how low we should get real short-term rates relative to equilibrium, and our best judgment is that we're going to have to get them lower even with another 50 basis points tomorrow. We're still going to need to try to reinforce the signal that we're going to provide an adequate degree of accommodation or insurance against this very dangerous risk of a self-reinforcing cycle in which financial weakness headwinds reinforce the risk of a much deeper and prolonged decline in economic activity.

CHAIRMAN BERNANKE. Governor Kohn.

MR. KOHN. Thank you. Thank you, Vice Chairman Geithner, for a little less gloom here. I didn't expect the bright side from that source. [Laughter] Like everyone else around the table, I have revised down my forecast, which looks very much like the Greenbook: a couple of quarters of very slow growth before a pickup in the second half of the year spurred by monetary and fiscal stimulus. The collapse of the housing market has been at the center of the slowdown, and most recent information was weaker than expected. There is no sign in the data anyhow that a bottoming out is in sight. Sales of new homes have dropped substantially, and that must reflect reduced availability of credit, especially for nonprime and prime nonconforming loans, and perhaps buyers' expectations of further price declines. As a consequence, a steep drop in housing construction has made only a small dent in inventories, and those will continue to weigh on activity and prices. Indeed, house-price declines in the Case-Shiller index picked up late last year. I think we just got November.

It looks increasingly as though other sectors are being affected as well, slowing from the earlier pace of expansion and slowing a little more than expected. You can see this in broad measures of activity, as President Stern pointed out: industrial production, purchasing manager surveys, and the employment report. I think it is also evident in some measures of demand. Retail sales data suggest a deceleration in consumer spending late in the fourth quarter. Orders and shipments for capital equipment excluding aircraft picked up in December, but that followed a couple of months of flat or declining data. A slowdown in consumption and nonhousing investment probably reflects multiplier-accelerator effects of the drop in housing, a decline in housing wealth, and additional caution by both businesses and households given the highly uncertain and possibly weakening economic outlook. Certainly the anecdotes we've heard around the table reinforce the sense of business caution.

But like other people, I see the softening outlook and the spread beyond the housing sector as importantly a function of what's going on in the financial sector and of the potential interaction of that over time with spending. We have seen improvements in short-term funding markets, in spreads, and in the leveling out of the ABCP (asset-backed commercial paper) outstandings, but investors and lenders seem increasingly concerned about the broader economic weakness and spreading repayment problems, and they are demanding much greater compensation for taking risk in nearly every sector. To me one of the defining characteristics of the period since, say, mid-November is the spreading out from the housing sector of lending caution to other sectors in the economy. Nonfinancial corporations have experienced declines in equity prices. Credit spreads on both investment-grade and junk bonds have increased. A substantial portion of banks reported tightening terms and standards for C&I loans. Commercial real estate sector lenders are very concerned about credit. Spreads on CMBS have risen substantially, and most banks—like

80 percent—tightened up on commercial real estate credit, and that has to affect spending in that sector over time. Banks tell us that they are being more cautious about extending consumer credit, as President Yellen noted. A number of large banks noted a pullback in this area and deterioration in actual and expected loan performance when they announced their earnings over the past few weeks. There have also been increasing doubts about how robust foreign economies will remain, and this was evident in equity markets around the globe and in rising risk spreads on emerging-market debt. The staff has marked down its forecast of foreign GDP growth again this round. The total decrease in projected foreign growth in 2008 since last August has been around $\frac{1}{2}$ percentage point, and this is at a time when we are counting on exports to support economic activity.

The extraordinary volatility in markets is, I think, indicative of underlying uncertainty, and that underlying uncertainty itself will discourage risk-taking. The uncertainty and the caution are partly feeding off the continued decline in housing, the still-unknown extent of the losses that will need to be absorbed, and the extent to which those losses are eroding the capital of key institutions like the monolines. The monoline issue raises questions about who will bear the losses and provides another channel for problems spreading through the credit markets, through losses being felt or credit being taken back on bank balance sheets, making them more cautious, and even more directly, into the muni market through the monolines. Despite these developments, my forecast for 2008 was revised down only a few tenths from October. But that is because of the considerable easing of monetary policy undertaken and assumed in my forecast. I assumed 50 at this meeting, and unlike that piker, President Yellen, I assumed another 50 over the second quarter.

MS. YELLEN. I'll see you and up you. [Laughter]

MR. KROSZNER. This is a bad dynamic.

MR. KOHN. I thought we needed some insurance, and I also assumed some fiscal stimulus as in the Greenbook. I still see, despite these policy responses, risks around my outlook for activity as skewed to the downside, and it's because of the potential further increases in required compensation for risk and tightening standards for extending credit and the feedback on demand.

Although inflation has been running higher than expected of late, and that is troubling, I expect it to ease back even with my more accommodative policy. The combination we've seen of slower income growth and higher inflation suggests elements of a supply shock, and that's obviously coming from the energy sector and its spillover into food. It is true, as President Fisher pointed out, that some of those increases in food and energy prices are coming from demand from emerging-market economies, but to the extent that such demand is putting upward pressure on our prices and it's not really sucking exports from the United States at any great rate, I think that it acts more like a supply shock on the U.S. economy than a demand shock. Energy and other commodity prices should level off in an environment of slower global growth, and they've started to do that. They have at least showed signs of leveling off recently. Greater slack in resource utilization and product markets should discipline increases in costs and prices. At least some of the reports about airlines suggest that they have tried to pass through fuel surcharges and have been unable to do so, and I think that's an encouraging sign from the inflation perspective. Any easing of inflation pressure does require that inflation expectations not begin to ratchet higher. I agree with everyone else. I'm persuaded that the balance of evidence is that they have not, despite the rise in five-year-forward inflation compensation and despite the persistently higher rate of increases of total headline than of core inflation. But this is something we will need to monitor very carefully. I interviewed Paul Volcker yesterday afternoon for our oral history project. The discussion with him reminded

me again of the high cost of reversing a rise in inflation once higher inflation expectations become entrenched. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Warsh.

MR. WARSH. Thank you, Mr. Chairman. I will endeavor to stay out of the growing, creeping pessimism caucus. [Laughter] You can judge for yourselves whether I've been successful doing so. Let me talk briefly about two economies that are in a tug-of-war, and rather than reference the housing and nonhousing economies, let me try to talk about it in the context of the economy of financial services versus the real economy. On one level, of course, financial services are not so large a share of GDP that they could threaten the macroeconomy. But the transmission mechanism between credit markets and the real economy, whether it be through the credit channel or other channels, while imperfectly understood, is having very negative effects on the cost and availability of credit for real businesses and households, with the risks there to the downside. Financial institutions, as many of you said, are open for business, but I would say somewhat less so than when we met in December. As we approach the credit line renewal season, that is happening amid a period of depleted credit availability and significantly tighter lending standards. In addition, financial institutions as a group are, in my view, undercapitalized, even with the recent capital infusions. Finally, the dynamism that I would be hoping to see among financial institutions is clearly lacking; and while I think, as President Pianalto referenced, that there are new market entrants like hedge funds that are pretty keen to provide mezzanine financing, it's a pretty slow process to match providers and users of capital. So at least for the near-term forecast, I wouldn't expect that to come much to our rescue.

If the U.S. financial institutions were an economy all to themselves, they would probably already be in a recession. While that doesn't necessarily equate to a recession for the broader

economy, it sure doesn't help. The repair process that President Geithner referenced among financial institutions strikes me as very fragile and quite incomplete. Income statement shortfalls due to falling profits, poor visibility, weaker pipelines, and the need to reduce headcounts very meaningfully strike me in some ways as a more urgent and troublesome issue for large financial institutions than their balance sheet weakness. On the balance sheet front, however, I'm also concerned that more impairments are to come for large financial institutions and more dilution is expected for current shareholders. Although the window for foreign investment is open now, I wouldn't expect that window to stay open throughout 2008. So even though I'd say that income statement concerns should be more pressing for them, these balance sheet issues are very real. In some way these institutions have been built, or I should say rebuilt, over the past six years to prepare themselves for a low volatility, high liquidity world, and what they found is the exact opposite. They are at different levels of understanding the new world, and it will take them quite some time to rebuild their businesses to be profitable in it.

Rolling capital calls across financial institutions are continuing. Many are hoping to play for time, but I think there's a risk that time will run away from them as new events find their way into the front pages. Virtually no financial institution strikes me as immune to these pressures, and while we see that new problems and new acronyms are emerging daily, they strike me as having the same underlying problems affecting different asset classes. Regional banks have begun to fund their balance sheets successfully—certainly a good sign—but I suspect that they are also in the early stages of needing to raise considerably more capital.

As Governor Kohn said, there is a hope and an expectation that global institutions would be a source of strength, at least in financial services. Again, in financial services, my sense is that non-U.S. financial institutions, especially those in the United Kingdom and Europe, are in the midst of

playing catch-up to their U.S. counterparts. I expect the year-end reporting process for them, which really begins now but will be at full speed by mid-February through early March, will find many of the Landesbanks needing to be recapitalized. I think we're going to find that both large and small institutions are having a hard time getting through the bank reporting season in Europe. Equity prices in Europe and CDS spreads are already giving us some indication of what's on the horizon. It's not just about subprime in Europe, contrary to some of the indications we received. Perhaps even more than U.S. institutions, many European financial institutions have incorrectly believed that high credit ratings across asset classes would in and of themselves serve as protection. The overreliance on credit ratings that we see in the United States strikes me as even more pronounced in Europe. The shocks caused by these financial institutions could have a dramatic impact on their economies, probably more so than the effect of U.S. financial institutions here in the United States. That obviously has a consequence in terms of a further shock and also a consequence on the real side in terms of U.S. exports.

Let me turn to the other side of that, that is, the real economy itself, excluding financials. I think many of you referred to the labor market data, which strike me as mixed. I'm perhaps a touch more optimistic that we're going to see some improvement at least in the short term there, but I can't have the conviction that I'd like. The real economy is doing its best to resist these financial shocks. We can see that fight playing out around E&S spending, around business fixed investment, and around cap-ex more generally. You have nonfinancials with strong corporate balance sheets, excess cash, and high profit levels that are debating in corporate boards about the uncertainty posed by the macroeconomy. It's hard to say which side is going to prevail in that battle. The backdrop, as many of you mentioned, has weakened, with risk premiums widening across the board. Real PCE for January is not showing much of a snapback from a weak December but also, I would say,

not much more deterioration from December levels according to the credit card companies that I spoke to. The bottom line on the real economy—the trends in the real economy may be a bit more positive coming into the first quarter from the fourth quarter than the Greenbook projections, but I would say I am a little less optimistic that the fiscal stimulus package is as likely to be as constructive as the Greenbook would have us believe.

The forecast, as a result, overall depends on the ability of nonfinancial corporations to hire and invest despite this macroeconomic uncertainty. I have some confidence that the Fortune 500 will be willing to continue to push along this path of moderate growth; but small companies, particularly those that are really the source of job creation, may be more negatively affected while the credit channel is impaired, and this is happening at a critical time. The Greenbook base case or the “faster recovery” pace depends to a degree on improvement in credit intermediation or at least not another shock, and it’s that other shock that worries me. If deterioration among credit intermediaries continues, the real economy will suffer. Of course, the correlation is hard to pin down.

Finally, on the inflation front, I share the concerns expressed by several of you that the persistence of recent inflation information coming into this period is a cause for concern. I’m less sanguine than the Greenbook that we’re going to see the power of that inflation fade in the event that the economy softens some. The backdrop of stubbornly high commodity prices, despite lower global demand in recent weeks, and a lower exchange value of the dollar are likely to put pressure on the inflation front. The data, as we have all talked about, on core and total inflation are not promising, so I would consider that also to be an upside risk. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Kroszner.

MR. KROSZNER. Thank you very much. Well, if that's the optimistic scenario, I think we had all better pray. But I think it's a relatively balanced scenario that accurately reflects the risks that are there. The Greenbook has done a very good job of trying to thread the needle, and I think making a close call for contraction but not actually calling it seems to be very reasonable. The kinds of insurance discussions in both the Greenbook and the Bluebook and that we've had preliminarily here make a lot of sense. Our models have never been successful at assessing turning points, and that is true whether they are the typical linear models, nonlinear models, probit models, Markov switching models, or other things like that. We sort of know once we've switched, but it's hard to get that transition. As many people have suggested, there are an awful lot of indicators that would go into those kinds of models that would flash for contraction being likely. I think that is correct, but that makes it very difficult for us to assess what will happen. So I think—as well reflected in the projections—a lot of downside risk is there.

I do share some of the optimism about improvements that we've seen in the financial markets, but I had that feeling in October and November, and it is hard for me to really understand exactly what drove the subsequent deterioration. Certainly there were some issues around year-end, but it seems that more issues than just the year-end were driving the fairly significant reversal of improvement that occurred during October through mid-November and the fairly sudden backing up. So I'm concerned that, since I don't really understand what happened there, I don't want to take too much comfort from what has happened so far. But I also don't want to dismiss what has happened so far because it's certainly conceivable that things will move in a more linear way forward for improvement.

One issue that I raised both at the last FOMC and in our various conference calls related to some discussions I've had with the major credit card companies, which in some sense have a very

good feeling for real-time consumption. I've talked with two major credit card companies, and they both had very negative views of what had happened in the very sharp transition consistent with a switch into a contractionary state from the discussions before the October FOMC versus before the December FOMC. But in the most recent discussions, basically it flattened out. It's certainly not recovering, but it is not a continuing downward trend, which at least in my view provides a great deal of comfort because I was very concerned about the nonlinear break to a very low consumption state, and I think there's less evidence of that. I won't go through the specifics of what they said, but basically we're still seeing challenges and increases in personal bankruptcies, slower repayment rates, more people slipping from 30 days overdue to 60 days overdue, et cetera, et cetera. But it's not as dramatic a change, and it's sort of within the range that they have been anticipating given the data from December. Also as someone mentioned, and I have forgotten who, these numbers are still at relatively low levels. Now, the change is in a very bad direction and certainly could move very quickly, and we've seen that in other recession scenarios. But fortunately it seems, at least from this anecdotal evidence, that it isn't a significant change to the downside, and it's possible that it could just be re-flattening out. My concern is still that sort of "slow burn" scenario that I've talked about and that Nellie and others have fleshed out on the pressures on banks' balance sheets. I liked Nellie's very politically correct phrase "unplanned asset expansions." That's a very nice way of putting like "oh, my goodness, something is suddenly on the balance sheet that we didn't expect"—SIVs, asset-backed commercial paper, and so forth. I think people are still waiting for the other shoe to drop, and the other shoe certainly could drop. There may be things that we haven't fully anticipated, but we know that there are still leveraged loans that they can't get off their books, a pipeline that's still coming on. We know that many banks are still making mortgage loans and

cannot get those off their books—at least the jumbo ones. It's conceivable that raising the limits at Freddie Mac and Fannie Mae may help in the short run even if there may be costs in the longer run.

A number of other things could suddenly come on the balance sheets. The example of what happened at SocGen is just another uncertainty that could be out there. So even at a major financial institution that was generally quite well respected, something like this could happen. A lot of finger pointing and a lot of uncertainty can come from that, and that's broadly reflected in the CDS spreads. About the point that Bill Dudley made in conversation with President Rosengren about being careful to say, well, CDS spreads are lower in Europe and that suggests there's less risk in Europe—you have to take into account the reaction function by the governments, by the regulators, in terms of recapitalization, as Governor Warsh made reference to. There are very real challenges, but overall we have seen these CDS spreads go up quite a bit. So I think that concern about the negative dynamic scenario that people talked about is real, and that's why it is very important to be thinking about buying insurance.

With respect to inflation, certainly some of the numbers have been worrisome. It is clear that inflation uncertainty is up. We can disagree as to exactly what that means either about credibility or whether it is just uncertainty or whether it's upside or downside scenarios, but I think it is up and that is something we should be concerned about. We should carefully craft our message to take that into account because uncertainty can lead to unanchoring of inflation expectations, and that is something that we certainly don't want to see. I don't see evidence of unanchoring yet, but I do see a potential first step in that direction, which does concern me. The simple fact that a memo had to be written about what was going on with respect to some of these sharp movements suggests that it's not clear. Although the memo was excellent, I think there are elements in it that suggest we don't fully understand and we need to be very careful about that. Thank you.

CHAIRMAN BERNANKE. Thank you. Governor Mishkin.

MR. MISHKIN. Thank you, Mr. Chairman. I think we're all trying to be cheery here. It reminds me a little of one of my favorite scenes in a movie, which is Monty Python's "Life with Brian." I remember the scene with them there all on the cross, and they start singing "Look on the Bright Side of Life." [Laughter] So let me talk a bit about my views on this. My personality does do that, but it is really that I'm strapped a bit to the cross. My view on the economy is that we are going to have quite a weak first part of 2008, in which we're going to skirt recession. This is my modal forecast. I do think that the economy will be stronger in 2009 and 2010, but that's because I decided to be even less of a piker than Governor Kohn. He accused President Yellen, but I was going to accuse him because I did actually assume a 75 basis point cut at this meeting and then another 50 basis point cut at the meeting following. Then I hoped that afterward we would be able to reverse. Of course, this is something to discuss tomorrow, but it has to do with my views on how you deal with financial disruptions and risk management. So I'll talk about that tomorrow.

Even though I have a scenario that looks okay, I do want to point out that four very significant downside risks really worry me. We all talked about them. Of course, the first is housing. But I worry about a particular dynamic, which is that the negative price movements that we currently see could be getting worse. People could be expecting that they're getting worse, and therefore, they want to hold off from buying a house because the effective cost of capital is higher. As somebody who stupidly is just going to contract on a new house because I have to please my wife, I actually thought exactly along these lines and was thinking about pulling out but then decided that my marriage was more important.

MR. STERN. It was close. [Laughter]

MR. MISHKIN. By the way, if you know my wife, no it wasn't close. The second issue is that the potential for weaker house prices, which really is a significant possibility, not only could lead to lower household wealth but, more important, also could reduce the value of collateral for households and as a result mean that the relaxation of credit constraints that collateral affords is no longer there. That could have major implications in terms of household spending, so it is also a very substantial downside risk to PCE. The third issue is that we also see that the financial disruption has already gotten worse. The good news is that there has been improvement on the liquidity front, and I give a lot of credit to the TAF, which was superbly thought out by our staff and has been quite helpful. However, credit conditions have worsened. Particularly worrisome—and something that hasn't been discussed much—is that the Senior Loan Officer Opinion Survey had substantial tightening. Usually when you see this kind of tightening, it could indicate that we could have serious negative economic consequences. Again, that actually makes me very nervous. Finally, to get even more depressed, there really is potential for a negative feedback loop that has not yet set in. The financial disruption that we're seeing right now could then mean a more substantial worsening of the aggregate economy, and that could make the financial markets have even more strain, and you have a problem. So I really worry about the downside risks and think that they are very substantial and that we should be very concerned about them in thinking about what the appropriate policy stance is.

On the issue of inflation, I'm more sanguine. I see inflation going down to 2 percent by 2009. The key here is that I think that inflation expectations are grounded—in fact, are grounded at a level that is consistent with my inflation objective, around 2 percent on PCE, which might be different from others' views, but that's where I am right now. In that context, given that inflation expectations plus expectations about future slack in the economy are the primary drivers of inflation

dynamics, I actually think that inflation will come down. It is true that the recent inflation numbers have been very bad; but in thinking about the overall risks, I'm a bit different from the average person on this Committee because I think the risks are balanced and actually somewhat to the downside. The reason I say this is that I think that inflation expectations are grounded. At the same time, there is a substantial downside risk in the economy that could really widen slack in the economy, and that would mean that inflation would come down.

I don't want to be too sanguine on the issue of inflation expectations being grounded. In fact, one thing that I think we have to monitor very closely is what's happening in terms of inflation expectations, particularly financial markets' views of inflation expectations. In a sense, I think of that as the canary in the coal mine. We are also going to want to look at expectations spreading to professional forecasters and to households, but I think information would come in first in terms of the financial markets for the reason that they put their money on the table and react quickly. That's one reason I think it's very important to look at things like inflation compensation. But we do need to look at this and do the analysis. My reading of the analysis that the staff gave and my thinking about the issue is that there is just no evidence that inflation expectations have gone up. The story is extremely hard to tell to go in that direction. However, it is very easy to tell a story that inflation uncertainty has gone up a lot, and this is something that President Evans talked about and we talked about at the very beginning of a long day. In this context, that does concern me, and it really tells me that we have to think about whether we can better anchor inflation expectations. So I think that this is something that we have to be concerned about, but I do not think that what has happened in inflation compensation is that the canary is dropping dead at this stage. But we do have to monitor this very, very closely, and again, it's part of the risk-management strategy that I think we have to pursue. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you, and thank you all for succinct and very insightful comments. [Laughter] I'm going to try as usual to summarize what I've heard; but even more so than usual, no warranty is expressed or implied. Again, trying to bring together some of the comments, we noted that incoming data since the last meeting have been broadly weaker than expected, and anecdotes generally suggest slower growth, in some cases significantly slower growth. Housing demand, construction, and prices have continued to weaken, and inventories of unsold homes are little changed. Housing weakness has implications for employment, consumer spending, and credit conditions.

With respect to households, consumption growth has slowed, reflecting falling house and equity prices and other factors, including generally greater pessimism about the labor market and economic prospects. The labor market has softened by a range of measures, with unemployment jumping in December. However, workers in some occupations remain in short supply. Together with financial indicators, weaker labor and consumption data suggest that the economy is at a risk of recession; in any case, it is likely to grow slowly for the first half of the year. The second half of the year may be better, the result of easier monetary policy, fiscal stimulus, and possible improvement in housing and credit markets. However, there are significant downside risks to growth, including the possibility of an adverse feedback loop between the economy and credit markets.

Reports by firms are mixed. Investment may have slowed, reflecting uncertainty and slower growth in demand. Commercial real estate activity may be constrained by tighter credit conditions. Manufacturing is slow to mixed, though IT, energy, and some other sectors continue to be strong. Financial markets remain stressed. Credit conditions more generally appear to be worsening, and the problems may be spreading beyond housing. Additional risks are posed by the problems of the monoline insurers. Credit losses have induced tighter lending standards, and a key question is how

severe those may become and how persistent they may be. One offset is the ability of banks to raise capital.

Core inflation and headline inflation have remained stubbornly high and are a concern. One risk is the ability of some firms to pass through higher input costs. Inflation compensation has risen at long horizons, reflecting some combination of higher inflation expectations and inflation risk premiums. Going forward, a slowing economy, anchored inflation expectations, and possibly stabilizing food and energy prices should lead to more moderate core and total inflation. However, some see upside risks, especially the possibility that higher headline inflation might affect inflation expectations. So that's my attempt to summarize. There's a great deal more detail and a great deal more color in the conversations around the table.

Let me try to add a few points. Again, much of what I'll say has been said. I do think that there has been a significant deterioration in the outlook for economic growth and an increase in the downside risks to growth. It was sufficiently severe as to prompt me to call the January 9 videoconference that we had, and I think that since then we have had further deterioration. A number of things have happened and are going on. Very important, perhaps most important, is the continued further deterioration in the prospects for the housing market. Housing, of course, feeds directly into the real economy through employment, income, and wealth, and I think there are some indications that spillover from the housing sector to the rest of the economy is increasing. However, the critical aspect of the housing outlook is the relationship to the financial system, which I'll come back to.

Consumer spending has slowed. I think there's little doubt about that at this point. There are a lot of factors now that are acting as headwinds in the consumer sector. Let me just point out the basic fact that most households in the United States have very little in the way of liquid financial

assets. Therefore, when they, on the one hand, are denied access to home equity if they see tighter credit conditions on cards, autos, and so on, and if at the same time they see greater uncertainty in the economy and the labor market, then their natural tendency would be to be much more conservative in their spending. I do note that fiscal action may be of some help, particularly for people in that kind of situation. Like President Yellen, I think the indicators of a weakening labor market are broader than just the payroll report. There are a number of other things as well. We may get a better report this week. The UI claims are a little encouraging, but I do think that the weakening economy is going to drag down the labor market to some extent. Certainly the financial markets have deteriorated, reflecting greater concern about recession. We see it in the equity markets but also in short-term interest rates and a variety of credit measures as well. Finally, just going through this list of items, we continue to see problems—credit issues, banks concerned about additional losses not just in mortgages but perhaps in other areas as well—with the potential implication of a further tightening of credit conditions.

Those are some of the developments that we've seen since the last meeting. On our January 9 call, I talked about the regime-switch model and those ways of thinking about the business cycle. Others have talked about that today. I think many of those models would suggest that the probability of recession at this point is quite high, at least 50 percent or more. I don't think any of us would be happy to see a garden variety NBER recession; but if we had that, there would probably be a few benefits, including correction of some imbalances that we're seeing in the economy and perhaps some reduction at the edge in the inflation picture. But, like others, I am most concerned about what has been called the adverse feedback loop—the interaction between a slowing economy and the credit markets. A phrase you might have heard, which is getting great currency among bankers, is “jingle mail.” Jingle mail is what happens when otherwise prime

borrowers decide that the value of their house is worth so much less than the principal of their mortgage that they just mail their keys to the bank. (I wonder if that 140 percent is the right loan-to-value number. Maybe it's less than that.) Even if prime mortgages hold up—and I think in some regions of the country there will be significant problems with prime mortgages—there is a lot of other potential trouble. We're just beginning to enter the period of maximum subprime ARM resets. Second lien piggybacks and home equity loans are all questionable at this point. We haven't begun to address the option ARM issue, which is about the same size as the subprime ARM category, and of course, we have the issues with the monolines and private mortgage insurers. Outside of mortgages, expectations for credit performance are worsening in a range of areas, including commercial real estate and corporate credit. So I think that even under the relatively benign scenario that the Greenbook foresees, we're going to see a lot of pressure in the credit markets and perhaps a long period of balance sheet repair, tight credit, and a drag on the economy. Again, our experience with financial drag or headwinds has been that it can be quite powerful and deceptively so, and I think that's a significant concern.

Now, the central issue here, though, ultimately comes back to the housing market. Certainly by this point there must be some pent-up demand for housing. We've had obviously very low sales for a period. House prices are soft. Mortgage rates are low. Affordability is better. What's keeping people from buying houses is the fact that other people aren't buying houses. If there were some sense that a bottom was forming in the market or in house prices, we probably could actually see a pretty quick snap-back, an increase in housing demand, and that in turn would feed back into the credit markets, I think, in a very beneficial way. So there's the possibility that, if the housing market can get restarted, we could get a relatively benign outcome.

MR. MISHKIN. I hope so.

CHAIRMAN BERNANKE. However, there appears to be a law of nature that the turnaround in the housing market is always six months from the present date. We simply don't have any evidence whatsoever that the housing market is bottoming out. We have guesses and estimates about how far prices will fall and how far demand and construction will fall. The key issue is prices, and we are far from seeing the worst case scenario that you could imagine in prices. So long as we don't see any stabilization in the housing market or stabilization in house prices, then I don't think we can say that the downside risks to the economy or to the credit system have been contained. Until that point, I think we need to be very, very alert to those risks.

Everyone has talked about inflation, as should be the case. I am also concerned. The pickup in core inflation is disappointing. There are some mitigating factors, such as the role of nonmarket prices, which tend not to be serially correlated. We haven't discussed owners' equivalent rent in this meeting for the first time in a while, but we know that it can behave in rather odd ways during periods of housing slowdowns. The hope is that energy and food prices will moderate; in fact, if oil prices do rise by less than the two-thirds increase of last year, it would obviously be helpful. Nominal wages don't seem to be reflecting high inflation expectations at this point. So I think there are some reasons for optimism; but as many people pointed out, there are upward pressures, including the point that President Fisher made that the lagged effects of the previous increases in energy, food, and other commodity prices have probably not been fully realized in core inflation. Furthermore, as we'll talk about more tomorrow, to the extent that we decide at this meeting to take out some insurance against downside risks, then implicit in that insurance premium might be a greater risk of inflation six months or a year from now. So we have to take that into account as we think about policy and about our communications, as President Plosser and others have pointed out. In particular, as Governor Mishkin and others have noted, we need to think about a policy strategy

that will involve not only providing adequate insurance against what I consider to be serious downside risks but also a policy strategy that involves removing the accommodation in a timely way when those risks have moderated sufficiently.

So my reading of the situation is that it's exceptionally fluid and that the financial risks, in particular—as we saw, for example, after the October meeting—can be very hard to predict. There are a lot of interactions between the financial markets and the real economy that are potentially destabilizing, and so we are going to have to be proactive in trying to stabilize the situation, recognizing that we have a confluence of circumstances that is extraordinarily difficult and that no policy approach will deliver the optimal outcome in the short term. We're just going to have to try to choose a path that will give us the best that we can get, given the circumstances that we're facing.

All right. Any further comments or questions? We will reconvene tomorrow at nine o'clock. There is a reception and dinner, optional, available in the Martin Building. Thank you.

[Meeting recessed]

January 30, 2008—Morning Session

CHAIRMAN BERNANKE. Good morning, everybody. Let's begin our meeting by calling on Dave Stockton to report on the GDP data.

MR. STOCKTON.⁴ Thank you, Mr. Chairman. My dictionary defines a miracle as an event so improbable that it appears to defy the laws of nature. Along those lines, we distributed a GDP report that compares our forecast with the actual number that was published this morning, and they are exceedingly close. [Laughter] As you can see comparing the Greenbook and advance estimate columns, in fact, it wasn't just close on the top line, but it was really quite close in terms of the various components. Personal consumption and business fixed investment were very close to our estimate. Residential investment was not quite so weak in the advance release as it was in our forecast; that might reflect either a different estimate by the BEA about cost per start or something they know about additions and alterations that we don't. In the opposite direction, federal spending—in particular, defense spending—was weaker in the advance estimate than we have incorporated in the Greenbook estimate. At the bottom of the table are the price indexes. Both total PCE and core PCE were spot-on with the forecast. Really, I didn't see anything in this report that would alter our outlook at all going forward. I would just note, obviously, that both the advance estimate and our Greenbook estimate are based on partial data. There is still a lot left to be learned about the fourth quarter, and even more about the first quarter going forward.

One other piece of information that became available this morning was the ADP report for private nonfarm payroll employment. That report showed an increase of 130,000. Looking at that report and thinking about our forecast of 20,000, we'd probably up our forecast to about 50,000 for the month, following our normal rules of thumb in responding to that. Quite frankly, I don't think that particular piece of information would alter my view about the state of the labor market going forward. As we noted yesterday, we have seen a fair number of other indicators suggesting that there has been some softening in the labor markets. I think that is probably still the best bet going forward, so I don't think at this point we would change too much our employment forecast.

CHAIRMAN BERNANKE. Thank you. Are there any questions for Dave? If not, Brian, would you like to talk now?

MR. MADIGAN.⁵ Thank you, Mr. Chairman. I will be referring to the package labeled "Material for FOMC Briefing on Monetary Policy Alternatives." Your policy decision today takes place against an unusually complicated and uncertain backdrop. Over recent months, reverberations from the contraction in the housing sector have

⁴ The materials used by Mr. Stockton are appended to this transcript (appendix 4).

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

spread to the subprime mortgage market, to financial markets and institutions more generally, and now evidently to the broader economy. It seems clear, based on the Senior Loan Officer Opinion Survey and numerous other sources of information, that these factors are interacting, with mortgage-related writedowns and concerns about the economic outlook triggering a broad and substantial tightening of credit to businesses and households and the tightening of credit feeding back onto the housing market and the economy. At the same time, recent inflation performance has been disappointing, the near-term policy tradeoff appears to have deteriorated somewhat, and inflation compensation has risen. Meanwhile, investors have been rather skittish and, in the environment of heightened uncertainty, have sought more clarity in your communications and more assurance about policy prospects than you can reasonably provide. The combination of all these factors has left financial market prices unusually volatile. In these circumstances, the Committee faces a difficult task in reaching judgments as to the outlook and the balance of risks, gauging the appropriate policy course, and communicating your views to the public.

To provide some assistance in your policy deliberations today, a box in the Bluebook explored the possible implications of addressing pronounced downside risks to growth through monetary policy, and the charts from that box are replicated in exhibit 1. The panels in the left-hand column consider the possible benefits of risk management under the assumption that a recession does develop. The recession considered in this exercise is the same as that examined in an alternative scenario in Part 1 of the Greenbook. As you may recall, that scenario was calibrated to match the typical degree of weakness relative to fundamentals in expenditures other than those for housing in six past recessions. The dotted line shows the results, as gauged using the FRB/US model, if the Committee were to respond to emerging evidence of an unfolding recession by adjusting policy in a manner similar to its past behavior, as captured by the staff's estimated outcome-based policy rule. In this case, the Committee lowers the federal funds rate gradually to about $\frac{3}{4}$ percent by mid-2009. The unemployment rate peaks at about 6.1 percent, and inflation eventually falls below $1\frac{1}{2}$ percent. The blue line shows the results that would be predicted if, instead, the Committee responded more aggressively. Here we have arbitrarily assumed that the Committee lowers the federal funds rate to $1\frac{1}{2}$ percent this quarter and holds the rate at that level through the second quarter. From that point forward, it follows the outcome-based rule. If the recessionary conditions do eventuate, the timely policy stimulus moderates the downturn in activity, trimming about $\frac{1}{4}$ percentage point off the peak unemployment rate, and helps keep inflation from falling toward a region that some of you might find uncomfortably low.

Although aggressive policy easing would help mitigate economic weakness, it would also raise the risk that policy could add unduly to inflation pressures should recessionary weakness not develop, a possibility explored in the right-hand column. The simulations underlying this column are carried out under the baseline Greenbook scenario. As shown by the blue line, the cost of an aggressive near-term easing in the *absence* of a recession could be limited if policymakers were to recognize quickly that the economy was not weakening to the degree feared and boosted the federal

funds rate rapidly. In this simulation, the Committee increases the funds rate about 2½ percentage points in six months—that is, at a pace of more than 50 basis points per meeting—to around 4 percent. This prompt reversal brings the funds rate 1 percentage point above the baseline, providing an offset to the earlier period of excessively easy policy. In this case, core inflation would run slightly higher than baseline for a couple of quarters—as shown in the bottom right-hand panel by the distance between the solid blue line and the dotted black line—but would subsequently return to baseline. In contrast, as shown in the dashed red line, if policymakers were slow to recognize that no recession was in train and so reversed policy more gradually after the first two quarters—that is, in line with your historical behavior—considerable momentum could be imparted to economic activity, with the unemployment rate, the middle panel, running roughly ¼ percentage point below baseline into 2011. The cost of responding more aggressively to the risk of a recession in this case could be inflation that remains 0.1 or 0.2 percentage point above the baseline path for several years, the bottom right-hand panel. Concern about such an outcome could give you some pause as you consider how much insurance you wish to seek at this and coming meetings.

Your concerns in this regard may also be exacerbated by the fact that the inflation picture seems to have deteriorated somewhat in recent months. Your current projections reflect some worsening of the inflation–output tradeoff, with more slack apparently required over the next three years to push inflation down toward what would appear to be your preferred outcomes. Also, as was discussed yesterday, five-year-forward inflation compensation increased notably over the intermeeting period. While there are reasons to question whether much of that rise represents an increase in inflation expectations, it might be due in part to a higher inflation risk premium, perhaps signaling that inflation expectations are becoming more loosely moored and are hence more prone to drift in response to various shocks.

If you were particularly concerned about a possible unmooring of inflation expectations, you might be inclined toward alternative D, shown in the right-hand column of table 1, which is included as the next page. Under this alternative, you would hold the stance of monetary policy steady at this meeting but would indicate that the risks to growth remain tilted to the downside. However, based on the interest rate assumptions provided with your forecast submissions, the recommendations of most Reserve Banks to reduce the discount rate by 50 basis points, and your comments yesterday, it appears that most if not all of you see some easing today as appropriate. Consequently, I will dispense with a detailed discussion of alternative D. Rather, the questions for today’s meeting would seem to be not whether to reduce rates but how much and what to say about the outlook for growth, inflation, and policy.

Under alternative C, the Committee would reduce rates 25 basis points today. The rationale section of the statement would note that financial markets remain under stress, cite the tightening of credit availability, and mention the deepening of the housing contraction and the softening of labor markets. With regard to inflation, the

Committee would note its expectation that inflation should moderate, but it would also cite a range of factors that could put upward pressure on inflation. The statement would conclude by indicating that the policy action, combined with actions taken earlier, should help promote moderate growth over time, but it would also warn that downside risks to growth remain. The Committee might see alternative C as appropriate if it believes that some further easing of policy is warranted by the deterioration in the economic outlook and the associated risks but feels that a moderate move is preferable today, given the policy steps you have taken to date, the possibility that the fiscal stimulus could still turn out to be larger than currently envisaged, and questions about how firmly inflation expectations are anchored. Market participants currently put considerably greater odds on a 50 basis point move today than on a 25 basis point action. Moreover, market participants reportedly expect you to issue a statement similar to the January 22 announcement, but the addition of the sentence on inflation risks in the third paragraph would likely suggest to investors that you have significant concerns about inflation. The combination of a smaller-than-expected policy move and the statement drafted for alternative C would likely suggest to investors that monetary policy had shifted into an incremental mode. Shorter-term interest rates would likely rise somewhat, and equity prices could decline noticeably.

Should the Committee see an outcome along the lines of the Greenbook forecast as most likely, it might be attracted to the 50 basis point easing of alternative B. Under alternative B, the Committee would issue an announcement that closely resembles the January 22 statement. However, the fourth paragraph would include a sentence indicating that the policy actions to date should help to promote moderate growth over time and to mitigate downside risks to growth. In the second sentence of that paragraph, the word “appreciable,” used in the January 22 statement, would be dropped from the characterization of the risks, presumably in recognition of the significant further adjustment of policy under this alternative. As discussed yesterday, the Greenbook-consistent measure of r^* has declined more than $1\frac{1}{4}$ percentage points since the December meeting, to about $\frac{3}{4}$ percentage point. A 50 basis point move today would leave the real federal funds rate just below 1 percent, gauged on the same basis as our r^* measure. Thus, by the r^* metric, policy would remain slightly restrictive under alternative B, consistent with applying modest downward pressure to inflation going forward. Policymakers might view such a policy stance as appropriate if they saw the downside risks to growth as roughly balanced by the upside risks to inflation following such a policy action. However, given the views expressed in your economic projections—in particular, the assessment expressed by many that the trajectory for the funds rate would probably need to be a little lower in the near term than assumed in the Greenbook—it seems more likely that you would prefer the approach of alternative B if you believed that further easing will likely be warranted but should be implemented somewhat gradually, perhaps to provide time to assess the effects of the policy easing already put in place. With investors placing greatest weight on a policy choice at this meeting along the lines of alternative B, this approach would likely prompt relatively little

reaction in financial markets this afternoon. Given recent developments, the Committee may place a larger premium than usual on avoiding policy surprises.

If you have lowered your economic outlook even more sharply than the staff or if you see the downside risks as particularly large, you might not see moderation as a virtue and prefer to ease policy aggressively by 75 basis points at this meeting, as in alternative A. This approach would seem consistent with the concerns and policy assumptions expressed by many of you in your forecast narratives. Indeed, some of you have espoused a risk-management approach to policy in which the federal funds rate is lowered sharply in the near term to provide greater assurance of continued economic expansion and then that policy easing is reversed quickly once it becomes clear that risks are diminishing. As suggested by the risk-management simulations that I discussed earlier, this approach relies heavily on your ability to recognize promptly that the stimulus is not needed and to reverse field rapidly. Binary options on target fed funds futures suggest that, over the past few days, market participants have essentially priced out the possibility that you will take such aggressive action today. Thus, money market rates would likely decline sharply in response to implementation of this alternative, downward pressure on the foreign exchange value of the dollar could increase, and equity prices could rise somewhat, although any rally could be damped by a sense among investors that you were motivated to take this action by concerns about pronounced economic weakness. Obviously, a significant concern with a step of this magnitude today would be the possible implications for inflation expectations and inflation uncertainty. Although the relative contributions of various factors to the recent increase in inflation compensation can be debated, last week's policy move seemed to be well understood at the time as a response to incoming evidence of a sharply deteriorating economic outlook. By contrast, the motivations for a larger-than-expected move today might be less clear to market participants, potentially elevating the risk of loosening the inflation expectations anchor. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Are there questions for Brian? Governor Mishkin.

MR. MISHKIN. I would like to ask a question and possibly make a comment about the risk-management strategies. Am I correct in understanding that the treatment of expectations is basically backward-looking?

MR. MADIGAN. That is correct, Governor Mishkin.

MR. MISHKIN. So even though you know I am a fan of—well, let's put it this way, you said moderation, and I am not a fan of moderation in many dimensions. But there is a potential

cost here that is not articulated, which is that if there is a very aggressive easing and it has an effect on inflation expectations, then the more benign scenario that we have in terms of cost may not be there. This is one of the reasons that, if we think about a risk-management approach, we have to think about whether we can do it more systematically. What kind of communications would be attached to it? Also, what kind of information would we have to watch out for to make sure that we don't unhinge inflation expectations? So although I think this is a terrific box and it was very, very useful, there is a bit of a qualm here. It is also very hard to model the issue of what would happen to expectations. So I am not complaining in any way about the usefulness of this; but we should have another concern, which is how we would manage inflation expectations if we pursued an approach like this. Thank you.

CHAIRMAN BERNANKE. President Evans.

MR. EVANS. Thank you, Mr. Chairman. My question is related to what Governor Mishkin just asked about. The risk-management analysis was very helpful; it was a very good addition, and it captures a number of things that we have talked about. One is sort of a quick policy reversal or the potential for that if things go well. My question is, How do you see the path of communications likely to evolve? What is it going to look like? What will it sound like if we are thinking about reversing policy, and we get to the bottom, and then we start taking it back a little more quickly than normal? A lot of times when we have done this before you heard the phrase that markets need to be prepared for this and they have to understand it. Would that somehow get in the way of the stimulus? I think this gets a bit at what Governor Mishkin was talking about in terms of expectations. In particular, do you have any thoughts about how the slope of the yield curve might help inform how people are going to be thinking about this? Are we going to move from something that is potentially inverted or flat to a rising yield curve that

could inform a better outlook, and then raising rates could maybe in a parallel fashion move the yield curve up? I am just curious whether that could be helpful for the communications strategy.

MR. MADIGAN. I think my response is that it is very difficult to say how your communications should or will evolve going forward at this point because of the very substantial uncertainty in the economic outlook, which shows up very clearly in the Committee participants' economic forecasts. Presumably, what you say will depend on evolving circumstances. In terms of the yield curve, again, I think that is difficult. That will depend on the interaction of market participants' perception of incoming economic information with their sense of your own policy reactions.

MR. EVANS. I'm just curious if, in the path of this simulation, the yield curve behaves in that fashion or not. This gets at what the mechanism is for the stimulus. Is it to improve market liquidity, market functioning, long rates, or an expectation of short rates? If they start expecting a tightening, is that going to get in the way of something, and so we are going to view that as more difficult to move at that time? I think everybody is quite committed to the idea that we need to do the right type of policy reversal when it is called for, but it is going to be very difficult to identify in the moment. So the yield curve could help.

MR. MADIGAN. In these simulations, the standard channels of monetary policy are working through things like the yield curve, asset prices, the foreign exchange value of the dollar, household wealth, et cetera.

MR. EVANS. Thank you.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. Brian, I want to compliment you and the staff for presenting these risk-management strategies. I think it is really useful for the

Committee to see and think about these in terms of strategies rather than sort of one-off policy choices, and thinking through a sequence of actions like this is very, very helpful. Governor Mishkin asked about expectations and noted that they were backward-looking, and I wanted to ask about that. You guys have described to us before that there are firms and wage setters and then there are financial markets. Is there a forward-looking part in the financial markets, or is that backward-looking as well?

MR. MADIGAN. The financial markets are forward-looking in these simulations.

MR. LACKER. As you know, in applied macroeconomics, there is a range of approaches to handling expectations, and the rest of the range is filled out with more forward-looking approaches. In this instance—in the instance of a recession—you hear and read a lot about recession. In fact, there was a story in the paper today about businesses preparing for a recession. So you get the sense that market participants might be understanding that this is a special episode of economic dynamics called a recession and look back to past recessions and think of it in sort of a forward-looking way. That to me, more than in the usual circumstances, heightens the value of thinking through or at least exploring the implications of a forward-looking approach to expectations. I say that in particular thinking about these strategies because we get only a few trials on recessions. They are pretty rare, and so the inferences a set of market participants are going to make about recessions is going to be influenced by their past recessions. This is going to be the last chance to influence their perceptions about how we behave in the next recession. So I am really interested in thinking through our strategy for this recession from the point of view of, well, what if from now on market participants expect us to adopt the strategy that we do adopt in this. That is why I would like to see some analysis that says, “Well, all right, if this is the strategy and it is understood by agents that this is our strategy, how does the

economy behave?” So we adopt a strategy, and it is one that we think we can sustain and one that we would like to choose again in the future if it is understood.

Related to that, Governor Mishkin mentioned inflation and inflation expectations, and I was a little confused about the discussion yesterday because I always thought of us as wanting to minimize the distortion in the rate of return on money, and that suggests minimizing the raw-return gap between nominal and real securities. So I am not quite sure that we don’t care nearly as much about the variance in inflation or the risk premiums due to inflation as we do about expected inflation. Is that your understanding when you guys think through optimal monetary policy? I know you do scenarios like that. I mean, how do the fluctuations and the variance in inflation fit in?

MR. MADIGAN. I don’t think they fit in in a direct way. We still have a lot of work ahead of us, despite the progress that we have made in modeling in recent years, to consider things like the distribution of different economic outcomes and how skewness in those distributions, both with respect to output and with respect to inflation, would interact with risk-aversion in monetary policymaking. I don’t think our science has quite gotten to that stage yet, but I agree that these are worthwhile things to study further.

MR. LACKER. One thought I had in that discussion about expected inflation, you noted that the one-to-five-year rise in inflation hadn’t been affected much, but the five-to-ten-year rise had. If it is well understood by agents when going through something like a recession, which comes around only every once in a while, maybe it is ratifying current inflation and not bringing it down. You might expect that the inference would change about how inflation behaves in the next recession, which would come five to ten years from now. Wouldn’t it?

MR. MADIGAN. I see the point you are making, and that sounds plausible. You know, again, our thought was that, if investors were concerned that monetary policy makers were making an inflationary mistake, it would begin to affect inflation in the near term, meaning within several years rather than seven or eight years ahead.

CHAIRMAN BERNANKE. I have just a technical question on inflation expectations. You presented to us at some point a variation of the model in which the policy action itself was fed into the model for inflation expectations. Is that part of the model at this point?

MR. STOCKTON. No. It is not part of the baseline model that we are running off of.

MR. REIFSCHNEIDER. That is operating here very much. It is the same mechanism, but it works differently in the two cases, because in the case where the recession actually shows up, whether you take the gradualist approach or you take the risk-management approach, they see the recession, and the easing in monetary policy doesn't surprise them very much, although we can take our risk-management approach and respond a bit more than usual. But then, things behave as they expect, and so not too much happens to inflation expectations. In the other case, in which recession doesn't emerge, they say, "Oh, this was an easing that wasn't expected," and then it becomes critical how long you hold it. If you hold it and you get rid of it only gradually, then inflation expectations start to shift up. They think the Fed's inflation goal has changed. In the case where you take it away quickly, they say, "Okay, you took it away quickly," and so not much happens to long-run inflation expectations.

CHAIRMAN BERNANKE. So the answer is that the funds rate is affecting inflation expectations in these simulations.

MR. REIFSCHNEIDER. In both cases. But the question is whether it is viewed in the context of what is happening to output and inflation, whether they say, "Yes, that fits with the

historical pattern of stabilization,” or whether, because the recession didn’t emerge, this looks as though it was after the fact an ease in policy that was not warranted. Then the question is, Do you take it away quickly, or do you take it away slowly?

MR. LACKER. Okay. So in the case where we are doing the risk-management approach, do they understand that we are more likely to reverse course, or do they just mark down their whole expected path for policy?

MR. REIFSCHNEIDER. No, they don’t know that you are more likely to reverse course in that case. So when you think of a communication strategy, which is not in these simulations, it says, “Oh, we’re going to do this, but in the event that the recession doesn’t occur, we will take it away more quickly than we might have based on historical averages.” But it doesn’t make too much difference in the simulation, because it is taken quickly. Just because the funds rate is down surprisingly low for a quarter or two, that is not long enough to have much of an effect on long-run inflation expectations in that simulation. What it would do in the real world is different.

MR. LACKER. We are trying to model the real world.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN GEITHNER. There is a “castle in the sand” quality in this discussion. Let me make just three points on what I took from this and see if I got it right. One is, in the staff’s judgment, at 3 percent—in that view of the world, which is not way off from where the discussion was yesterday—policy is not providing any degree of insurance or accommodation against the adverse outcomes that may be ahead.

The second thing I took away is that this framework seems like a good way of thinking about how you think about moving lower, how you think about what mistake we’re going to make or we want to make. We are going to make a mistake, but it is good to think about what

mistake is more costly and what mistake is easier to correct. It seems to me it tells us almost nothing, frankly, about when we are going to be in a position where we are going to want to start to take it back. It also probably tells us very little about how quickly we are going to want to take it back. I would have thought that the most remarkable thing in these paths is how little difference the variance is in the outcomes a year out. I mean, they must be so far within the range of uncertainty in this context, and for us to start thinking now about how to design the optimal exit and communicate it, not just for President Evans's reasons but many others, just basic humility, it seems to me kind of premature. I have a lot of sympathy for the fact that we will want to make sure that we are choosing which error we are going to make. I have a lot of sympathy for thinking through how we correct for that error. But for us to assert, because we are worried about the implications of that, that we are going to start focusing now on the design of the exit, sounds to me a bit like a statement of the obvious. Of course we are going to move with alacrity to take back and make sure those inflation expectations stay anchored at a reasonable level. Of course we are. To suggest otherwise and to assert it would look kind of insecure—a lack of confidence in what we are here to do.

The third thing I took away from it is that it seems to say that, if you make policy in a way consistent with the response of this Committee over the past decade and a half or so, you have pretty good outcomes in the strategy in which you take out enough risk against the downside error. Now, life could be uncertain. Maybe that is too charitable to the past, but it seems to be kind of reassuring in that way.

CHAIRMAN BERNANKE. I think that it is hard to generalize. You say there are so few recessions, so the specific communication that is undertaken—for example, in the last episode there was actually communication that leaned against the rapid reversal—you know,

“considerable period” and so on. So rather than trying to generalize from two examples, I think it would much more have to do with how we present the outlook and communicate our intentions. Other questions for Brian? Governor Mishkin.

MR. MISHKIN. Yes. I just want to make a comment about what President Geithner said and follow up on President Evans’s question. One thing that the simulation doesn’t get at is the adverse feedback loop. It’s just not built into the model. So the benefits of pursuing a risk-management approach are not as clear as they would be if they were included in the simulation. However, I would like to focus on President Evans’s issue because I think it really is critical. He asked about how we might know whether or not we should reverse and talked about things like the yield curve. But one thing that is important to recognize in this scenario is that I think it is very unusual in terms of this Committee’s past behavior. But I don’t know. Don, you are my man who is the ancient mariner here. Have we ever reversed this quickly in past episodes?

MR. KOHN. By “this quickly,” what do you mean?

MR. MISHKIN. What the path of the prompt reversal is.

MR. KOHN. I think it depends. As the Chairman was saying, there hasn’t really been a typical recession. Right? We have had two recessions in the past twenty years, and I think in both cases we stayed down longer because of the circumstances. So in 1992-93, we had a zero real funds rate while the economy was growing for two years. Then when we started raising, we did raise very quickly. So I think that was mixed. I can remember presenting to the Board, as a staff member, charts in 1990 showing how interest rates always reversed with the trough of the recession, a couple of months this way, a couple of months that way. And that was just wrong. I mean, it was just a different circumstance because of the 50 mile an hour headwinds. So it is going to be very hard to set expectations about what we are going to do that will influence people

in the future because each episode is so different. As the Chairman was saying, we were very worried in 2003-04 that people would generalize from 1994 and see us reversing rather quickly, so we got into this verbal gymnastics to try to modify their expectations because we thought the rapid reversal in that case would not be consistent with macroeconomic stability. This is a case in which we are just going to have to judge when we get to the circumstances what is necessary without knowing ahead of time what the pattern is going to be.

MR. MISHKIN. So let me turn back to President Evans's question because there is an issue about what kind of information might tell us that we took out insurance and then it wasn't needed. I think some pieces of information that the staff has been looking at are relevant. Particularly important in this regard is that there are a lot of indicators of financial stress. What is different about this episode is that the reason we are so worried about downside risk is the financial strains, and there are a lot of pieces of information that the staff has been producing that could be very important in terms of looking at this. They have a financial—I don't know what you call your indicator, but you have something that you have been using in your model, Dave, that takes up spreads and volatility and—

MR. STOCKTON. Principal components.

MR. MISHKIN. —principal components of these things.

MR. STOCKTON. There are a lot of financial variables.

MR. MISHKIN. Also an issue that the Chairman raised yesterday was that the housing market is a big component of our downside risk. The market's concerns about future declines in housing prices are causing a very sharp decrease in demand for housing. That could turn around very quickly as well. Even now we should be thinking about these issues, and Governor Kohn's use of the word "nimble"—I like "flexibility," but I think "nimble" is probably a better word—is

really I think key here. It is somewhat of a departure from normal—exactly what the Chairman said. This episode is different from past episodes. So we do need to start thinking about this, and the staff will need to think about exactly these issues.

CHAIRMAN BERNANKE. President Poole, you had an interjection?

MR. POOLE. Yes. I am older than Governor Kohn, so I can answer. [Laughter]

MR. MISHKIN. It is not age. It is how long you have been in the System.

MR. POOLE. 1958 was just about like that.

MR. LACKER. Like what?

MR. POOLE. Like that prompt reversal.

MR. LACKER. Oh, interesting.

MR. POOLE. It was very much a sharp V.

CHAIRMAN BERNANKE. President Evans.

MR. EVANS. I just wanted to point out that the reason I asked the question about how you think about the exit strategy is that, since we are putting a lot of discussion weight on the reversal, it is going to color how you think about the next move potentially, if not today then another day. So I think it brings the future into the present very quickly.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. If I could just continue the dialogue with Governor Kohn. It has been observed by some that the past two recessions differ from previous post-war recessions in some key dimensions, and some have drawn the conclusion that it is the changing nature of the business cycle after the Great Moderation. Both have been characterized as shallow and longer lasting. I take the point that one's inferences about a third instance are going to be very tenuous, naturally. But it is also natural to look back to those episodes and see what we can draw out of

them. You mentioned headwinds in 1990, and we had some special stuff that kept us from raising rates with nimbleness in 2003 and 2004. To what extent do you think that is likely coming out of this episode, that the types of things that kept us from raising rates in the 1990s and in both of these episodes are likely to recur?

VICE CHAIRMAN GEITHNER. May I answer that?

MR. LACKER. Well, I asked Governor Kohn, but if he gets to respond.

VICE CHAIRMAN GEITHNER. I will follow Don.

MR. KOHN. I think we are really getting into the policy discussion right now, and the issue, really, will be the headwinds, the financial market restraint. So it is reasonable to think that we are facing at least 25 mile an hour headwinds. I also think that it is going to take a while for the headwinds to abate. It is going to take a while to rechannel these credit flows, to restart many of the secondary markets in mortgages. So my personal view is that I wouldn't be surprised to see us having to run with a real federal funds rate that is below the historical average for some time. But as everyone has been saying, it is highly uncertain and very dependent on how the financial markets evolve and how the real economy responds to those markets.

MR. LACKER. For follow-up before President Geithner responds, to the extent that we place greater likelihood on that, should these simulations suggest that we should take that into account in how rapidly we cut now?

CHAIRMAN BERNANKE. I don't think so. I would just point out that with the 1990-91 episode, inflation after the recession—after the whole episode was over—was significantly lower than in the period before it. So if there are headwinds that are bringing the economy below potential and are causing high unemployment, for example, there has to be a mechanism. Expectations have to be tied to something, and there has to be some way in which

excessively low interest rates are stimulating inflation, through either commodity prices or wage pressures or some other mechanism. If those pressures aren't there because of headwinds or some other factor, then unusually low interest rates will not by themselves create inflation. Vice Chairman, did you have anything else you wanted to add?

VICE CHAIRMAN GEITHNER. I really couldn't tell, President Lacker, what inference you were going to draw from that. But I would just reinforce the point that, if you are more worried and uncertain now about the magnitude of the headwinds and the duration, I think it has to mean that you err on the side of going lower sooner. But the main point is that we just don't know much about it, and I think it is worth a lot of humility. I mean, think how surprised we have been by so much over this period, even with all our thinking through three years ago about alternative paths for housing. So I would just vote for humility. But the basic point is that we have to err on the side of being worried about reducing the risk that you end up with 75 mile an hour headwinds rather than 25 for a long period of time.

CHAIRMAN BERNANKE. Could we start our policy round? President Pinalto.

MS. PIANALTO. Thank you, Mr. Chairman. Like the Greenbook, my projection for the real economy incorporates a sharp decline in the equilibrium real fed funds rate. Given the large risks facing the real economy, I think we need to take precautions against having a restrictive fed funds rate target. I think a 50 basis point cut in the target fed funds rate today may be large enough to eliminate that possibility, although there is plenty of uncertainty around that estimate, as we have been discussing. Based on my analysis, comments from my business contacts, and what I have heard from all of you at this meeting, I feel very comfortable supporting this position today. The economic environment has been volatile and highly uncertain, and I realize that my outlook could change appreciably in the weeks and months ahead. I can imagine that my

economic projections will evolve in a way that supports even further reductions in the fed funds rate target.

At the same time, as I said yesterday, I am concerned about inflation risks and that they may now be elevated. I can also imagine scenarios that would lead me to want to pursue a more restrictive policy than would be appropriate based on the downside risk to growth alone. At some point, on the margin, inflation concerns could become my dominant concern. We know that inflation expectations play a crucial role in determining the inflation outlook. We have been talking about that. But, unfortunately, we don't really know all that much about what it is going to take to unanchor inflation expectations. It is hard to know for certain how far out on the ice we can skate without needing to worry that the ice has become too thin. I know that we are bringing our best thinking to bear on this issue by developing diagnostic tools such as the decomposition of inflation compensation into its component parts, as we talked about yesterday and this morning. I hope that we are going to come to learn that these tools are useful guides to policy, but we just don't have enough experience with them to know how much confidence to place in their estimates.

Yesterday Governor Kohn told us about his conversation with Paul Volcker and that Paul Volcker told him that unfortunately we do have experience of seeing the erosion of public confidence in our ability to meet our price stability objective, and we know from this experience that it makes the attainment of price stability more costly. But today I support the policy directive expressed in alternative B. My concerns today are more with the downside risk to economic growth. Given what I know today, I think it is the right course of action. I have discovered during the past couple of weeks that I can be very nimble when it comes to the

reduction in our fed funds rate target. If inflation developments require, I want to be just as nimble in the other direction. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. Given the discussion I have heard so far, it is apparent to me that we will most likely move to a 3 percent fed funds rate today. If we do so, I think we should be prepared to stop at this point and let the market work through the disturbances that only time and market adjustments will correct. While I would not pre-commit to no further cuts, I would give no hint of them either. I think that is important. The discussion we just had around this table is that we cannot know the future, there are always headwinds, and we will make a mistake. Therefore, we should limit ourselves to some extent. As I have expressed in this Committee before, I think we should narrow the range to which we are willing to move the fed funds rate. My judgment is that to move to levels outside the reasonable range that, yes, I know would be debated, but a reasonable range of neutral, is as likely to introduce disturbances into the economy as it is to moderate the economy's performance.

I find an approach to policy that focuses on the real equilibrium rate compelling. I think it is good theory, and it is common sense and can be explained to the public. I understand that we cannot observe the equilibrium rate, but we cannot observe the NAIRU, potential GDP, or most other criteria. The real rate is at least related to the policy tool that we focus on, which is interest rates. When you systematically move below or above the neutral rate, you systematically stimulate or restrict the economy. With that in mind, and since monetary policy works with a lag, I would recommend that we follow a policy in which we stop moving rates and let the market work once we are notably below or above the long-run neutral rate based upon a reasonable estimate. This is a credible approach to policy. Today, a nominal 3 percent fed funds

rate would provide for an actual inflation-adjusted rate that is less than 1 percent. That is quite stimulative. That will serve to support the real economy as the financial sector adjusts, and it has to adjust. To stimulate the economy further at our current inflation rate is to invite, or at least to increase the probability of, higher inflation or encourage the next asset bubble or both, and it will undermine our credibility in the long run.

Turning to the press statement, I have three brief comments. First, in paragraph 2, I would begin by putting the economic rationale before the financial market reference, which would most appropriately align our recent actions with our concern for the downside risk to the economy and place our concern for financial market stress in better perspective. Second, I believe that a detailed discussion of inflation risk may not be helpful at this time, and the less said the better. Therefore, I prefer the language in paragraph 3 of alternative B rather than any other of the options. Finally, I believe we should modify the risk assessment to provide more flexibility for future decisions. Most important, it should place less emphasis on the possibility of future rate cuts and better position us to return to a neutral position later this year and early next. Therefore, I would rewrite paragraph 4 along the lines that President Plosser suggested. To summarize, I suggest that we act at this meeting, explain our action as I suggested, and hold at that point. Thank you.

CHAIRMAN BERNANKE. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. I support alternative B, though I think a case can be made for alternative A. The Boston model indicates that even after a 50 basis point reduction, we still need more easing to return to an economy with both full employment and inflation below 2 percent. Taking out insurance against more-severe downside risks would imply even more easing than our baseline forecast. Given our recent move and the additional

easing in alternative B, I am comfortable waiting to take more aggressive action only if incoming data warrant it. However, I will not be surprised if we find further action is indeed needed.

What would be the arguments against taking an aggressive tack? Certainly, one argument might be that elevated oil and commodity prices and core inflation currently above 2 percent warrant a more restrained approach. However, I would note that in previous recessions the inflation rate has declined significantly, even in the 1970s, in the midst of historic surges in energy and food prices. Whether we skirt a recession or experience a recession, I expect core inflation to trend down. A potential second argument is that we have responded too slowly to the need for tighter policy in the past, so we should be more reluctant to ease in the present. While it may be true that we raised rates too slowly at the onset of previous expansions, I see no reason for this Committee to behave in a manner that it believes is suboptimal. As a Committee, we seem to have consensus on the importance of maintaining low inflation rates, and I am confident we have the will to raise rates with the same alacrity that we reduced them, should economic conditions warrant such action.

CHAIRMAN BERNANKE. President Plosser.

MR. PLOSSER. Thank you, Mr. Chairman. Since September, this Committee has lowered the federal funds rate 175 basis points. My estimate is that the real funds rate before any action today is 1 percent or slightly below that, and that is very low by historical standards. The slowdown in growth suggests that the equilibrium real rate really has fallen, and the Committee has appropriately allowed the nominal funds rate to fall as well. Do nominal rates need to go lower and, if so, about how much? Part of this depends on what you think the equilibrium real rate of the economy is now. The Bluebook indicates that estimates of r^* vary considerably by the model and the process they use to calculate them. The 70 percent confidence interval around

them is 3 percentage points. Moreover, the estimates of r^* , as we talked a bit about yesterday, can be quite volatile. It troubles me that the estimate of r^* consistent with the Greenbook has changed by 140 basis points from December to today. I am uncomfortable using an estimate that is so variable and so sensitive to stock markets as a guide to setting policy. I also want to note that the Bluebook indicates that the appropriate funds rate, based on a range of Taylor rule specifications, is anywhere from 40 to 120 basis points above where we currently are today. That includes forecast-based versions of the rule that rely on the weak forecast found in the Greenbook.

While I don't want to suggest that such guidelines are definitive, they do suggest that the current level of the fed funds rate is clearly accommodative and that we have taken out insurance against downside risk. When do we stop taking out more insurance? If we do cut 50 basis points today, which is the amount the market is expecting, it would bring, to my mind, the real funds rate down to below $\frac{1}{2}$ percent. That is based on expectations of about $2\frac{1}{2}$ percent inflation, which in fact may be conservative. To my way of thinking, that is a very accommodative policy by any standard. Moreover, I don't believe that enough time has elapsed for us to realize the full effect of the cuts that we have already put in place. I share President Hoenig's concern that only the market can solve many of the problems that we see out there, and we must give the market time and patience to do so. The last time real rates were this low was in 2003-04, when the real rate was in fact apparently negative. But that was different. Inflation was running around 1 percent or less, and our concern was possible deflation. Today, we are not worried about deflation in the near term. We are worried about inflation; inflation has been moving up. Lowering rates too aggressively in today's situation would seem to me a risky strategy, fueling inflation; possibly setting up the next boom-bust cycle, which I worry about; and delaying the

recognition of losses on bank's balance sheets but not eliminating them. The main effect of the rate cut will be after the first half of the year, if the economy begins to recover. I think we need to be very cautious not to get carried away in our insurance strategies with lowering rates too much. In my view, we are on the verge of overshooting, and I worry about the broad range of consequences for our credibility and the expectations of our future actions such behavior may have. That is closely related to President Lacker's comments about what people interpret that behavior to mean about what we may do in future episodes. But two things are even more important, in my mind, about what we may do and what we do today.

First, we need to be very careful about our communications and not to excessively reinforce the market's expectation that further rate cuts are coming. In particular, I would feel much more comfortable with supporting a moderate 25 or 50 basis point cut if the statement language today were more agnostic about the balance of risks, as I suggested in my memo before the meeting. The market interprets our saying that there are downside risks to growth as that we are planning to cut rates again. I do not think we should encourage those beliefs. I worry that the balance of risks portion of our statements has come to be a code for predicting the path of our federal funds rate. I think that is not a good position for us to be in, nor should we condone it. Given the Greenbook forecast, I don't believe that negative real rates are called for, and signaling further cuts clearly sends the message that negative real rates are on the way, if not already here. When our forecasts are released, the public will get our assessments of the risks in our outlook. We don't need to say anything more about it in the statement. That, of course, does not preclude us from cutting rates again if our forecast deteriorates further. But until it does, I am reluctant to encourage the perception that more rate cuts are forthcoming.

Second, as I said in the last go-round, we need to be able to better understand how we are going to unwind these cuts that we have implemented as insurance against the macroeconomic effects and financial disruptions. Of course, this was the theme of the discussion we had before the go-round. Unwinding those cuts too slowly not only risks our credibility on inflation but also risks setting up the next boom–bust cycle. Hindsight, of course, is always 20/20, but as we discussed in Monday’s videoconference, the Fed’s being slow to raise rates back up after the deflationary scare was over in 2003 may indeed have contributed to the conditions we are facing today. Thus, it is crucially important, to my mind, that we do have a plan for unwinding the significant cuts we have implemented as insurance against the financial turmoil. If the market turmoil subsides, I believe this Committee needs to have clear signals as to what we are going to look at and what has to happen before we start to remove the accommodation. I believe that the Committee must undo the accommodation as aggressively as we put it in play. We need to determine what indicators we will be looking at to determine when that process should begin. When we know ourselves, we want to help the markets and public understand what our process will be as well. I strongly believe that we must be both credible and committed policymakers, and our communications must signal not a particular funds rate path but articulate and focus on the contingent nature of that path and help the public understand and appreciate the systematic part of our policies and our policy decisions. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lockhart.

MR. LOCKHART. Thank you, Mr. Chairman. I think the best course of action today is to lower the fed funds rate by 50 basis points as in alternative B. I’ve heard cogent arguments that 50 basis points would be restrictive and likewise accommodative. Yesterday I had a chance to look at the disabilities-related display in the elevator lobby on the Concourse Level, and I took some

comfort in the fact that many great people are or were bipolar. So whether it's restrictive or accommodative, I can be convinced either way. I can live with the idea that this does not incorporate a great deal of insurance against the downside, provided that the language doesn't preclude further timely action as we have been using the word "timely." So regarding paragraph 4, my preference is for language that, first, serves to signal that the Committee is fully aware of the situation and not behind the curve, a signal that's reassuring and confidence enhancing, and, second, preserves our nimbleness, our flexibility, meaning that it doesn't preclude any options to respond to developments, including further moves and intermeeting actions. I think the straightforward phraseology "downside risks to growth remain" as opposed to what was suggested in alternative A, which included "may well," is preferable because the alternative A language strikes me as a bit too clever and risks appearing out of touch. I also think that repetition of the "in a timely manner" language from the January 22 statement preserves the options to move in an intermeeting action if necessary. So I think alternative B language is acceptable because it is spare, straightforward, and familiar, and it's the least likely to confuse the markets in the near term. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. Like President Lockhart, I agree with the action and the language of alternative B. As I noted a few minutes ago, I don't think a real interest rate of around 1 percent, which is where we would be after this action, is really all that aggressively low, given what we're facing in financial markets and the uncertainty that's constraining business and household behavior in terms of spending. I guess I wouldn't obsess so much—a loaded word there—about where we are exactly relative to some estimate of the neutral federal funds rate. As President Plosser pointed out, our band of confidence around that is huge. It moves around a lot

when it's defined in the short-term, three-year window that the staff has been using, but I think we just need to concentrate on the forecast, where we think this path of rates would have us go.

The forecast central tendencies that we looked at yesterday look like a pretty good set of tradeoffs between getting back to full employment and damping inflation. I think one message from this longer-term forecast exercise is where the Committee thinks the Taylor curve is and where we would like to end up on it in terms of trading off inflation and output variability. If I heard Brian correctly, these results encompass not only a fairly universal assumption of 50 basis points at this meeting but at least ten of the cases see further rate cuts after that. In my case, I assumed further rate cuts but that they would start to be taken back in 2009. So it seems to me, heading where we're heading, and maybe even moving a little lower if circumstances permit over future meetings, is perfectly consistent and is consistent in the view of the majority of the Committee with some pretty reasonable outcomes for the economy given the shocks we're facing and the circumstances we're in, whatever it implies for where we are relative to some long-run neutral real rate that might pertain over ten or twenty years. Implied by that—and the Vice Chairman said this a few minutes ago—is that it's not clear that the 1 percent real rate has much, if any, insurance built into it relative to the kinds of headwinds we're facing. I agree that a 1 percent real rate is not sustainable indefinitely, but as I pointed out before, we ran with a zero real rate for two years in '92 and '93. I don't think that had any adverse effects on inflation expectations at the time. We explained why we were doing it. We explained the circumstances that were forcing us into that. We kept our eye on inflation expectations. You might remember that at the time there was a lot of political pressure that we should lower the rate even further, and we resisted that pressure in part by keeping our eye on inflation expectations and making sure they weren't moving higher.

So if circumstances dictate, I think we could sustain, as the Greenbook has us doing, a 1 percent real federal funds rate for some time without any adverse effects on inflation expectations going forward. I don't think 50 implies an unacceptable inflation risk. I think it's consistent with the gradual reduction in inflation that we've outlined in our forecast. In these circumstances, we need to concentrate on addressing the economic and financial stability issues that we're facing. That's the bigger risk to economic welfare at this time than the risk that inflation might go higher, and the 50 basis points in my mind is just catching up with the deterioration in the economic outlook and the financial situation since the end of October. We are just getting to something that barely takes account of what has happened, with very little insurance. Now, I agree that if we got into a situation where we went lower, then these subtle tradeoffs between risk management and the inflation outlook would come into play, but I don't really see them in play at the level of interest rates that I'm suggesting we be at at the end of this meeting under the current circumstances.

I do agree with President Plosser. We need to think about the circumstances under which we would begin to take back the easing. In the staff forecast we don't have to think about this for two years, if they're right. But they may not be right, and if we go further and have insurance, then I think that's a more important issue. One point that I took from President Evans's discussion was that there might be a risk in talking about taking it back right now because it would undermine the effects of the ease you put in place. So as a Committee we need to think about the circumstances. It's a very subtle and tricky issue. The Chairman can perhaps cover this in his testimony, and obviously we've talked about it. It must be reflected in the minutes. But going out front with hammering in public how we're going to take it back is going to undermine the effects of the ease itself. So we can talk about those circumstances, but I think we need to be careful about overemphasizing the "taking it back" idea, particularly from the current level.

I'm comfortable with the language of alternative B. I think the first sentence of paragraph 4 does help to say that we think we've done something considerable that's going to be helpful. It is a change from the last thing we put out. Removing "appreciable" in terms of downside risk is also a change, and I agree with that. But I do think there are downside risks even after we move today, and it would be a mistake to avoid that topic. Those risks are still going to be there, even after the funds rate is 3 percent, until the financial markets begin to stabilize and for more than a few weeks. We had a bit of a head fake in October, right? They seemed to be stabilizing. We said the risks were roughly in balance, and then the financial markets collapsed. I think we need a period of stable financial developments so that we can gauge the effect on the economy before we go to a balanced risk statement. Right now the risks are still tilted toward the downside on real activity, and that should be our focus. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Yellen.

MS. YELLEN. Thank you, Mr. Chairman. I support alternative B in the Bluebook. If we cut the federal funds rate a further 50 basis points today, we will have done a lot in just a week and a half, but I think these actions do represent an appropriate response to a substantial deterioration in economic conditions. As I said in my comments on the economic situation, I basically agree with the Greenbook forecast for this year and perceive the risks to be to the downside. With the fiscal package, a funds rate of 3 percent will likely promote growth in the second half of this year that's moderate after a brush with recession in the first half. I'm comfortable with this action because I believe our inflation objective is credible, and I do have confidence that we will be able to reverse the accommodation we're putting in place when it's appropriate to do so. But our discussion does highlight the important point that alternative B seems to be appropriate monetary policy in the context of the modal forecast. It just brings the real funds rate down to the Greenbook estimate of

neutral, around 1 percent. If the economy were to go into a recession, additional easing would be needed and would be appropriate. Also, as Governor Kohn and others have emphasized, alternative B still doesn't seem to incorporate much of anything for insurance against recession. So, indeed, there is a case for doing more than B. There is a case for A, but I wouldn't go there today. I think we can wait, and I think we can watch as developments unfold and monitor data.

With respect to language, the skew in the risks toward a downside surprise and the possible need for insurance against that possibility, especially if we see some further deterioration in financial conditions—that strongly inclines me toward the assessment of risk sentences in alternative B with their asymmetry toward ease. We need to be absolutely clear, to state clearly today, that we recognize the continued existence of downside risk and communicate that we stand ready to cut further if necessary. Therefore, I would definitely retain the sentence in alternative B, paragraph 4, that states, “However, downside risks to growth remain.” However, I could see a case, following President Plosser’s suggestion, to substitute the wording from the last sentence of the December 11 statement to the wording in the last line in alternative B. That is, we could substitute the words “will act as needed to foster price stability and sustainable economic growth” for the words “will act in a timely manner as needed to address those risks.” This seems to me to be a small change that would, taken together with the new first sentence in paragraph 4, slightly dial down the perceived odds of further cuts relative to the proposed wording in B. Even without the change that President Plosser suggested, though, the fact that we have added the new first sentence in paragraph 4 does seem to me to change the wording of the assessment of risk enough relative to our intermeeting statement to communicate to markets that we will view future policy moves after the one today somewhat differently going forward. Today’s move and the intermeeting move are

essentially catch-up, to put us where we think we need to be, and moves going forward will respond to the evolution that we see in the markets.

CHAIRMAN BERNANKE. Thank you. President Poole.

MR. POOLE. Thank you, Mr. Chairman. I can support alternative B, down 50 basis points, although as I'll try to argue in a moment, I don't think it makes a whole lot of difference whether it's down 50 or down 25. I would support the Plosser recommendation on paragraph 4, and I would also note that the statement as it's written recognizes the credit market problems and the housing problems, but it seems as though a critic from the outside might say it's oblivious to the fact that inflation rose somewhat last year. So I would propose adding a sentence at the beginning of paragraph 3 along the following lines: "Although the inflation rate rose somewhat over the past year, the Committee expects inflation to moderate." It seems to me that we should recognize the fact that inflation rose because it's parallel with the recognition of what has been going on in the credit markets and in the real economy.

Now, let me make a couple of fairly general comments. I'm very much of the view that the natural state of the U.S. economy is full employment and output growth at potential. That's where the economy tends to gravitate, and firms and markets respond relatively quickly on the whole to shocks. A particularly good example was the shock of September 11. In the following three months, the companies shed a million jobs out of nonfarm payrolls, responded pretty quickly, and slashed production inventories, and in fact, it was that shock that ended up creating the case for that being labeled a recession. Without that, I don't think it would have been labeled a recession. Anyway, the shock last August did not lead to a sharp retrenchment in the real economy. Putting housing aside now, it aggravated the housing problem that was already under way. Firms and markets are making many necessary adjustments. Housing starts are down. House prices are

falling, which I think they have to do. Banks are raising more capital. Risk spreads are rising from abnormally low levels, and lots of other kinds of adjustments are occurring that need to be made and are ongoing. I just do not see in the data today the sort of “in your face” data suggesting that the economy is in recession. It might happen, but I don’t see it right now. We may not have the luxury of a policy that avoids recession. We don’t know that. Our choice may end up being whether we accept a mild recession this year or whether we follow a policy that is so expansionary that we end up with some further increase in inflation and a deeper recession later. I have no doubt where I come down. I would rather take the risk of a mild recession now rather than the risk of an increase in inflation and a larger recession later.

Now, I said that I didn’t think that it made all that much difference whether we choose down 50 or down 25. A number of people have commented on the critical role of communications going forward to try to stabilize the situation, particularly the market’s expectations about the Federal Reserve’s monetary policy, and the burden here is going to fall primarily, 98 percent worth, on the Chairman. I think that we need heightened attention to longer-run concerns. So much of the market commentary seems to revolve around the possibilities of a recession, recession, recession. I don’t see very much attention to longer-run concerns. I think those longer-run concerns are important, and we need to emphasize them. I think monetary policy needs to be based on our best estimate of what is happening. We spin out alternative scenarios so that we are prepared for things that might happen, but the actual policy decision has to be based on our best guess as to what is, in fact, happening. I think that we are at risk that inflation expectations might rise. We monitor them closely, but once we start to see inflation expectations rising, it’s going to be difficult and costly to rein them in. It’s going to create a big problem for us. So we can take some comfort that it hasn’t happened yet—I don’t think it has happened—but that doesn’t say that we can leave that issue

alone. I think that the recent policy actions and policy statements have not adequately balanced the near-term concerns over economic weakness or potential weakness and the longer-run inflation risks.

Now, this is the question. Should we try to indicate to the market that it is now time for a pause in the funds rate target changes, assuming that we go down 50, given that we've now come down 225 since September? Should we try to give that direction? Well, let me recount a bit of history here, and some around the table, particularly Don, will remember this and may correct what I'm saying if I have the details wrong. The FOMC has really been struggling with this question of forward guidance since it first began to issue statements at the conclusion of every meeting. The first time we did it, we were using the bias or tilt language. The very first time we did it, there was a reaction in the marketplace that we regarded as excessive and undesired. That led to the communications committee that Roger Ferguson chaired. I sat on that committee, and Don was fully involved with that effort, which led to the balance of risks language. Now, my judgment is that, over time, the forward guidance that we've used in that balance of risk language has not been successful. There's always a problem of putting the language in, and there's always a problem of taking it out when you want to take it out without giving impressions that you really don't want to give. We have always understood around this table that incoming data can change the situation, but the market doesn't know when the incoming data will trump the guidance that is in the statement. Hence, I think that the statement or a more formal tilt or balance of risks language has created some of our communications problems. That was clear last fall, when we tried to give an indication that we thought we had done enough for the time being and it was overtaken by incoming data, and that created a lot of problems in the market in understanding where we were coming from. So it seems to me that we'd be better off focusing on as clear an explanation as we can of why we have taken

the actions that we have. That's the best chance we have of providing guidance to the market of how we might respond under similar circumstances in the future that we can't predict. I think we need to concentrate on explaining the policy responses. The Committee's task is—and again, as I emphasized, I think it falls principally on the Chairman—I'll say to “restore,” because I don't think that that's an unfair word to use here, a greater degree of policy predictability. That cannot mean unconditional because we don't know how the data and how events are going to move the world that we have to respond to. But we need to create a better understanding in the market of how the policy changes are conditional on incoming information, given the policy objectives that we share and that are given to us by the Congress. Thank you.

CHAIRMAN BERNANKE. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I favor 50 basis points today. I think that a 3 percent funds rate may be reasonably positioned for the economy given our forecast. That's the Greenbook path assumption. That certainly seemed reasonable, and today's data gave us no indication that reasonably changed that path. I, like President Geithner, did find it remarkable that risk-management paths were not really that different either way. Now, surely risks abound, and it's tough to capture that in models, and I'm all in favor of humility. I just don't know which direction humility argues for in this case—more action or less action. Anyway, those are my preferences. We have talked a good bit about the potential of reversing our policy action sooner than we often have done in the past. I just think that it's going to be difficult in the moment. The Bluebook path that I've been looking at has this reversal starting when the unemployment rate is peaking. I think it's unknowable that it is actually the peak. There will be a lot of uncertainty, but still, that's the situation that we face, and so I sort of accept that. But because of that, I would prefer to be a little more careful about how far down we go. Three percent could be the bottom of a funds rate cycle.

It's very difficult to know. From here on out, I'd like to be hopeful for positive news but mindful of further deterioration that we would certainly act on.

In terms of the statement, I guess from some discussions over the weekend, I wasn't expecting to hear much movement in that. But the suggestions of President Plosser and President Yellen seem to make a lot of sense from my standpoint. So I think it would be nice if there were a little more discussion of that, and I thought President Poole's suggestion on inflation was also helpful. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. President Lacker.

MR. LACKER. Thank you, Mr. Chairman. Our Vice Chairman urges humility. I strongly support that. I agree with President Evans that it's not obvious that the greater one's humility, the greater one should favor ease. I think we should be humble about the path of inflation going forward, whether it's likely to fall on its own. I think we should be humble about our understanding of the output gap. I think we should be humble about whether that's even a sensible way to think about how real and monetary phenomena interact. The Phillips curve itself embodies a relationship. It is uncertain, but it embodies expectations of our future behavior. I think we should be humble about what those expectations are in the present circumstance. Times in the past when we've gotten in trouble on inflation have often been when we were oversolicitous about weak economic growth, and I think we should be humble about whether we've completely gotten past those inflation dynamics or not. I think we should be humble about the willingness of our future selves to reverse course, and a lot has been said about that. For some it seems to counsel greater ease now, but I think the opposite argument can be made that the extent to which we think we may be hindered or feel impeded in raising rates, even if we think it's warranted in the future, should cause us to be more cautious about lowering rates now. It always seems in recoveries that there's always

something that looks fragile, that looks likely to threaten economic growth. You know, one month it will be the commercial paper market and CDO writedowns, and this month it's monolines. There will be headwinds. I predict we'll be talking about headwinds a fair amount in the next couple of years. But if those are genuinely going to impede us, we need to be realistic about that, and I think we need to take it on board now. I agree with President Poole. We need to be humble about our ability to prevent a recession. I think we should also be humble about the extent to which what we see in terms of both growth and financial markets is presumptively inefficient and needs remedial action on our part. You spoke several meetings ago, I think a year or two ago, Mr. Chairman, about our need to retain a concern about inflation but not be seen as inflation nutters. I think we need to care about financial fragility but not be fragility nutters.

If left to my own devices, I could have chosen a 25 basis point cut today. I recognize that would surprise markets, but judging from the policy paths that you all have submitted for your projections, a whole lot of us think that we're going to have to surprise markets some time in the year ahead. Having said that, I can support a 50 basis point cut now. But more broadly I think inflation is just going to have to keep influencing our policy path. I don't think that episodes of weakness in real growth mean that we put part of our mandate aside. I think it has to temper the extent to which we lower rates and temper our behavior on the other side as well. As for semantic tactics, I support President Plosser's suggestion, seconded by President Yellen, and I support President Poole's suggestion as well.

CHAIRMAN BERNANKE. Thank you. President Stern.

MR. STERN. Thank you, Mr. Chairman. We had a fairly extended discussion yesterday about concerns about the condition of various financial markets and some financial institutions and their implications for the economic outlook, and I certainly share those. In this environment, I favor

alternative B—a 50 basis point reduction in the federal funds rate target. My own forecast is below the Greenbook forecast for this year and next, and so my guess is that we’re going to wind up moving further before we’re done. But that said, I don’t have enough confidence in my forecast to advocate that we do more right now.

As far as language of alternative B is concerned, I am certainly happy in general with what we have as written, and I share President Hoenig’s view, although perhaps for a different reason, that the less we say about inflation right now, the better. The reason is that, in some sense, we haven’t adequately expressed to at least some market participants that we understand where the risks lie right now. In trying to remind people that we are not inflation nutters but are serious about maintaining price stability, we’ve kind of garbled our message, in my opinion, and I think people in the marketplace know this central bank is committed to price stability. I don’t think we have to remind them with every statement. Thank you.

CHAIRMAN BERNANKE. Thank you. President Fisher.

MR. FISHER. Well, Mr. Chairman, I’ve seen the discount rate tally. I’ve listened carefully to all my fellow Presidents and to Governor Kohn. I suspect I know what your fellow Governors are going to recommend. I’m in a distinct minority at this table. This weekend, by the way, I searched the newspapers for something to read that didn’t have anything to do with either a rogue French trader or market volatility or what the great second guessers were blabbing forth at the chat show in Davos; and in doing so I happened upon a delightful article. I hope you saw it in the Saturday *New York Times* on the search for a motto that captures the essence of Britain. My favorite was *nemo ne inclune lacet*, which very loosely translated, I think, means “never sit on a thistle.” [Laughter] Well, that’s where I am. I’m going to risk sitting on the thistle of opprobrium

for my respective colleagues by making the recommendation that we not change the funds rate and that we stay right where we are.

Now, for the record, I would have supported last week's 75 basis point cut for the reasons that it would put us ahead of the curve and bought adequate insurance against a recession. I told you that directly, Mr. Chairman, and I mentioned it to Governor Kohn as well. Judging by the policy rules on page 21 of the Bluebook, as well as by the adjusted rule that our economist Evan Koenig has developed in Dallas, we are, indeed, ahead of the curve from the Taylor rule standpoint as we meet today with the rate of 3.50. As was mentioned earlier, we have not been docile. We have cut rates 175 basis points in a matter of months, and we've taken some new initiatives that I think are constructive and useful. I'd like to see more along the lines of the TAF. To be sure, in the discussion that we had in that emergency meeting, I had the same concerns that President Hoenig expressed in the call, but with the wording change that was put forward by Governor Kroszner I ended up where President Hoenig did. I regret not voicing my discomfort with the penultimate sentence in the statement—the one dealing with appreciable downside risk after the move we took—as I felt that it undercut the potential effect of our decision. During that call, you may recall that I pointed out the pros and cons. I began my intervention on that call by saying that there's a very fine line between getting ahead of the curve and creating a sense of panic. I also expressed concern of the need to be mindful of inflation, as many have at this table today. There are some critics who say we panicked in response to the market sell-off of that Monday. I do not believe that's the case, and I don't believe it's the case because I find it impossible to believe. As I've said repeatedly in this room, other than in theory, markets are not efficient, and on the banks of the Hudson or the Thames or the Yangtze River, you cannot in practice satisfy the stock market or most other markets, including the fed funds futures market, in the middle of a mood swing. When the

market is in the depressive phase of what President Lockhart referred to as a bipolar disorder, crafting policy to satisfy it is like feeding Jabba the Hutt—doing so is fruitless, if not dangerous, because it simply will insist upon more. But attempting to address the pathology of the underlying economy is necessary and righteous, and that's what we do for a living, and I think we are best sticking with it. We're talking about the fed funds rate. I liken the fed funds rate to a good single malt whiskey—it takes time to have its ameliorative or stimulative effect. [Laughter]

But I'm also mindful of psychology, and that's what I want to devote the remainder of my comment to, and then I'll shut up. My CEO contacts tell me that we're very close to the "creating panic" line. They wonder if we know something that they do not know, and the result is, in the words of the CEO of AT&T, Randall Stephenson, "You guys are talking us into a recession." To hedge against that risk is something to them unforeseen, even after they avail themselves of the most sophisticated analysis that money can buy. CEOs are, indeed, doing what one might expect. They are tightening the ship. They're cutting head counts to lower levels. They're paring back cap-ex where they can beyond the levels they would otherwise consider appropriate after imputing dire assumptions of the effects of housing. I'm going to quote Tim Eller, whom I consider the most experienced and erudite of the big homebuilders, which is Centex, who told me, "We had just begun to feel that we were getting somewhat close to at least a sandy bottom. Then you cut 75 basis points and add 'appreciable downside risks to economic growth remain' in your statement, and it scares the 'beep' out of us." He didn't use the word "beep." These are his words, not mine. Imagine scaring a homebuilder already living in hell. The CEOs and CFOs I speak to from Disney to Wal-Mart, to UPS, to Texas Instruments, Cisco, Burlington Northern, Southwest Airlines, Comerica, Frost Bank, even the CEO of the felicitously named Happy State Bank in Texas, repeated this refrain, "You must see something that we simply do not see through our own business

eyes.” They do see a slowdown. They are worried about the pratfall, as I like to call it, of housing. They’re well aware of California’s and Florida’s economic implosion and broader hits to consumer welfare across the national map. I recited some data points from those calls yesterday. But they do not see us falling off the table. They worry aloud that by our words and deeds we are inciting the very economic outcome we seek to cut off at the pass by inducing them to further cut costs, defer cap-ex, and take other actions to hedge against risk. They can’t fathom it but assume that we can.

Our Beige Book contacts and the respondents to the business outlook survey in Dallas say pretty much the same thing. One of those actions is to fatten margins by passing on input costs. Now, I mentioned the rail adjustment factor yesterday, and I’m troubled by the comment that I quoted yesterday from the CEO of Tyson Foods. “We have no choice but to raise prices substantially.” I mentioned that Frito-Lay has upped its price increase target for ’08 to 7 percent from 3 percent. Kimberly-Clark notes that it is finding no resistance at all to increasing prices in both its retail and institutional markets, and I mentioned that Wal-Mart’s leaders confirm that, after years of using their price leadership power to deflate or disinflate the price of basic necessities—think about this—from food to shoes to diapers, they plan in 2008 to apply that price leadership to accommodate price increases for 127 million weekly customers. This can’t help but influence inflation expectations among consumers.

I experienced a different kind of price shock two weekends ago, when I went to buy a television so I could watch President Rosengren’s football team demolish President Yellen’s. [Laughter] I was told that they had doubled their delivery and installation fees because of a “fuel surcharge.” Well, I reminded the store clerk that I had been there about the time of the Army-Navy game, around Thanksgiving, and that gas prices had not doubled since the Army-Navy game, and he said, “Mr. Fisher, we’re selling less, and we will take what we can get away with however we

can get away with it.” With one-year-forward consumer expectations, according to the Michigan survey, already above 3 percent, everyone from Exxon to Valero to Hunt Oil and our own economists in the Greenbook telling me that oil is likely to stay above \$80, and the national average price therefore above \$3, this mindset really worries me. I’m going to add one more very troubling little personal anecdote. Driving home from work last week I heard a commercial for Steinway pianos. The essence of the advertisement was that manufacturing costs had increased and that you could buy a piano out of their current inventory at the “old price” that was in place in 2007; but come February 1, there would be sizable price increases, so you’d better purchase your piano quickly. It has been thirty years since I have seen advertisements to go out and buy now before the big expected price increases go into effect. Now, this is an isolated, little bitty incident, but I fear this may be just the beginning of the more pervasive use of this tactic.

Everyone in this room knows how agnostic I am about the predictive value of TIPS and the futures instruments comparing TIPS with nominals, like the five-year, five-year-forward. I’ve sent around an eye popping chart that shows the predictive deficiencies of the professional forecasters that were tracked by the Philadelphia Fed. I know that dealers are telling us that inflation is contained, but I have spent many years in the canyons of Wall Street, and I would caution against their disinterest in the predictions that they offer. When I see that every measure of inflation has turned up, learn from studying the entrails of the last PCE that 83 percent of the items therein experienced a price upswing, consider the shortcomings of the few tools we have for evaluating expectations of future inflation, and then hear from microeconomic operators of the economy that, by golly, we’re going to take what we can while the getting is good, I can’t help but feel that we cannot afford to let our guard down by becoming more accommodative than we have already become with our latest move.

Mr. Chairman, you know because we've talked about this that I've anguished over this. In fact, to be politically incorrect in a government institution, I have prayed over it. It is not easy to go against the will of the people you have enormous respect for, but I have an honest difference of opinion. I truly believe we have it right at 3½ percent right now. I think that, even with some important language changes, we risk too much by cutting 50 basis points at this juncture and driving the real rate further into what I perceive, even on an expectations-adjusted basis, is getting very close to negative territory. Mr. Chairman, I think we've gone as far as is prudent for now, and that 3½ percent, together with the other initiatives we've taken to restore liquidity, is sufficient. So I ask for your forbearance in letting me sit on the thistle of recommending no change.

I do want to say as far as the language is concerned, since obviously we're going to go with alternative B despite my vote against it, that I strongly recommend you consider the changes that were given by Presidents Plosser, Yellen, and Poole, and I would strongly advocate particularly at the end adding that we will act as needed to foster price stability and sustainable economic growth. I thank you for paring back alternative B, paragraph 3, in terms of getting away from discussing only energy, commodity, and other import prices. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Why don't we take a coffee break and come back at 11 o'clock? Thank you.

[Coffee break]

CHAIRMAN BERNANKE. Okay. Why don't we recommence. Governor Warsh.

MR. WARSH. Thank you, Mr. Chairman. I support alternative B for several reasons, not least of which because it actually seems to reasonably capture what we talked about yesterday. So I think it has that benefit. To state the obvious, we are in a very tough spot. There are clearly risks on both sides of the mandate, and for folks who are of differing opinions, I don't think that they would

either deny the tough spot we're in or say that we have a lack of worries on either side. I think President Geithner said in the Q&A at the beginning of this round that we're choosing which policy error we're prepared to make or, more charitably, we're deciding where our worries are the greatest. It does strike me that alternative B does that reasonably well. To step back for just a minute, I think that the tough spot we're in is a function of issues that were very long in the making and will take a long time to work out. That probably has two implications. First, as to what Governor Kohn said, it's easy for me to feel more comfortable with our judgment by saying that we'll be able to undo it really, really soon; but if it is going to take a long time for this to work out, I don't want to take any false comfort in that. The other implication is that, when I say that this is long in the making, I mean particularly for financial institutions. It has taken them a long time to dig themselves into this hole for the credit-intermediation process to be as deeply disturbed as I take it to be at this point. So when I think about what policies we would make on the monetary policy front, I wouldn't want to excuse or somehow allow them to get off scot-free; by going with alternative B, I don't think that would be the case. Financial institutions have far more work to do than we have yet to do on monetary policy. I think they are further from recognizing where they need to get. That will take some time.

In listening to other people's perspectives on the elixir of a 3 percent fed funds rate, I think it would be a nice luxury to give 3 percent a chance, but it's probably not practical for the following reasons. I have tried to convince myself that the monetary policy moves in the last nine or ten days were a one-time step-function change, by which we were setting a level based on where we think the real economy is, and we need to get back to normal monetary policymaking. I think dropping the word "appreciable" as in alternative B is one way to do so. The goal would be for monetary policy to get back to sort of normal business in tough times.

Another point, just of commentary, is that, by taking this action along the lines of alternative B, it would be nice if we weren't going to be lowering the value implied by the markets of where the rate will end up. So my support of alternative B is nonetheless with this worry as well—that the markets might think that we have more-dramatic actions and that we will have to go lower longer than is currently implied. I don't mean to give them additional credit there, but I don't think that we have a great alternative. As to the point about market expectations, I would note that we will—and necessarily at some level should—during the course of our next several meetings disappoint market expectations, and that is not something I think we need to run from. I think that will be part of the discipline function, but this is probably not the right time to do it.

As a final point, alternative B is consistent with the narrative that we've started based on the data we saw in mid-December, based on the Chairman's speech earlier this month, and based on our meetings over the past several weeks. It strikes me that it would be prudent at this time of financial stability risks and uncertainty in the markets for us not to add volatility—not to throw out a different nuance or try to be too clever. So while I have sympathy for some of the ideas and amendments that have been suggested in this discussion, we've come to a pretty tough place, as I said at the outset. It's a tough fork in the road. We should all feel to some degree uncomfortable about the choice we make, but the choice we're making today needs to be as clear as it can be. Even if we'd get some comfort in being a little cute, a little clever, and a little nuanced, I'm afraid we might be undoing some of the clear bet that we have to put on the table. So with that, I support alternative B as written. Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Kroszner.

MR. KROSZNER. Thank you very much. I also support alternative B. I think by any measure 125 basis points of easing within a month is a lot and perhaps it is a nearly unprecedented

level of insurance that this Committee has purchased in such a short period of time. But I think it makes sense to have done it in these circumstances because we have the risk of a substantial tightening of credit and financial market conditions. There are still lots of shoes that may be left to drop and, in Nellie Liang's great phrase yesterday, "unplanned asset expansions can occur." Just today we heard that UBS increased by \$4 billion the report of their expected losses from what they reported last month, and that is not their final report. They're not going to come out with the final numbers for another month, and so it's certainly conceivable that more could be there. The SocGen situation is obviously another thing that is potentially unsettling, and so I think it's very important to be buying some insurance, particularly when the slow-burn scenario that I've talked about for a long time is the one that I see as the most likely. There is not going to be just some immediate credit crunch or some immediate problem of impairment of capital at an institution. But just given the increase in the cost of raising capital, given the difficulty of getting things off the books, given that other things have to come on, or given just that the old securitization machines that at a given level of capital sustained a very high level of activity, which can't be done now because you can't get the things off the books, the machine can't churn at the same rate that it did even with the same amount of capital. Then with all these other challenges, we have to be wary of that. So the fragility is still there. As we talked about before, we had some dramatic improvements in October, through early November of last year, and suddenly they reversed, and I just don't feel comfortable that I understand where those went.

That said, however, I think the very recent data that we have gotten provide just a glimmer of hope. I mean, we've had relatively low claims numbers. The ADP number was relatively low. I'm not sure how much information content is in that, but with the claims number it makes a not-implausible case that there wouldn't be a dramatic negative number in the employment report and

potentially it could be on the positive side. I don't think GDP is quite so miraculous, as we heard the very humble Dave Stockton tell us that they nailed it. But also look at some of the places in which there was some weakness now that may come up next quarter. Over the next couple of quarters probably we're going to see a payback in government spending, whether it's through direct stimulus or through more expenditures on the military. The advance durable goods number, which no one really mentioned, was on the positive side. I don't want to put too much weight on that, but it suggests that there are at least some mixed signals going forward. So I think that means that we need to leave our options open. We need to worry about those downside risks, but we shouldn't dismiss the possibility that the forecast that Dave and the team have put out not only has nailed it for this quarter but also has not done such a bad job for the quarters going forward.

That means we have to think a lot about what we want to say in the statement. How do we get that balance right? Clearly, it's important that we take out the word "appreciable," and the markets will see that. The concern that President Fisher raised is a real one. If we continue to talk about "appreciable risks" after 125 basis points of cutting in a month, I think that would be unsettling to market participants. But I think the markets are expecting us to take that back. Actually if I could just for a moment get clarification from President Yellen. My understanding was that what she suggested about the change to the fourth paragraph and the assessment of risk was to change only the last sentence back to the December 11 statement.

MS. YELLEN. That's correct. I was suggesting changing only the very last sentence.

MR. KROZNER. Which is different from what President Plosser proposed.

MS. YELLEN. He proposed, as I recall, changing two sentences, eliminating the one that referred to downside risks and also changing the last sentence. I would not want to see the downside risk sentence eliminated; I would change only the very last sentence.

MR. KROSZNER. Yes, I would agree that I would not want to see that sentence changed. I'm open to the possibility of simply changing the last sentence to go back to December 11. Now, that clearly would be taken by the market as a signal that we were moving back.

Another proposal that has been put on the table is to add something about inflation concerns or acknowledgement of the inflation situation in the rationale, starting off with something like "although inflation pressures remain." I'd probably end up coming down with President Stern on that—at this point, I'm not sure we gain that much by saying that. That is something we may need and want to say the next time that we undertake a policy action. I'm not sure it's necessary to do so now, although if there were a strong desire to say something like "although inflation pressures remain," I would not be opposed to that. But I do think it might be reasonable to at least consider moving back to the December 11 formulation for the last sentence of paragraph 4, but that's certainly a step back. I don't think that closes off options for us going forward, but I'm certainly open to those concerns because I don't want to close those options off.

Finally, on the broader issue of communications, particularly with respect to reversals, something that worries me is that there has been a lot of discussion about Japan. After they would provide more liquidity or a rate cut, they would say, "Well, we really didn't want to do that, and we're going to take this back as soon as we can." So they kept providing more and more liquidity, and it had less and less effect. It was the classic pushing on a string. I think that shows the very important role of expectations. So at this point, given that I think we want to leave our options open, I don't think we want to be emphasizing that. It's extremely healthy for us to be discussing that internally, but until we see how things play out, I'm not sure it's wise to do that because we could really undermine the effectiveness of our monetary policy actions. That is the last thing we want to do because that might force us to go down further than we would otherwise like and cause

more volatility in the markets, more uncertainty with more potential for unanchoring expectations.

Thank you, Mr. Chairman.

CHAIRMAN BERNANKE. Thank you. Governor Mishkin.

MR. MISHKIN. Thank you, Mr. Chairman. As you know from my discussion of the economy, I think that we're skirting a recession, but I see very large downside risks. When we looked at the Greenbook, I agreed with the view that the equilibrium fed funds rate has dropped substantially, at least 125 basis points from the last FOMC meeting in December. When I think about a 50 basis point cut in this meeting, which is clearly the consensus of the Committee, my view is that it is consistent with the downward revision in the modal forecast but it does not take out any insurance; and this is something that the Vice Chairman alluded to before.

So all else being equal, I would actually advocate a 75 basis point cut at this meeting because I do think there is a need to take out insurance. However, there are mitigating factors, so I do not feel as strongly as I did at the full FOMC meeting in December, when I took the view that we should take out insurance and aggressively cut more than the consensus of the Committee, but felt that dissent would not be helpful in terms of the perceptions of the Committee and the Federal Reserve and so was willing to vote with the majority. In this case, I don't feel as strongly, so I am more comfortable with 50 basis points, although everything else being equal, I think that insurance is warranted, and I get nervous that we are not getting sufficiently ahead of the curve.

So what are the mitigating factors that allow me to be more supportive of the consensus of the Committee? One is that I do worry that markets might think we are panicking. This is the issue that President Fisher raised. A 50 basis point cut would be a cut of 125 basis points in a month. There has been a lot of discussion in the media about our panicking on this, so there is a danger in this regard, and that is a mitigating factor for my not pushing hard for a 75 basis point cut. The

second issue is that we saw a sharp move up in inflation compensation after the 75 basis point cut at the last conference call meeting. Actually there's no evidence at all that this was a result of higher inflation expectations, but I do think it illustrated that there was more uncertainty about inflation and where our long-run inflation goals might be. This is a reason that the Committee needs to get to more clarity on our inflation objectives. You know, it is no surprise to people that I'm not completely happy with where we are now in terms of the range. Exactly in a situation like this, just as in 2003, you may drift up to the top of the band and be happy to stay there or drift to the bottom of the band and be happy to stay there. I do think there is a cost. This illustrates a cost to our communications strategy, and I hope we would reconsider that at some point in the future.

The third mitigating factor is that there is an issue about taking out insurance when the Committee is not completely prepared and we have also not prepared the markets to think about how we might think about reversals if they were necessary in the future. The whole insurance strategy is one in which you can't take out insurance and then have it be seen as always easing and thus unhinge inflation expectations and lose the strong nominal anchor. So the Committee has to think more about conditions under which it would reverse course and actually prepare the markets for that. As I said, there are two kinds of information that I think we get fairly quickly, along with others—particularly information on inflation expectations and information on whether financial market strains are easing. I think we need to clarify that in terms of the public. It is a point that Governor Kohn made, and I want to return to it in a second. But the bottom line is that I support the 50 basis point cut in the funds rate, so I support alternative B.

On the statement, I am probably the only person who likes the alternative A, paragraph 3, rationale. But I am sympathetic to President Stern's concerns—the less said the better—so I'm not going to push it. But I am comfortable saying that inflation expectations are currently well

anchored and that there is some expectation of easing of slack in the economy, and so my view is that the upside risks to inflation are not the serious concern right now. I'd be willing to state that if it were me personally, but the issue that President Stern has raised that maybe the less said the better is fine with me. Again, I'm perfectly comfortable with alternative B as it is written now.

One last point, which is to address an issue that Governor Kohn mentioned: I think he's absolutely right that we should not be saying or thinking that we expect to reverse right now. Even if we actually did a 75 basis point cut at this meeting, which we're not going to do, I would not take the view that it would mean that we plan to reverse it. When you put these projections out it's tough to indicate that you would be willing to reverse but the reality is that we're taking out the insurance because we think that the financial strains will last for a long time. That is our best prediction, and on that basis, to give an impression that we want to take it away would create problems. This is the issue that Governor Kroszner talked about in terms of Japan, where clearly expansionary policy was not working because they kept saying, "We're going to take it back." As a result, from the viewpoint of expectations, the policy was not expansionary. I do think policy needs to be expansionary at this point. However, I'm not sure that I agree that we should not talk about the issue of reversals. It's a question of the way we talk about it. It's not that we expect that we would be reversing quickly, but conditions could change, which we're not expecting, but we really would like that to happen. We'd be hopeful, in particular, that the financial strain is turned around quickly, which in the past we have seen happen in some cases. In some cases, it takes a very long time. The episode in the early 1990s was one in which those financial strains took a very long time to dissipate. Similarly, we don't talk about it as much, but in the early aftermath of the 2000-01 recession, there was a sequence of financial strains, particularly things like Enron and the lack of confidence, that lasted a heck of a long time. So I would say that we do need to think and talk about

it, but it is not that we want to reverse it. We are ready to reverse, but the conditions must be such that we're actually getting information that tells us that reversals are appropriate. Thank you very much.

CHAIRMAN BERNANKE. Thank you. President Poole.

MR. POOLE. Just very quickly, given the number of people who have talked about reversals, it seems to me that the minutes need to say something about it because the minutes have to be true to the ultimate transcript as published.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN GEITHNER. Thank you, Mr. Chairman. Let me just say that I am completely comfortable with the way you just framed the case, not just for thinking about and talking about strategies for how we take this back at the appropriate point, but I also don't have any problem with the way you talked about how you'd frame it in public. I thought that was fine. When I talked about the need for humility, it was just in our capacity to design optimal strategies for the timing and the slope of the path to reversal at this stage. I think it's going to require more time.

A few things about the policy action and the statement. Obviously I support 50, and I support the language in alternative B, paragraph 4, as written. The Chairman laid out in public earlier this month a basic strategy that said that policy would be directed at providing an adequate degree of insurance against the downside risks, given the nature of those risks. It was said with more nuance and eloquence, but basically that was the thrust of the strategy. I think that the balance of evidence we have—even with all the uncertainty about what equilibrium is, what the appropriate level of the real rate is, and what it actually is—suggests that we have not gotten policy to that point. Therefore, getting that strategy in place is likely to require further action. It's very hard to know when or how much. It's very hard to know what should frame that choice now for us, I think. As

many of you said, markets have to go through a further set of adjustments, and I think that has to work through the system. Our job, again, is not to artificially interfere with that process or to substitute our judgment for what the new equilibrium should be in that context. Our job should be to make sure that adjustment happens without taking too much risk that it tips the financial system and the economy into a much more perilous state that would be harder for us to correct and require much more policy response. There's a big difference between a world in which housing prices fall 20 percent and one in which they fall 40. If everybody thinks they have to prepare for a world in which they fall 40, we're going to take much greater risk that we have a scale of financial trauma and credit crunch that would produce the odds of a deeper recession.

What we face now is not the choice, as I think President Poole said, between a mild recession now and higher-than-expected inflation over time. The risk we face, as the Chairman said several times, is the choice between a mild, short recession and a deeper, more protracted outcome. The scale of financial market fragility we now face, you could even say solvency in parts of the financial system, is a function of the confidence we create in our willingness to get policy to a point that provides meaningful protection against an adverse outcome. I think the experience of the past five or six meetings suggests that we cannot carefully enough design a message that can lean against expectations in the market about the likely path of policy that we judge to be excessive and that makes us uncomfortable without taking too much risk that it will just undermine confidence in our willingness to get policy right. We just don't have that capability. We thought about it and tried it in lots of different ways, but everything we experienced over the past four months justifies the judgment that we can't lean against those expectations without taking too much risk that we undermine confidence in our capacity to get policy to the point at which we're giving some insurance.

It would be a mistake to try to recalibrate expectations now relative to the stance of policy as stated in the Chairman's statement and our statement last week. It would be a mistake to recalibrate back to a point that looks more like October. Everything we know suggests that it's probable that the data will get still worse from here and that the financial markets will be in a state of considerable fragility and tenuousness for some time. To sort of zig at this meeting, to recalibrate more toward a sense of balance in the face of that reality, just means that we're likely to have to zag back again. I just think that would risk our looking as though we're ambivalent and have to correct again because of that. That would just be uncomfortable. It's hard to know—I think Governor Kroszner said it right in many, many meetings—whether we face the risk of a grinding, downward, self-reinforcing set of pressures on balance sheets that raises the risk of deeper trough in housing and creates more caution and deleveraging and the economy moves slowly down or whether we face the risk of much more acute cliffs in asset prices with much greater consequences for confidence and the fragility of the financial system. It is hard to know, but I think both would be very uncomfortable for us.

Again, I strongly support the language in B as it is. Even though I understand the rationale, I'd be very uncomfortable with dialing back that statement as it now exists to something that suggests we're closer to balance.

CHAIRMAN BERNANKE. Thank you, and thank you all. Let me make a few comments. The recent period has been more ragged in terms of policy and communications than I would have liked. In particular, during the past few months I think a perception has developed that we are tentative and indecisive and are not communicating clearly enough to the markets and to the public. Now, whether that's fair or not, that perception is there and has to be addressed. I think we have begun to address it with our recent communications and the strong policy action that we took last week. For my part, I plan to speak more often and more clearly in public about the economy and

our policy strategy, and to do that I will need your continued thoughtful input and support. All that has happened notwithstanding, I think we now have the opportunity to get policy to about the right place. As we have all noted, the pace of economic activity appears to have slowed sharply around the turn of the year. I am very hopeful that the labor market report this Friday will be positive.

However, as I mentioned yesterday, there is as yet no evidence whatsoever that the housing market is stabilizing, as the new home sales data show. So long as house prices keep falling, we cannot rule out some extremely serious downside risks to our economy and to our financial system. We need to be proactive and forceful, not tentative and indecisive, in addressing this risk.

I recommend a 50 basis point cut at this meeting, to 3 percent. This is the value that the Greenbook forecast requires to achieve modest growth later this year and price stability by next year. A decline of 225 basis points since last August fits well with both constructed indicators, like the staff's medium-term r^* , as well as market indicators such as short-term nominal interest rates. A 3 percent funds rate is lower than most Taylor rule prescriptions, but the Taylor rule makes no allowance for current unsettled conditions in financial markets, including spreads and bank capital constraints, which make a given value of the funds rate less accommodative today than it would be in normal circumstances. In contrast, the Greenbook analysis attempts to take those financial conditions into account. Even at the 3 percent level, assuming that the Greenbook analysis is in the right ballpark, we would be making little or no allowance for risk-management considerations, as several people have pointed out. For that reason, it's instructive to note that the Greenbook has a flat path that doesn't reverse, and the reason is precisely that they're in a certainty-equivalent framework without any insurance having been taken out. If you accept risk-management principles, then we should be considering the possibility of cutting below 3 percent and then reversing when

that insurance is no longer needed. However, 125 basis points of ease in two weeks is certainly a good amount, and I don't think that going further at this time is advisable.

Regarding the statement, I recommend alternative B. It is very similar to our statement of last week in the description of the economy. There are two main differences, both in paragraph 4. First, and very important, we acknowledge our two recent policy actions, including today, and note that they should lead to moderate economic growth and to mitigation of risks. The latter part is strictly true because a cut will certainly mitigate risks, but it may be read to say that we think we've taken out a little insurance, which is, as I said, somewhat debatable. That's something we can discuss in the future. Second, the downside risks are no longer described as "appreciable." I think both of these steps will serve to moderate expectations of further rate reductions by indicating that we think that our actions thus far go a substantial distance in addressing the downside risks.

I strongly counsel, however, against taking out the sentence referring to downside risks. First of all, it's not plausible that downside risks that were appreciable just last week are no longer an issue today; and indeed, in the projections that we've submitted, the Committee overwhelmingly saw a downside risk to economic growth. We have to be honest about that. Second, although I realize what the intent of that change would be, which would be to say that we're not promising further cuts, it could actually be read in quite the opposite way, which is that we are saying we're not making further cuts even if the conditions warrant, and that would put us back in the situation we were in at the end of October, when the market was confused about whether or not we were willing to respond to circumstances. We have to maintain a posture of flexibility and responsiveness in this fluid situation, and drawing a line in the sand is not the way to do that. I'm also reluctant to make the other changes that have been suggested. I understand the purposes behind them, but I'm very conservative about changing wording that has just been used a week ago in a

statement and less than three weeks ago in my speeches. It's just so risky to give the impression that we are changing course when we have just simply now identified the downside risk and have taken aggressive action in that direction.

Now, I understand that several of you will be quite unhappy with the nature of that statement, and let me try to reassure you in the following way. Rather than trying to convey all the subtleties of our policy strategy in the statement—and here I agree with President Poole, who has pointed to the limitations of the statement—I propose to supplement the message of the statement, as I said, by commenting more on the economy and the policy in public speeches and in testimonies. Between now and the next FOMC meeting I have a testimony the week after next, I have the Humphrey-Hawkins testimonies, and I have a speech, and in each of those I will talk about the economy and the policy strategy that we are taking. In particular, subject to your counsel and individual, perhaps even collective, consultation, in my public speaking I will try to make three main points.

First, I will try to reinforce the message of the statement, which is that the Federal Reserve recognizes the downside risks to economic activity and we are on the case. We have already moved aggressively and proactively, and we are prepared to respond in a timely manner as needed to mitigate the risks of very bad outcomes. Conveying the message that the Fed will be active and willing to mitigate tail risk is critical for achieving financial stabilization, which in turn is necessary for achieving economic stabilization. We have to show that we're in touch. But—and let me now address these points in particular to President Plosser and others who have raised concerns—the second point I will make is that the Fed is not on autopilot for further rate cuts. Monetary policy takes time to work, and our recent actions will do little for the economy over the next few months. Thus, some weak economic news is to be expected in the near term and is not a *prima facie* case for

additional easing. Instead, we will be data-dependent in the specific sense that we will respond to the incoming information that affects the medium-term outlook and to our assessment of the risks. The third point I will make in my public comments is that, to the extent that we are being proactive in addressing downside risks to the economy, we must also be proactive in removing accommodation once the economy is on a sustainable recovery path, and we must be clear about the circumstances that will prompt that reversal. Again, in saying this I reiterate that it's not clear that we have yet taken out a great deal of insurance; nevertheless, I think that point needs to be made. The need for making a policy reversal at an appropriate point, which may not be the next six months but when the conditions warrant, is important; moreover, I think it's actually credible. If you look at the dealer surveys or the fed funds futures, they show a hockey stick. They do show a response and then change, coming back later this year or next year.

So that's what I'd like to do. I'd like to be conservative with the statement. Given some of the problems we've had, I don't want to do any right turns or U-turns or add any confusion. I want to continue on message in terms of where we have been in the past few weeks. But recognizing the subtleties of our policy approach, the concerns that we have about inflation and about financial conditions and economic growth, I will be making a concerted effort to try to explain in public the subtleties of our strategy and of our economic outlook. I hope we can present a united front to the public behind the strategy to the extent possible. Again, I appreciate your support and understanding of the very difficult pressures and conflicting forces that we face. So that's my recommendation. I would be happy to take any further comments. If none, Debbie, can you call the roll?

MS. DANKER. Yes. The vote is on the language for alternative B as it is in the Bluebook and in Brian's handout and on the directive from the Bluebook, which I will read.

“The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee in the immediate future seeks conditions in reserve markets consistent with reducing the federal funds rate to an average of around 3 percent.”

Chairman Bernanke	Yes
Vice Chairman Geithner	Yes
President Fisher	No
Governor Kohn	Yes
Governor Kroszner	Yes
Governor Mishkin	Yes
President Pianalto	Yes
President Plosser	Yes
President Stern	Yes
Governor Warsh	Yes

CHAIRMAN BERNANKE. Thank you very much. We’ll take just a very quick recess for the Governors to meet, and then we’ll come back for our presentation.

[Meeting recessed]

CHAIRMAN BERNANKE. Okay. Let’s reconvene. We have a special presentation on policy issues raised by financial crisis. Let me turn to Pat Parkinson to introduce the presentation.

MR. PARKINSON.⁶ Thank you, Mr. Chairman. The first exhibit provides some background on efforts to analyze the policy issues raised by recent financial developments and an overview of today’s briefing. As indicated in the top panel, in response to a request from the G-7, at its meeting last September the Financial Stability Forum (FSF) created a Working Group on Market and Institutional Resilience. The working group’s mandate calls for it to develop a diagnosis of the causes of the recent financial market turmoil, to identify weaknesses in markets and institutions that merit attention from policymakers, and to recommend actions needed to enhance market discipline and institutional resilience. The working group has been asked to prepare a report for consideration by the FSF at its meeting in March so that the FSF can complete a final report to the G-7 in April. The President’s Working Group on Financial Markets (PWG) is conducting its own analysis along the same lines and will ensure coordination among the U.S. members of the FSF working group. Chairman Bernanke, Vice Chairman Kohn, and President Geithner asked the Board’s Staff Umbrella Group on Financial Stability to organize and coordinate staff support for their participation in the FSF working group and the PWG’s effort. Specifically, they asked the

⁶ The materials used by Mr. Parkinson, Mr. Gibson, Ms. Hirtle, Mr. Greenlee, and Mr. Angulo are appended to this transcript (appendix 6).

staff to analyze the nine sets of issues listed in the middle panel. Subgroups of staff from the Board and the Federal Reserve Bank of New York were formed to address each set of issues, and work is well under way on all of them. The first four of these issues will be discussed in today's briefing.

As shown in the bottom panel, today's briefing will consist of three presentations. I will start by presenting a diagnosis of the underlying reasons that losses on U.S. subprime mortgages triggered a global financial crisis. This diagnosis will suggest that among the most important factors were (1) a loss of investor confidence in the ratings of structured-finance products and asset-backed commercial paper (ABCP), which caused structured-credit markets to seize up and ABCP markets to contract, and (2) the resulting losses and balance sheet pressures on financial intermediaries, especially many of the largest global financial services organizations. In the second presentation, Mike Gibson and Beverly Hirtle, to my left, will present an analysis of issues relating to credit rating agencies and investor practices with respect to credit ratings. Then, further to my left, Jon Greenlee and Art Angulo will make the final presentation, which will focus on risk-management weaknesses at large global financial services organizations and the extent to which bank regulatory policies contributed to, or failed to mitigate, those weaknesses. I should note that also at the table today we have Norah Barger, who worked with Art Angulo on the regulatory policy issues, and Brian Peters, who worked with Jon Greenlee on the risk-management issues.

Turning to the next exhibit, the diagnosis begins with the extremely weak underwriting standards for U.S. adjustable-rate subprime mortgages originated between late 2005 and early 2007. As shown by the solid line in the top left panel, as housing prices softened in 2006 and 2007, the delinquency rate for such mortgages soared, exceeding 20 percent of the entire outstanding stock by late 2007. In contrast, the dashed line shows that the delinquency rate on the stock of outstanding fixed-rate subprime mortgages increased only 2 percentage points over the same period, to around 7 percent. Nearly all of the adjustable-rate subprime mortgages were packaged in residential mortgage-backed securities (RMBS), which were structured in tranches with varying degrees of exposure to credit losses. The top right panel shows indexes of prices of subprime RMBS that are collateralized by mortgages that were originated in the second half of 2006. The blue line shows that prices of BBB minus tranches already had fallen significantly below par in January 2007 and continued to decline throughout last year, falling to less than 20 percent of par by late October. Prices of AAA tranches (the black line), which are vulnerable only to very severe credit losses on the underlying subprime mortgages, remained near par until mid-July, but they slid to around 90 percent of par by early August. After stabilizing for a time, they fell more steeply in October and November and now trade at around 70 percent of par.

As shown in the middle left panel, from 2004 through the first half of 2007, increasing amounts of subprime RMBS were purchased by managers of collateralized debt obligations backed by asset-backed securities—that is, ABS CDOs. High-grade CDOs purchased subprime RMBS with an average rating of AA, whereas mezzanine CDOs purchased subprime RMBS with an average rating of BBB. The middle right panel shows the typical ratings at origination of high-grade and mezzanine CDOs. In the case of high-grade CDOs, 5 percent of the securities were rated AAA, and a further 88 percent were “super senior”

tranches, which would be exposed to credit losses only if the AAA tranches were wiped out. Even in the case of the mezzanine CDOs, the collateral was perceived to be sufficiently strong and diversified that 14 percent of the securities issued were rated AAA at origination and 62 percent were super senior. As delinquencies mounted and prices of RMBS slid well below par, the credit rating agencies were forced to downgrade (or place on watch for downgrade) very large percentages of outstanding ABS CDOs. The bottom left panel shows that such negative actions were quite frequent throughout the capital structures of both high-grade and mezzanine CDOs, even among the AAA-rated tranches. Moreover, the downgrades frequently were severe and implied very substantial writedowns, even of some AAA tranches. When this became apparent to investors, they lost not only faith in the ratings of ABS CDOs but also confidence in the ratings of a much broader range of structured securities. Likewise, sophisticated investors who relied on their own models lost faith in those models as writedowns significantly exceeded what the models led them to expect. As a result, large segments of the structured-credit markets seized up. In particular, as shown in the bottom right panel, issuance of all types of non-agency RMBS declined substantially over the second half of 2007. Although comprehensive data for January are not yet available, conversations with market participants suggest there has been very little or no issuance.

Your next exhibit focuses on two other markets that were affected by a loss of investor confidence—the leveraged-loan market and the ABCP market. The top left panel of that exhibit shows that spreads on credit default swaps on leveraged loans (the solid black line) already had come under significant pressure in June. By July these spreads had widened about 150 basis points. Investors had become concerned about a substantial buildup of unfunded commitments to extend leveraged loans (the dashed blue line), which in the U.S. market eventually peaked at \$250 billion in July. As shown in the top right panel, as many segments of the structured-credit markets seized up, issuance of collateralized loan obligations dropped off significantly in the third quarter, adding to the upward pressure on spreads on leveraged loans. Nonetheless, the CLO markets continued to function much more effectively than the non-agency RMBS and ABS CDO markets. As shown in the bottom left panel, from 2005 to 2007, the U.S. ABCP market grew very rapidly. Much of the growth was accounted for by conduits that purchased securities, including highly rated non-agency RMBS and ABS CDO tranches, rather than by more traditional “multi-seller” conduits that purchased short-term corporate and consumer receivables. As investors became aware that some of the underlying collateral consisted of RMBS and ABS CDOs, they pulled back from the ABCP market generally, even to some extent from the multi-seller programs. Between July and December, total ABCP outstanding declined about \$350 billion, or nearly one-third. The bottom right panel provides additional information on the growth of ABCP by program type. As shown in the first column, during the period of rapid growth from 2005 to July 2007, ABCP issued by structured-investment vehicles (SIVs) and CDOs grew far more rapidly than any other program type. The second column shows that, when investors pulled back from the ABCP markets, those program types shrank especially rapidly. The only program type that declined more rapidly during that period was single-seller programs. The single-seller category included a significant amount of paper issued by nondepository mortgage companies to finance mortgages in their private securitization pipelines, and this paper has almost completely run off.

The next exhibit focuses on how the seizing-up of structured-credit markets and the contraction of ABCP markets adversely affected banks, especially many of the largest global banks. As you know, a combination of balance sheet pressures, concerns about liquidity, and concerns about counterparty credit risk made banks reluctant to provide term funding to each other and to other market participants. The top left panel of exhibit 4 lists the principal sources of bank exposures to the recent financial stress: leveraged-loan commitments, sponsorship of ABCP programs, and the retention of exposures from underwriting ABS CDOs. The top right panel shows the banks that were the leading arrangers of leveraged loans in recent years. The three largest U.S. bank holding companies (BHCs) head this list. As spreads widened and liquidity declined in the leveraged-loan market, these banks became very concerned about potential losses and liquidity pressures from leveraged-loan exposures. Although these exposures were smaller at the U.S. securities firms, those firms were even more concerned because of their smaller balance sheet capacity. However, to date the adverse impact on banks and securities firms from these exposures has been relatively modest and manageable. The middle left panel shows the leading bank sponsors of global (U.S. and European) securities-related ABCP programs—that is, programs that invest in asset-backed securities, including SIVs, securities arbitrage programs, and certain hybrid programs. As the conduits that issued the ABCP encountered difficulty rolling their paper over, many of these banks, fearful of damage to their reputations, elected to purchase assets from the conduits or extend credit to them, which proved in many cases to be a significant source of balance sheet pressures. This list is dominated by European banks. Indeed, the only U.S. bank among the top nineteen sponsors is Citigroup. However, Citigroup was the largest sponsor of SIVs, which, in addition to issuing ABCP, issue substantial amounts of medium-term notes. Citigroup, like nearly all SIV sponsors, eventually felt obliged to provide full liquidity support for all the liabilities of its SIVs, which amounted to around \$60 billion at year-end. The memo item shows that some other U.S. banks sponsored securities-related ABCP programs that were relatively small in absolute terms but significant as a share of their total assets.

But losses from leveraged-loan commitments and conduit sponsorship have paled in comparison to the losses some banks and securities firms have incurred from the retention of super senior exposures from ABS CDOs. These include exposures that the underwriters never sold, exposures that originally were funded by ABCP issued by the CDOs that was supported by liquidity facilities provided by the underwriters, and relatively small amounts of exposures purchased from affiliated money funds for reputational reasons. The middle right panel shows the leading underwriters of ABS CDOs in 2006-07. Merrill Lynch, Citigroup, and UBS head the list. Each of those firms has suffered very large subprime CDO-related losses, and Citigroup and UBS still reported very significant exposures at year-end. As shown in the memo items, among the other very largest U.S. bank holding companies, only Bank of America has suffered significant losses or still has significant exposures from underwriting ABS CDOs. I should note that the exposures shown in the exhibit are net of hedges purchased from financial guarantors, and most of these firms have hedged a significant portion of their exposure. As you know, there are concerns about the ability of the guarantors to honor their obligations under the hedging contracts. Indeed, some firms have begun to write down the value of their hedges with the most troubled financial guarantors.

The bottom left panel shows total risk-based capital ratios for the four largest U.S. bank holding companies. All four remained comfortably above the 10 percent minimum for well-capitalized companies at year-end. Of course, Citigroup was able to do so only by raising substantial amounts of capital at a relatively high cost, and each of the other companies also announced capital-raising efforts. Moreover, Citigroup's year-end ratio of tangible common equity to risk-weighted managed assets was 5.7 percent, well below the 6.5 percent target ratio that several of the rating agencies monitor and that Citigroup seeks to meet. The bottom right panel shows credit default swap spreads for the three largest U.S. BHCs. On balance, spreads for all three have moved up about 60 to 70 basis points since the market turmoil began. The spread for Citigroup has been elevated since October, when investors began to become aware of its subprime CDO exposures. The spreads for Bank of America and JPMorgan were in line with a broad index of bank spreads at year-end but jumped in early January on Bank of America's announcement of its planned acquisition of Countrywide and JPMorgan's announcement of substantial additions to its loan-loss reserves. Spreads for all three companies fell back more in line with the index last week. Thank you. I will now take your questions on this presentation before you proceed to Mike and Beverly's presentation.

CHAIRMAN BERNANKE. Are there questions for Pat? President Lacker.

MR. LACKER. You characterized underwriting as weak, and I guess the document circulated had some heavy criticism for the credit rating agencies. I want to understand more what the nature of that assessment involves. Basically is it ex post regret, or do we have objective evidence about the quality of the decisionmaking ex ante? That evidence, of course, would involve assessments of the probability they should have placed on things we saw.

MR. PARKINSON. Mike is going to address that in his briefing. I guess I'd prefer to delay and just simply say that I think we can point to aspects of their methodology that look fairly weak so that it wasn't simply an ex post result but one that should have been foreseen at least to a degree if they had had a stronger methodology ex ante. Obviously that's Monday morning quarterbacking, but still you can point to specific things that were weaknesses.

MR. LACKER. Okay.

CHAIRMAN BERNANKE. President Poole.

MR. POOLE. I have a question on exhibit 2, the top right corner: Are those AAA examples rated as of January 1?

MR. PARKINSON. I think that was the rating at origination.

MR. POOLE. At origination, not afterward. Okay. The other question I have is really a comment. On exhibit 1, the middle panel, it seems to me something that needs to be explored here, given that this is not the first time that banks have made a lot of bad bets, is the way in which the management incentives are designed. I just get the impression—and there has been some stuff in the paper recently, the *Wall Street Journal* or somewhere—that a lot of people are really given incentives to push these products and to make these deals. They walk away with big bonuses, and who in the heck cares what happens some time later. So I think that the management incentives are something very important to investigate in order to have an idea of how that works, and we might be of some assistance in designing something that would be helpful here.

CHAIRMAN BERNANKE. President Hoenig.

MR. HOENIG. Yes. Your exhibit 4 and your risk-based capital ratios, fourth quarter, are those as of December 31?

MR. PARKINSON. Yes.

MR. HOENIG. Okay. And do these reflect losses already taken in capital rates?

MR. PARKINSON. Yes. They reflect the developments in terms of the changes in their financial statements during the fourth quarter until the year-end.

MR. HOENIG. Okay. Thank you.

CHAIRMAN BERNANKE. Do you have a question, President Yellen?

MS. YELLEN. I wanted to support President Poole's comment. I remember very well back at Jackson Hole in 2005 that Raghuram Rajan presented a paper in which he emphasized the

misalignment of incentives between investors and managers and the fact that almost everyone down the line right up to the investors themselves should have had incentives here. I don't know what they were thinking, but everybody was rewarded for the quantity and not the quality of originations. He warned us before any of this happened that this could come to no good, and I think he did have some suggestions about compensation practices. These were not popular suggestions. So I think this is worth some thought. I don't know what the answer is in terms of changing these practices. Maybe the market will attend to them, but it seems to me that we have had an awful lot of booms and busts in which this type of incentive played a role. Your presentation and the paper started from the fact that you note the deterioration in underwriting, but we should go one step backward. I suppose another issue here is what we saw in our supervision and whether we acted appropriately given what we saw. That raises a number of issues that I won't go into at the moment but that I think we need to be sensitive to.

CHAIRMAN BERNANKE. President Rosengren.

MR. ROSENGREN. Just a question on exhibit 4, the bottom two panels. You have the four banks there, and when you look at the capital ratios, it doesn't look that discouraging. But when I look at the credit default swaps, it looks a little less encouraging. So if I put Wachovia on this, I believe Wachovia's credit default swaps now are up to 166, which would be much higher than your scale is right now. So it would be interesting actually to add Wachovia to that list. The second thing is what you take from the fact that the capital ratios don't look so bad but the credit default swaps and what the markets are looking at indicate that, in the past month and a half, people—despite the capital infusions—are actually exhibiting more concern about the default experiences that might occur.

MR. PARKINSON. Right. Well, particularly with respect to developments in the last month or two, obviously the economic outlook is cloudier. As you know, I don't think we try to reflect that fully in the capital ratios, and there is an element of stress testing and whatnot, but your other important effects are essentially looking through the cycle. So that may be part of it. Also, if you look at the credit default swap spread behavior compared with that for lots of other financial intermediaries out there, these look like very modest changes. I don't know—if Mike or someone could help me out—to what extent these would translate into significant increases in actual implied default probabilities, but I wouldn't think it would be all that large an increase.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN GEITHNER. Thank you. I agree with President Poole and President Yellen about the need to focus on compensation structures and incentives, but just two observations. One is that, if you look at compensation practices among the guys who actually look as though they did pretty well against those who didn't do so well—I'm not talking about in a mortgage-origination sense but in the major global financial institutions—the structure of compensation doesn't vary that much. What varies a lot is how well people control for the inherent problems in the basic compensation structures. Remember Raghu's presentation was mostly about hedge fund compensation, and I think he is mostly wrong when you think about that and the incentive structure. The difference really is how you design your limits to make sure that your traders' incentives are more aligned with the incentives of the firm as a whole. The biggest errors and differences are in the design of the process of the checks and balances to compensate for the inherent problems in the compensation structure. That's important to know because a lot of these things, if you look at the formal attributes of the risk-management governance structure across these firms, don't look that different. What distinguishes how well the guys did is much more subtle around culture,

independence, and the quality of judgment exercised at the senior level, and this is important because, when you think about what you can do through supervision and regulation, to affect that stuff is hard.

I have a question for Pat. Pat, not to overdo this, but where do you put in your diagnosis of contributing factors the constellation of financial conditions that prevailed during the boom and what those did to housing prices? You know, there's a tendency for everybody to look at regulation and supervision and the incentives that they have created or failed to mitigate, but there is a reasonable view of the world that you wouldn't have had the pattern of underwriting standards of mortgages without the trajectory of house prices that occurred. Sure, maybe what happened in the late stage of the mortgage-origination process contributed to the upside, but if you look at a chart, the rate of house-price appreciation started to decelerate about the time you had the worst erosion in underwriting practices. Anyway, my basic question is, Where do you put the constellation of financial conditions, not so much just what the Fed was doing but what was happening globally that affected long rates, expectations of future rates, et cetera?

MR. PARKINSON. Well, partly what I would say, in general, about the pricing of risk is that many, many people, including people in the Federal Reserve, were concerned about how narrow spreads were, were concerned about some of the slippage of practices, and were predicting that trouble lay ahead. But—and I'm certainly speaking for myself—I never expected this magnitude of trouble. What I've been focusing on are some of the factors that essentially made a bad situation much worse than we expected it to be. But there is no question that we entered the period with risk being priced very cheaply and a fundamental reassessment of risk. Again, I think that shouldn't have surprised anyone, but almost everyone except the most extreme pessimists has been surprised by just how much trouble that repricing of risk has caused. Some things that we

have focused on certainly were not anticipated, and we think they made the situation markedly worse than we expected it to be.

CHAIRMAN BERNANKE. Are there other questions for Pat? Okay. We can continue the presentation.

MR. GIBSON. As noted in the top left panel of exhibit 5, we would like to stress two key points on the rating agency and investor issues. First, credit rating agencies are one of the weak links that helped a relatively small shock in the subprime mortgage market spread so widely, though certainly not the only one. This is not just our staff working group's view—most market participants have also expressed the opinion that rating agencies deserve some of the blame. Second, the way that some investors use ratings for their own risk management has not kept up with financial innovations, such as the growth of structured finance. These financial innovations have made a credit rating less reliable as a sufficient statistic for risk. The top right panel provides a roadmap to our presentation. To start, I'll expand on some of the points that Pat made on the role of rating agencies in the financial crisis. My aim is to show why credit rating agencies were a weak link, which will lead naturally to our recommendations on rating agency practices. As we go, I'll point out several places where the rating agency issues link up with the investor practices issues that you'll hear about next from Bev. We feel strongly that the ratings and investor issues are really just two angles on the same underlying issue.

The crisis began in the subprime market, the subject of the next panel. The subprime mess happened—and keeps getting worse—in part because of the issues associated with rating agencies (though as I said earlier, there is plenty of blame to go around). Our staff working group was asked whether the rating agencies got it wrong when they rated subprime RMBS. The answer is “yes”—they got it wrong. Rating agencies badly underestimated the risk of subprime RMBS. Last year, Moody's downgraded 35 percent of the first-lien subprime RMBS issued in 2006. The average size of these subprime RMBS downgrades was two broad rating categories—for example, a downgrade from A to BB—compared with the historical average downgrade of $1\frac{1}{3}$ broad rating categories. As indicated in the exhibit, the rating methodologies for subprime were flawed because the rating agencies relied too much on historical data at several points in their analysis. First, the rating agencies underestimated how severe a housing downturn could become. Second, rating agencies underestimated how poorly subprime loans would perform when house prices fell because they relied on historical data that did not contain any periods of falling house prices. Third, the subprime market had changed over time, making the originator matter more for the performance of subprime loans, but rating agencies did not factor the identity of the originator into their ratings. Fourth, the rating agencies did not consider the risk that refinancing opportunities would probably dry up in whatever stress event seriously threatened the subprime market. Of course, the rating agencies were not alone in this. Many others misjudged these risks as well. Some

have suggested that conflicts of interest were a factor in the poor performance of rating agencies. While conflicts of interest at rating agencies certainly do exist, because the rating is paid for by the issuer, we didn't see evidence that conflicts affected ratings. That said, we also cannot say that conflicts were not a factor. The SEC currently has examinations under way at the rating agencies to gather the detailed information that is needed to check whether conflicts had a significant effect.

In the next panel, I turn to the ABS CDOs that had invested heavily in subprime. Rating agencies got it wrong for ABS CDOs. The downgrade rate of ABS CDOs in 2007 was worse than the previous historical worst case, just as it was for subprime. AAA tranches of ABS CDOs turned out to be remarkably vulnerable: Last year, twenty-seven AAA tranches were downgraded all the way from AAA to below investment grade. As indicated in the exhibit, the main reason that rating agencies got it wrong for ABS CDOs was that their rating models were very crude. Rating agencies used corporate CDO models to rate ABS CDOs. They had no data to estimate the correlation of defaults across asset-backed securities. Despite the many flaws of credit ratings as a sufficient statistic for credit risk, the rating agencies used ratings as the main measure of the quality of the subprime RMBS that the ABS CDOs invested in. And the rating agencies did only limited, ad hoc analysis of how the timing of cash flows affects the risk of ABS CDO tranches. As a result, the ratings of ABS CDOs should have been viewed as highly uncertain. As one risk manager put it, ABS CDOs were "model risk squared." A final point on ABS CDOs is that the market's reaction to the poor performance of ABS CDOs makes it clear that some investors did not understand the differences between corporate and structured-finance ratings. Because structured-finance securities are built on diversified portfolios, they have more systematic risk and less idiosyncratic risk than corporate securities. They will naturally be more sensitive to macroeconomic risk factors like house prices, and by design, downgrades of structured-finance securities will be more correlated and larger than downgrades of corporate bonds.

Turning to the bottom panel, as Pat noted, in August of last year the subprime shock hit the ABCP markets, especially markets for ABCP issued by SIVs. Rating agencies also got it wrong for the SIVs. More than two-thirds of the SIVs' commercial paper has been downgraded or has defaulted. The problem with the ratings was that the rating agencies' models for SIVs relied on a rapid liquidation of the SIVs' assets to shield the SIVs' senior debt from losses. While this might have worked if a single SIV got into trouble, the market would not have been able to absorb a rapid liquidation by all SIVs at the same time. Once investors began to understand the rating model for SIVs, even SIVs with no subprime exposure could not roll over their commercial paper. Investors who thought they were taking on credit risk became uncomfortable with the market risk and liquidity risk that are inherent in a SIV's business model.

The next exhibit presents the staff subgroup's recommendations for addressing the weaknesses in credit ratings for structured-credit products. A common theme of our recommendations is drawing sharper distinctions between corporate ratings and

structured-finance ratings. First, we recommend that rating agencies should differentiate structured-finance ratings from corporate ratings by providing additional measures of the risk or leverage of structured-finance securities to the market along with the rating. We don't make a specific recommendation on exactly what measures of risk or leverage because we believe rating agencies and investors should work out the details together (on this and the recommendations to follow). Second, rating agencies should convey a rating's uncertainty in an understandable way. The ratings of ABS CDOs were highly uncertain because the models were so crude. This is what I call the Barry Bonds solution—put an asterisk on the rating if you have doubts about the quality. [Laughter] Third, we recommend more transparency from rating agencies for structured-finance ratings. What we need is not just a tweak to the existing transparency, but a whole new paradigm that actually helps investors get the information they want and need. For example, why can't the rating agency pass on to investors, along with its rating, all the information it got from the issuer that it used to assign the rating? Fourth, we recommend that rating agencies be conservative when they rate new or evolving asset classes. Fifth, the rating agencies should enhance their rating frameworks for structured products. For example, when they rate RMBS, they should consider the originator as well as the servicer as an important risk factor. Our last recommendation is addressed to regulators, including the Federal Reserve. When we reference a rating, we should differentiate better between corporate and structured-finance ratings. Sometimes we do that already, but we could provide some leadership to the market by doing more. Now Bev will discuss the work on investor practices.

MS. HIRTLE. Mike has described how the rating agencies treated structured-credit products; a closely related issue is how investors used these ratings. Did investors rely too much on ratings in making their investment decisions? Did they take false comfort from ratings and not really appreciate the risks they were assuming, leading to excessive growth of the market for subprime structured credit? As noted in the top panel of exhibit 7, our approach was to examine these questions through the lens of one representative type of institutional investor: public pension funds. Public pension funds are an informative example of investor use (and misuse) of credit ratings for several reasons. First, public pension boards of directors are composed largely of representatives of the employees and retirees covered by the pension plan and have only limited financial expertise in some cases. Second, survey evidence suggests that a high portion of these funds use credit ratings in their investment guidelines. Finally, relative to some other investors, many public pension funds provide significant public information about their activities. While we need to be cautious in generalizing, we believe that practices in the pension fund sector reflect the tensions faced by other institutional investors in making risk assessments and investment decisions. We examined the investment practices and fund governance of 11 public pension plans. These plans ranged from the largest fund—CalPERS, with \$250 billion in assets—to six much smaller plans with assets of \$6 billion to \$11 billion. We used the funds' 2006 comprehensive annual financial reports, which were generally the most recent available, and the funds' websites to generate our information. We focused specifically on the funds' fixed-income segments, since this

is the asset class in which structured-credit products would likely be held and for which credit ratings are used.

The middle panel lists some key conclusions from this review. The first is that these funds have developed workable market solutions to address inexperience or lack of financial sophistication among their managers and board members. These include hiring professional investment managers to make investment decisions on their behalf and, perhaps as significantly, hiring investment consultants to structure asset-allocation strategies, to select investment managers and develop mandates guiding their actions, and to monitor and assess fund performance. While these funds clearly obtain significant professional advice in managing their investments, our review suggests several ways in which these arrangements could be improved in light of recent financial innovation. Specifically, the mandates guiding investment managers have not always kept pace with the growth of structured-credit markets. These mandates typically require managers to meet or exceed returns on a benchmark index or of a peer group of investment managers, while constraining the risk the managers may assume. Credit ratings play an important role in these risk constraints—for instance, by imposing a minimum average rating for the portfolio or a minimum rating on individual securities. However, few of the funds we profiled made significant distinctions between structured-credit and other securities in these credit-rating-based constraints, although there were sometimes other limits on the aggregate share of asset-backed positions. The failure to make this distinction provides scope for investment managers to generate higher returns by moving into structured-credit products, without raising warning signals about the additional risk these positions entail. This is not necessarily a “naïve” use of credit ratings by investment managers, as they could well have recognized that higher-yielding structured-credit products embodied significant additional risk relative to similarly rated corporate debt. Instead, it reflects a previously effective mechanism used by fund boards to convey risk appetite to these managers falling out-of-date with the emergence and rapid growth of a new form of credit instrument.

As indicated in the bottom panel, our key recommendation is that the pension fund industry and other investors should re-evaluate the use of credit ratings in investment mandates. In a narrow sense, these mandates should distinguish between ratings on structured credit and those on more traditional corporate credit. However, the more fundamental point is that mandates would do a better job of enforcing desired risk limits on the overall portfolio if they acknowledged differences in risk, return, and correlation across instruments rather than relying on generic credit ratings. A second important point is that investors should ensure that their investment consultants have independent views of the quality and adequacy of credit ratings for the types of positions in their portfolios. This is particularly important if mandates guiding investment manager behavior feature credit ratings as a key risk constraint. That completes our prepared remarks. We would be happy to take your questions before we proceed to the final presentation.

CHAIRMAN BERNANKE. Questions? President Lacker.

MR. LACKER. I am still confused. How much of these weaknesses would have been identified by an impartial observer in January 2006, say, without knowledge of what has happened since then?

MR. GIBSON. Are you talking about the credit rating agency weaknesses?

MR. LACKER. Yes.

MR. GIBSON. There are plenty of investors who said, “We are staying out of that ABS CDO market because we don’t trust the ratings and we don’t think we have an ability to model it.” But there are also enough who were willing to take on that risk. So I think it is a combination.

CHAIRMAN BERNANKE. President Fisher.

MR. FISHER. Going back to exhibit 5, the second panel, your point that we have no evidence of conflicts of interest having an effect on ratings, I am thinking about the investor-practices presentation. There is an inherent conflict of interest because the issuers pay the raters. By one account, Moody’s earned 44 percent of their revenue in 2006 from rating structured products. I have always wondered—and by the way, I have been on the side of the table that has worked a rating agency and have gotten what I wanted—what about just a common sense solution, which is that the investors rather than the issuers pay the rating agencies?

MR. GIBSON. That used to be the way it was before 1970—the investors paid. I think the common explanation for why that model faded was that, once photocopy machines came into existence, there was no way to constrain the information that they were providing just to subscribers.

MR. FISHER. I am well aware of that. But is there an inherent conflict of interest in the process?

MR. GIBSON. There is. We are not denying that there is a conflict of interest. We looked at some of the mechanisms that rating agencies have put in place to address conflicts of interest, and that is something that every rating agency is aware of. The only question is whether the mechanisms that are in place to address conflicts of interest were working or whether they need to be enhanced. Our conclusion was that we don't really have the detailed information to know whether there were specific conflicts of interest, and we are looking to the SEC to provide that detailed information. But lots of other things seemed to go wrong with the rating agencies that don't rely on conflicts of interest as an explanation. I think people who have looked at the question of the issuer's paying versus the investor's paying feel that, given how costly it is to rate these things even in the mediocre way that it has been done, it would be difficult to generate enough revenue through a pure investor-pay model. That is not to say there couldn't be more competition between the two kinds, and there are some proposals out there to do that.

MR. FISHER. Again, remember how costly it has proven to investors to have that built-in conflict of interest. That's all. That's my say.

CHAIRMAN BERNANKE. Governor Mishkin.

MR. MISHKIN. Actually, I wanted to focus on the same issue—conflict of interest. This is something I did a little work on in the past. When you look at the standard corporate ratings market, the move to have the issuer pay really did not create a problem in the market. There clearly is an inherent conflict of interest, but there are things that can counter that—in particular, reputation.

MR. FISHER. Arthur Andersen.

MR. MISHKIN. We could talk about Arthur Andersen, too, because I am going to talk about the more complicated issues of conflicts of interest. With plain vanilla conflicts of

interest, if there is enough information, the market frequently can solve the problem because if you know that if you do what the issuer wants and you give a good rating, then you lose your reputation. Then, if it has no value, issuers won't pay for it. What is interesting here is that for the subprime market, you didn't find any evidence of conflicts of interest, and I am not surprised by that, because those securities are much more straightforward. Where I really do worry about the conflict of interest is in the structured products because one thing that happened was that it became less plain vanilla. You actually had consulting practices inside the credit rating agencies; these structures are very complicated, and you need to slice here and dice here, and consultants were providing advice on structuring them and making a lot of money, and then it was much less transparent. What I wondered about here is that you didn't say this for the first one, subprime RMBS. You said you didn't find the evidence. I buy that. But what about the CDOs and the SIVs, for which I would expect that this problem would have been more severe? In the book that I wrote with others on conflicts of interest in the financial services industry, we actually said that there was not a problem with the plain vanilla products because the markets have the information, but we worried about exactly this issue in terms of the structured products. I am just wondering whether or not it was an accident that you said for the plain vanilla that there was less problem. Could there have been an issue here? The reason this gets complicated is that the standard view of conflicts of interest in Arthur Andersen was in the firm's compensation scheme. Actually, the conflict of interest was that the Texas unit did not worry about and weakened—not their ethics, but what is it? The center has rules for its branches so that they don't screw the overall firm, and that is what got weakened during the fight between the consulting part and the auditing part.

So do you have any information on these very complicated elements, particularly the nontransparent parts? Was it an accident that you said for subprime that you didn't find evidence, and for these is there more possibility that there was a problem? That really does have important implications for the nature of the regulation and accreditation agencies and also their ability to give good ratings for these very complex nontransparent products. You talked about investor practices later, Bev, when you said that we should differentiate between plain vanilla and this very complex stuff. I don't know whether or not you have views on this.

MR. GIBSON. There is certainly a possibility that conflicts of interest were occurring in all these areas. We are taking a somewhat neutral position because we don't really have the detailed information to say more.

MR. MISHKIN. Right. But this is the typical Federal Reserve cautiousness, and I am pushing you a little harder.

MR. GIBSON. I know, but I am a Federal Reserve economist. I would agree with your point that separating out these nonrating businesses from the rating businesses is important, and rating agencies have announced some changes along these lines. When we looked at our recommendations, we didn't really feel as though, even if they separated out rating businesses from nonrating businesses and even if they did all the things that people who are concerned about conflicts of interest want them to do, it would solve the problem.

MR. MISHKIN. There would still be problems.

MR. GIBSON. We think the real problem is that they didn't differentiate well enough between structured-finance ratings and corporate ratings, and that is where we would like to put the focus. Securities regulators are already focused on conflicts of interest, and there are codes of conduct regarding how rating agencies have to behave, and those are monitored. So, coupled

with the SEC's already doing examinations, that wasn't an area we chose to focus on, but we really can't say for sure what was going on.

MR. MISHKIN. One quick follow-up on that—is one implication that we might take from this that structured products are just so complicated that they may never get good ratings or sufficiently good ratings, so the market really has to shrink? Could the rating agencies just fix themselves up so that they actually could do decent ratings? I'm trying to get a feel for this. It really relates to the issue that Bev raised, which is you want to differentiate between the two. But is there something inherently problematic so that maybe people should just realize that these structured products are just not such a great thing. Financial engineering can go too far.

MR. GIBSON. I agree. In fact, ABS CDOs are disappearing or have disappeared. Investors don't have any appetite for them. SIVs are disappearing as well.

MR. MISHKIN. But they could come back. I think subprime lending will come back under a different business model.

MR. GIBSON. Really, the question is, What sort of market forces would produce that outcome? It certainly seems as though things should move in that direction, and we feel that some of the recommendations we are making on the differentiation between structured-finance securities and corporate securities would encourage the rating agencies to put more scrutiny on the structured-finance side of it. Yes, those ratings should be lower, especially when you factor in things like the complexity and the uncertainty.

CHAIRMAN BERNANKE. President Hoenig.

MR. HOENIG. My comment is on the conflicts of interest as well. The only thing I would like to add is that this is not the first time the rating agencies have miscalculated the risk and put that out there. The incentives are designed to do exactly that, and it will occur again. I

think this statement is too generous to the rating agencies. The incentives are driving them to do this, they did it, and they will do it again in the future. It is just inherent that, when you are going to make that kind of money and if you can get it down to working with them and pushing this stuff out, it really is a matter, for those who use them, that you get what you pay for.

CHAIRMAN BERNANKE. President Poole.

MR. POOLE. I didn't know anything about SIVs before last summer, but I must say when I began to learn something about them, I was astonished because it would seem to me that, in Finance 101, you don't finance long-term, risky assets with short-dated paper. There's a maturity mismatch, and there's a rollover risk, and we've known about that kind of thing for 100 years, I suppose. So my question is, Could these things have been marketed as standalone entities without the banks' sponsorship, which was there in, I guess, most cases? Second, if they wouldn't really fly as standalone entities, it would seem to me that the regulators should have insisted that they be consolidated on the books of the bank.

MR. GIBSON. A lot of the SIVs were standalone entities managed by independent asset-management companies that were set up to do that.

MR. POOLE. And they collapsed?

MR. GIBSON. All the SIVs are in the process of winding down now, and in the immediate aftermath of what happened in August, that was when there was a crunch in the ABCP market.

MR. POOLE. But when you say the asset-management companies, are they providing at least in principle some liquidity support or something?

MR. GIBSON. SIVs had partial liquidity backup lines from banks covering one week's maximum withdrawal or two weeks' maximum withdrawal. That was the way to a rating. The SIVs were operating under the regulation of the rating agencies. The rating agencies modeled their

portfolios, and they modeled the inflows and outflows, so I think it's fair to blame the rating agencies at least partially for allowing the SIVs to grow to \$400 billion or whatever it was.

MR. PETERS. There is a large, independent SIV not affiliated with a bank, named Gordian Knot, that is still in existence. It's under severe pressure, but it has been weathering the storm. One can argue it might have been more conservative than some of the other SIVs.

CHAIRMAN BERNANKE. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. My question is on exhibit 6, and the question is, Are we making any progress here? In particular, are the rating agencies stepping up to the process of doing different ratings, different nomenclature for the structured finance? My impression is that there is a lot of resistance, at least there was as of a few weeks ago.

MR. GIBSON. Your impression may be more informed than mine, but I would say that the rating agencies are doing a lot of self-examination now. I haven't seen them willing, in my opinion, to go far enough in the directions that we've outlined. A lot of their recommendations focus on managing conflicts of interest and doing a better job of separating compensation from the rating and things like that. I would say that I haven't seen enough on the sort of recommendations that we are pushing.

CHAIRMAN BERNANKE. Did you have any questions?

MR. WARSH. I'd add only that I think where the rating agencies are now is trying to come up with cleaner boxes and better governance—Sarbanes-Oxley types of structures, ombudsmen, liaisons, Chinese walls. The core issues that Mike and his team bring up seem highly resistant to change, but you know, there will be nothing like three months of public hearings, if not hangings. [Laughter] That could change that dynamic, but that's in the early stages.

MR. MISHKIN. Torture works.

CHAIRMAN BERNANKE. Governor Kroszner.

MR. KROSZNER. A few different points. One, on the conflict of interest issue, with respect to traditional corporate credits, it seems that credit rating agencies do pretty darn well and certainly have done very well before this. So it's clear that it's not just fundamental to the model that it can't work. I think it's clear enough to remind people of that and that people trusted those ratings throughout all the turbulence during the summertime. But that said, it gets back to some of the other points that have been raised. What was special about these particular areas that led to a breakdown? The question is, Well, why did they have bad models? If they were able to develop good models for these other things, in principle they are capable of developing good models, but they seem to have developed poor models here. Now, that could be succumbing to a conflict of interest, or it could be something specific in this area.

I am reminded that another area in which they are perceived to have done a very poor job was in sovereign ratings back a couple of decades ago. I don't know whether it's worthwhile to drill down into the characteristics of where this model seems to be successful and doesn't seem to be subject to significant conflicts of interest or where it does, whether it relates to particular information issues. Also, one thought that I had with respect to these structured products—and you should tell me whether this is true or not—is that most times when a corporation comes to get a rating they've decided to issue a particular security—that is, if GM comes, their CFO has decided to issue ten-year debt. If you come to a credit rating agency, however, the credit rating agency can say, “Well, why don't you issue six securities rather than one? If we chop it up in these different ways, I can make more revenues off that, so I have more of an incentive to work with you on this.”

MR. GIBSON. I definitely agree with you that it's more difficult to rate structured-finance securities than corporate securities because with structured-finance securities you have a lot of

quantitative modeling of future cash flows with a lot of uncertainty. Clearly the ABS CDOs are very complicated structures because it's a two-layer securitization—a securitization that invests in securitizations—and the rating agencies didn't drill all the way down to model the ultimate underlying loans. They relied on simplifying assumptions and aggregations that were very crude. But because they were branded as CDOs, people usually understood them to be corporate CDOs that invest in 100 corporate bonds, which is a simpler, one-layer structure. So the rating agencies were willing to rate these much more complicated things and investment banks were willing to market them to investors who were willing to buy them because they all were willing to believe that a CDO is a CDO is a CDO, and, in fact, that wasn't really true.

MR. KROSZNER. Yes, it might just be interesting to drill down and see where the successes are and where they haven't been successful and whether it has something to do with the model.

MR. GIBSON. Oh, it's definitely not a random sample of asset classes that we chose to look at. The rating agencies have done a great job in many other places, I agree.

MR. KROSZNER. Right, but just thinking about those differences, I think sometimes the rating agencies may be excessively maligned. They actually do provide something that's very useful, and we don't want to throw the baby out with the bath water. But also on that, there is a severe lack of competition among rating agencies, and we've tried to address that through some legislation, which doesn't seem to have been very successful at addressing that issue. This is getting back to Governor Mishkin's point and some other points about why competition doesn't get us to a better solution. It seems that part of it is a regulatory structure that strongly discourages competition. Did you think about addressing that issue?

MR. GIBSON. The regulatory structure has been changed now as a result of the law that was passed in 2006, at least if you're talking about getting the regulatory stamp of approval from the SEC to become a nationally recognized statistical rating organization. That's now just a notification process by which, if you meet some minimum requirements, the SEC is required to okay you. So entry is now easy whereas before it used to be restricted by the SEC. In some sense there's a bit of a natural monopoly going on because, if you really had a couple of rating agencies that you trusted, it's not clear why someone would be willing to transfer from an established to a new one. But if you were to take some of our recommendations to the next level and talk about how you would actually implement this and how you would go about making this have some success, one thing people have suggested is that maybe we should help investors set up their own rating agencies—maybe they don't want to do that now—and maybe more transparency from the existing rating agencies and from the issuers. It would then be easier for a new rating agency that's funded by investors to get going and get some traction if there were more transparency around the whole process. That's just one possibility

MR. KROSZNER. For sure, although I think we tried something like that with the Sarbanes-Oxley issues of independent research—because this in some sense is a parallel to independent research—and even required funding of that, and that doesn't really seem to have taken off. So it seems as though the model, even with its flaws, is the only one that seems to be sustainable. But drilling down more into where those flaws are, in some sense we're seeing a privatization—I'm not quite sure what the right word is—with some of the very sophisticated investors effectively building their own internal credit rating agencies. That's what hedge funds do, and so you're getting in some sense a loss of the public rating—a kind of free rider problem or whatever is the right way to characterize it. In some sense there may be a loss because you're

getting this to be just purely private, but maybe that's a gain because those are the only guys who should be in this game. It certainly makes it difficult to sustain the credit rating agency or industry.

MR. GIBSON. We have kind of a dual problem in that we want investors to do a better job of evaluating the risks, and maybe better ratings would help on that. At the same time, the existing rating agencies did a bad job, so we have to criticize them. We have to find some way to reconcile those.

CHAIRMAN BERNANKE. I have President Evans for a two-hander and then President Lockhart and President Lacker. I also see that President Plosser has a two-hander, and I think at that point we should probably go onto the last presentation.

MR. PLOSSER. I can pass if it gets too long. That's okay.

CHAIRMAN BERNANKE. Okay. All right. So President Evans, President Lockhart, and President Lacker.

MR. EVANS. I had an elementary question that Governor Kroszner's question kicked off. The background briefing was very well written and very clear, which made me think that I understood things, and I probably don't. But you used the term "get a rating," and at other times you talk about it as if it's a sufficient statistic and how the agencies were warned that it's not a sufficient statistic. There are transition matrices to downgrade, and yet they violated that themselves because you said that for the ABS, they thought of it as a sufficient statistic themselves. Is a lot of this inherently a multidimensional risk model that's required for some of these structured-finance vehicles, whereas for the corporates it's closer to a single dimensional risk model?

MR. GIBSON. Yes.

MR. EVANS. Thank you.

CHAIRMAN BERNANKE. President Lockhart.

MR. LOCKHART. I'd like to ask as a practical matter what weighting we should put in our expectations or even our recommendations on reform of the rating system versus the expectation that investors would actually reduce their reliance on ratings. My impression is that many institutional investors, especially public pension funds, are notoriously understaffed. Then they work for, as you pointed out in your presentation, boards that either represent the beneficiaries or in some respects are quite political in nature and not necessarily financially sophisticated. That would lead me to the conclusion that, as a practical matter, they're going to be highly reliant on ratings. The ratio of professional employees to the volume of investment is so low that they have to choose their restaurants by stars because they don't have time to do the tasting themselves or they're not given the budgets to do that now. So I'm curious about this tension between getting the rating system right versus having the investors reduce their reliance on ratings.

MS. HIRTLE. Well, I think you've identified the key problem that many of these funds face, and the important entities in many ways are these investment consultants. At least the funds we looked at all hire one or more of these investment consultants. Many of them are from large, globally active firms, and the role that those consultants play is precisely to address the issues that you've raised. They help them select the asset manager who is doing the investing. They help them design the mandates or instructions. They help them monitor what the asset managers are doing and assess their performance. So to some extent those consultants are a kind of sweet spot for these funds in terms of where the additional layer of sophistication that doesn't run just off the rating could come from.

MR. LOCKHART. But is your impression that those supplemental parties, the consultants and the asset managers themselves, have the credit analysis and valuation capability to address sophisticated structured products?

MS. HIRTLE. We didn't do an evaluation of them, but some of them are from very, very large firms. They are advising funds in the trillions of dollars across all their different clients. That is the service they are selling, and so they should be—they had better be—in a position to do that.

MR. FISHER. May I just suggest that you reexamine that proposition? They usually evaluate performance principally after going through initial screening devices. They almost never, that I'm aware of, provide the kind of analysis that you're assuming. So I would reexamine that proposition.

CHAIRMAN BERNANKE. President Lacker.

MR. LACKER. My memory of Finance 101 is that you don't buy long-term, risky assets funded by short debt without sufficient compensation. So the neglected aspect of the whole episode we went through was how people would have been compensated in other circumstances, but that's a different discussion. I think these recommendations make sense, and confirmation of that is that the market is moving in that direction anyway. I don't know how many of these recommendations were put forward by those market participants you cited who two years ago were not trusting these ratings—I think that's a key question. But the broader thing here is that the world of finance now is a world of competing econometric analysis, and we're never going to rate the model risk if you ask the question, What would you expect the behavior of a market like that to display? You'd expect occasional big misses from erring assumptions. You'd expect those misses to be corrected by people reflecting and improving practices going forward. A sort of Schumpeterian process in this is going to generate model risk and big model misses, and so I think it's being careful to keep track of whether the insights we've gleaned are hindsight or should have been known ahead of time.

CHAIRMAN BERNANKE. Okay. Thank you. Why don't we continue with the final portion?

MR. GREENLEE. Thank you. To support the Financial Stability Forum's Working Group on Market and Institutional Resilience, as noted in the top panel of exhibit 8, supervisors from France, Germany, Switzerland, the United Kingdom, and the United States formed the "senior supervisors group" in late October. Participating U.S. supervisors included the OCC and SEC as well as the Federal Reserve. The group's goal was to develop a common understanding, through a series of interviews with selected firms, of how the risk-management systems of core financial institutions performed during the financial market turbulence. The top right panel of exhibit 8 shows the 11 banking firms that supervisors interviewed. This effort was not a complete review of all firms and events. For example, we did not meet with Bear Stearns or Morgan Stanley as part of this effort. Rather, it was designed to inform supervisory authorities about the general effectiveness of risk management at global financial institutions. The supervisors have prepared a paper detailing their findings, which will be conveyed to the FSF and released publicly. The bottom panel lists some observations about the firms' overall performance. Most large financial services firms, while affected by market developments, generally avoided significant losses. Although most firms' risk-management processes worked as intended, there were some definite outliers. Some firms recognized the emerging additional risks and took deliberate actions to limit or mitigate them. Others recognized the additional risks but accepted them. Still other firms did not fully recognize the risks in time to mitigate them adequately. Moreover, the risk-management practices varied by firm and by strategy, as did the range of outcomes to date. I should note that the primary risk-management weaknesses observed here are not new. They have been observed in past episodes and are thoroughly discussed in existing risk-management literature and supervisory guidance.

As noted in the top panel of exhibit 9, the senior supervisors group identified four primary factors that differentiated the organizations that suffered larger losses from those that did not: (1) the effectiveness of senior management oversight of balance sheet, liquidity, and capital positions; (2) the effectiveness of communications among senior management, business lines, and risk-management functions; (3) the sophistication, diversity, and adaptability of risk measures utilized; and (4) the attention devoted to valuation issues. With respect to senior management oversight, as indicated in the bottom panel of exhibit 9, the more effective firms were more disciplined in measuring and limiting these risks in advance of the crisis and proved to be more agile in reducing exposures or hedging when the crisis occurred. These firms focused on maintaining a strong balance sheet with strong capital and liquidity positions throughout the entire organization. Senior management of these organizations had established adequate capital and liquidity buffers that could sustain the firm through a period without access to the market for funding. They have created and effectively enforced internal pricing mechanisms, capital allocation methodologies, and limits that provided effective incentives for individual business line managers to control activities that might otherwise lead to significant balance sheet growth or contingent liquidity demands. Conversely, the less effective firms were not as focused on the overall strength of their balance sheet across all legal entities and thus operated with more limited liquidity and capital buffers. These

organizations had weaker controls over their balance sheets and were more focused on earnings growth or defense of a market leadership position. These firms did not have limit structures that were consistently or effectively enforced, which allowed business lines to grow balance sheet exposures rapidly and increase contingent liquidity exposures. They did not properly aggregate or monitor off-balance-sheet exposures across the organization, including the exposure to contingency back-up lines of credit to ABCP programs and generally did not have in place effective financial controls, including capital allocation processes, commensurate with the business strategy.

The top panel of exhibit 10 provides additional detail on the importance of effective communications among senior management, business lines, and risk-management functions. The more effective firms emphasized a comprehensive, firmwide, consolidated assessment of risk. Senior managers of these organizations were actively engaged and had in place a disciplined culture and well-established processes for routine discussion of current and emerging risks across the business lines, risk management, and the corporate treasury function. Senior managers at these organizations collectively made decisions about the firm's overall risk appetite, exposures, and risk mitigation strategies rather than relying solely on the judgment of business lines. They were able to effectively leverage the assessment of risks from one business line to consider how subprime exposures, for example, might affect other businesses. As a result, the more effective firms had a more timely and well-informed perspective on how market developments could unfold. In some cases, senior management had almost a year to evaluate the magnitude of the emerging risks from subprime mortgages on its various business lines. This, in turn, enabled them to implement plans for reducing their exposures while it was still practical and more cost effective to do so. Conversely, less effective firms were siloed, did not effectively share information across business lines on emerging risks, and were comparatively slower in taking actions to mitigate exposures as each business line had to assess and consider emerging risks on their own without the benefit of views or actions taken by other business line managers.

With regard to the risk measures utilized, as shown in the bottom panel, the more effective firms used a wide range of risk measures and analytical tools to discuss and challenge views on credit and market risk broadly across different business lines within the firm in a disciplined fashion. These firms have thought more thoroughly about the interplay of their risk measures than the other firms and used a combination of different risk measures and scenario analysis to understand risk exposures. It also appears that the more effective firms had committed more resources to risk-management and management information systems. As a result, they had more timely and scalable management information systems and in large part did not have to create new management reports to understand risks and exposures. Conversely, the less effective firms were too dependent on a single quantitative risk measure, and they did not utilize scenario analysis in their decisionmaking and tended to apply a "mechanical" risk-management approach. Management information systems also

were not as scalable, and there was a need to develop a number of ad hoc reports to help senior management understand the risks and exposures of the company.

The top panel of exhibit 11 elaborates on the fourth factor that proved critical, which is the attention devoted to valuation issues. The more effective organizations were more disciplined in how they valued the holdings of complex or potentially illiquid securities. They employed more-sophisticated valuation practices and had invested in the development of pricing models and staff with specialized expertise. These organizations were skeptical of and less reliant on external ratings and emphasized mark-to-market discipline in their businesses in ways that others did not. Less effective organizations in some cases did not have key valuation models in place prior to the market disruption, relied heavily on third-party views of risk, and tended to have a narrower view of the risks associated with their CDO business as mainly being credit risk and did not actively seek market valuation information. The bottom panel explains how supervisors are planning to address the specific deficiencies. As I mentioned earlier in my presentation, the risk-management deficiencies identified during this exercise are not new, and existing supervisory guidance addresses these issues. Therefore, supervisory efforts will include addressing risk-management deficiencies at each company through the supervisory process and re-emphasizing the importance of strong, independent risk management through a series of speeches, industry outreach, and possible re-issuance of existing guidance. In addition, supervisors plan to complete the work already under way within the Basel Committee on Bank Supervision to update liquidity risk management guidance to strengthen industry practices. A review of existing Federal Reserve guidance on market and liquidity risk management is under way to ensure that it effectively outlines the need for banks to use a number of tools to include multiple ways of viewing quantitative and qualitative risk analysis, including VAR, stress tests, and scenario analysis. Finally, supervisors plan to develop, on an interagency basis, guidance related to the management of the originate-to-distribute model to ensure that banking organizations effectively manage the credit, market, and operational risks of this activity. I will now turn it over to Art Angulo to discuss related regulatory policies.

MR. ANGULO. The top panel of exhibit 12 sets forth the question we sought to address—namely, to what extent did regulatory incentives contribute to or fail to mitigate weaknesses exposed by the recent turmoil? In doing so, we defined the term “regulatory incentives” to encompass both regulatory capital and financial reporting requirements. In addition, we distinguished between policies that may have mattered for the buildup to the market turmoil and those that have made managing the turmoil more challenging. Our conclusions are summarized in the middle panel. Not surprisingly, incentives to minimize regulatory capital are a much more important driver of bank behavior than financial reporting incentives. Moreover, the current regulatory capital framework is not neutral as to how banks structure risk positions. Both the leverage ratio and the Basel I risk-based capital framework have encouraged banks to securitize low-risk assets and, importantly, to support securitizations of higher-risk assets through instruments with low mandated capital charges, such as 364-day liquidity facilities. Financial reporting incentives were not critical to banks’

decisions, although certain financial reporting issues—particularly disclosure practices—have been a factor in how the turmoil has been unfolding.

Before I turn to specific recommendations, it is important to emphasize that improvements were already in train even before the market difficulties emerged last summer. Most significantly, the Basel 2 advanced approaches and related improvements greatly enhance the risk sensitivity of the regulatory capital framework and create incentives for better risk management. In the bottom panel are three examples relevant to the issues we have been discussing this morning. First, capital charges for most unused short-term credit and liquidity facilities have been increased to more adequately reflect the risk exposure. Second, new standards for banks to hold capital against the default risk of complex, less liquid credit products in the trading book are being finalized, as the Basel Committee is currently seeking public comment on principles for calculating a so-called incremental default risk charge against such products. I should note that the work to develop the incremental default risk principles was done by a joint Basel Committee–IOSCO working group co-chaired by Norah Barger. Third, the securitization framework in Basel 2, which builds on previous unilateral U.S. enhancements, establishes a more risk-sensitive capital treatment for securitization exposures—it bases capital charges on estimates of underlying risk rather than on an exposure’s legal form.

I will now turn to recommendations in exhibit 13, beginning first in the top panel with those related to regulatory capital. First, notwithstanding the improvements brought about by Basel 2, there is scope for reassessing the treatment of securitizations involving ABS CDOs. The risk weights and resulting capital charges for these “re-securitizations” were calibrated under the assumption that loss correlations within a pool of securitized assets would be no greater than those exhibited by CDOs backed by traditional corporate bonds. It is now apparent that the actual loss correlations within such re-securitizations—especially for the most highly rated tranches—may be much higher. At its December 2007 meeting, the Basel Committee agreed to take up this issue.

The second recommendation addresses the issue of “reputational” risk. There have been several occasions over the last 6 months in which banks have elected to purchase assets from, or extend credit to, off-balance-sheet vehicles they had organized and money market and other investment funds they managed, even though they were not contractually obligated to do so. Whether a bank management will provide support in excess of its contractual obligations is a business decision. Thus, it is not practical to attempt to design an explicit capital charge for reputational risk. Instead, supervisors should exercise supervisory oversight to ensure that banks sufficiently consider reputational risk and its implications for capital and liquidity buffers.

The third and fourth recommendations deal with the issue of the procyclicality of capital regulations. The existence of fixed capital requirements (as well as rating agency expectations for capital ratios) discourages banks from drawing on their

capital cushions in times of stress. It is therefore very difficult to devise changes in capital regulations that would allow capital to function more effectively as a shock absorber without compromising safety and soundness objectives. Nonetheless, these last two recommendations are aimed at mitigating the potential procyclical effects of a more risk-sensitive capital framework. The third recommendation is based on elements of the Basel 2 framework that were designed to allow supervisors to address both safety and soundness and procyclicality concerns. The advanced internal ratings based approach of Basel 2 requires that banks' loss-given-default estimates reflect economic downturn conditions and that stress tests of their advanced systems include consideration of how economic cycles affect risk-based capital requirements. Rigorous supervisory evaluation of these two elements can help ensure that (1) regulatory capital embeds forward-looking forecasts of recovery rates and (2) banks manage their regulatory capital positions in a manner that enables them to accommodate variations in the amount of minimum required capital over an economic cycle. The fourth recommendation is to explore ways to encourage inclusion in the regulatory capital base of debt instruments that mandatorily convert into equity when a banking organization is under stress. The automatic conversion of debt instruments into equity under such circumstances is appealing from a supervisory perspective as well as from a broader macroeconomic policy perspective. This concept has not yet been examined in depth by the staff, but we believe it merits further study, including an assessment of the past experiences of banks with such instruments, to determine its feasibility.

Let's now move to the recommendations in the bottom panel. These deal with improving disclosure practices, which can help to reduce the uncertainty that has been a key feature of the recent turmoil. First, financial institutions—especially those in the United States—improved their disclosures about subprime-related exposures as the turmoil wore on. Nonetheless, supervisors and regulators should continue to push market participants to make timely and detailed disclosures about the size and composition of subprime-related exposures. The second and third recommendations focus on disclosures related to asset-backed commercial paper programs. In view of the potential exposure associated with reputational risk, market participants appear to desire additional details about banks' dealings with ABCP programs. Disclosing information about the distribution of assets underlying such programs by type, industry, and credit rating would bring the disclosures on par with those provided for on-balance-sheet assets. Similarly, in view of the extent to which investors in asset-backed commercial paper have retreated from rolling over or purchasing paper that they suspect may be supported by subprime-related assets, banks and asset managers that sponsor ABCP conduits should improve disclosures to investors, particularly for conduits other than the traditional multi-seller programs. That completes our prepared remarks. We would be pleased to take your questions at this time.

CHAIRMAN BERNANKE. Thank you. Questions? President Rosengren.

MR. ROSENGREN. It is great to see some bank supervision people at this table, and I would just highlight one of the comments that you made about silos. It is interesting that this morning we have been discussing issues of bank balance sheet constraints and how that would occur, and it might be useful to think structurally within our own organization whether there are ways to do a better job of getting people in bank supervision to understand some of the financial stability issues we think about, and then vice versa. Maybe having some bank supervision people come to FOMC meetings might be one way to actually promote some of this.

In terms of the things that you were talking about, another issue that I think has been important is that we've been talking about the effect of dropping housing prices. I know a horizontal stress review was done about a year ago, and I'm sure Brian or Jon remembers that the large financial institutions did the stress testing. When they did that stress testing, what was striking was that there were four institutions—I think it was Citigroup, JPMorgan Chase, Wachovia, and Bank of America—in that stress test, and all four concluded that a housing-price reduction of between 10 percent and 20 percent would affect earnings but wouldn't affect capital. Obviously, in retrospect that doesn't seem to have been a good forecast. One, since we do think that stress testing is useful, maybe understanding that and going back to those same four institutions and understanding their stress testing might be a useful exercise to do. Two, if you did that exercise, we'd learn something about how they're thinking about housing prices and the indirect effects that might occur because one of our concerns around the FOMC table is that there may be unintended consequences if housing prices drop more than they have historically. Just as the banks have to think about those kinds of stress tests and what they have already learned from the fact that they didn't pick up some of the indirect effects, our own knowledge would be supplemented if we thought about some of those indirect effects as well.

So the horizontal stress testing was interesting in that I think some of those institutions are on the good side and the bad side of your things. The horizontal stress testing isn't what generated the decisions—and I do agree with your conclusion that most of the decisions were made by senior management. Some organizations didn't do subprime mortgages at all. I'm not so sure it was generated from the stress testing as much as a gut feeling by senior bank management that they weren't going to engage in subprime mortgages. I think that's true for a lot of these activities. It's interesting who's at the top of the list and who's at the bottom of the list for a lot of these activities. Ideally, over time, both bank supervision and bank risk management would get to the point that it's not just a gut decision by a person at the top but is a little more systematic and that the risk-management process does that. Are you thinking of ways that we could actually encourage that kind of interaction so that it becomes less gut from senior management and more integrated into the risk management? I know that was kind of a long entry.

MR. ANGULO. Well, I would just comment on the first point that you made in terms of silos. I guess we would fully agree we're having a great time here, so we would love to see more interaction between supervision and the FOMC.

VICE CHAIRMAN GEITHNER. Be careful what you wish for.

MR. ANGULO. You know, when people debate whether to have supervision with a central bank or not, one of the key arguments is that only we can bring to bear the resources of the entire central bank and also provide input from the supervision side. So clearly, that's something I think we need to do more of. In terms of the second question, do you want to take a fresh crack at that, Brian?

MR. PETERS. Yes. My perception is that the people who were further down on the list made active decisions to get out of the business or reduce their scale of the business, not necessarily

just on gut feeling but because they had invested earlier on in the staff and the models to evaluate the product space. So they understood that the economics of the subprime business had deteriorated and that the risk relative to the return was rising, and they made an active decision, usually, to retract a bit from that space. Now, they may have made those decisions gradually and incrementally over the year from mid-2006 forward. It wasn't one stress test, but it was a thorough understanding of the economics of the actual business that drove their decisionmaking.

MR. ANGULO. I would also agree that your general point about banks being more exacting in their stress testing is a good one because it's something we and other supervisors, to be honest with you, continually look at, and many times the response that banks get internally from either owners or managers or through supervisors is that, well, if it's too extreme, it's not really plausible, and you can't really act on it. The other argument you sometimes hear is, well, it costs a lot of money to integrate that across the firm and do it the right way, and that's a tough sell. So I agree with your point that we need to do more and then push harder on stress testing. The way that you suggest is kind of novel: You do a back test and show it to them. That's an interesting concept.

MR. GREENLEE. I might add one thing to that. In interviews we did with some firms, one point that they made was that stress testing was informative and important, but a next step they're trying to take is what it would take to cause that stress event to happen for different types of assets. So they are trying to anticipate—not so much that they just assume a 10 percent drop but how they would get to a 10 percent drop. What would be the events that would cause that to happen? Then they think that through in a more systematic way. I know some companies have learned what their highly rated things are that are viewed as stable-value assets elsewhere on their balance sheets and are thinking about how those could start to unwind or to deteriorate.

MR. PETERS. We need to be careful with the nomenclature. Stress testing right now in the industry encompasses a lot of things, and people will tell you that they do stress testing, but they are really doing static shocks. What we are talking about is not a historical analysis but a kind of forward-looking scenario that builds in your view of the world. Those are the firms that, again, made more-active decisions to reduce their exposures.

CHAIRMAN BERNANKE. President Hoenig.

MR. HOENIG. I think this was very interesting, and I have a suggestion and then a question. The suggestion is that this morning we had the Federal Open Market Committee meeting. This afternoon we should have the Federal Market Oversight Committee meeting, and that is what we're doing right now in looking at some of these institutions. My question is, As you look at these and you compare the most effective and least effective, are you in the process and shouldn't we be in the process—because we go back and look at these horizontal reviews—of looking at what lessons we've learned about more-effective institutions and less-effective institutions during the horizontal review so that we can be more proactive in terms of the outcomes that we're now seeing? If we do that in a systematic fashion over time, we could anticipate not all—we learned a long time ago that you cannot anticipate it all—but some of these differences and put more pressure on some institutions that were not doing good risk analysis to step up to it before it becomes a crisis. I don't know if we're doing lessons learned for ourselves in that regard.

MR. PETERS. I would say we've looked at a lot of that. The one place I would highlight most articulately is the degree of international coordination and cooperation we've had under way. The core firms in the United States are one portion of this system now, with a number of very significant global competitors. So the coordination between us, the OCC, the SEC, the U.K. FSA, and the other senior supervisor groups has been really necessary for everyone to get a good

understanding of practices. It's perhaps more valuable to some of the foreign supervisors who have only one or two large firms under their jurisdictions. But even from our vantage point of what our direct supervisory responsibility is, the consolidation within the industry has collapsed the number of firms that we view directly.

MR. GREENLEE. I might add that we are trying to look at this. It's not just an issue of guidance, but we are going back through the supervisory process in terms of what we've learned through these interviews and challenging our beliefs and prior assessments.

MR. HOENIG. I think that is good because, if you think about it, we have the Basel capital standards coming forward, which involve the advanced method—relying on those institutions to a great degree in terms of judging their capital and their capital levels. When they are under pressure, they will tend to work the model. It is natural. As we have said before, the incentives are that they will work the model. So if we are not taking lessons learned from this in terms of anticipating those behaviors, I think we will repeat history in the surprises that we get.

CHAIRMAN BERNANKE. Vice Chairman.

VICE CHAIRMAN GEITHNER. Just very quickly, you did a terrific job. I think it's important, though, to recognize that this isn't done yet, and we're not going to know fundamentally how we feel about the relative strengths and weaknesses in the system until we see how this plays out. Don't let these initial presumptions—either the diagnosis or the prescription, particularly your list of prescriptions—harden too much because there are some judgments that we're just not going to be able to make until the dust settles and we have a little time for reflection in that context. I think a lot of damage has been done to the credibility of our financial system. It's not clear how much damage because we don't know how this is going to play out. But damage has been done, and we are going to bear a lot of the burden of figuring out how to craft a compelling policy

response, recognizing of course that regulation may be part of the problem and won't necessarily be part of the solution. Anyway, mostly I just meant to compliment you. You did a great job, and I think it's helpful really to have this much work done early on in getting us to the point where we know what we're going to do to the system to make it less vulnerable to this in the future. Even as we manage the crisis, I think it's good to have made that investment and a good tribute to the strength of the system that we were able to devote these quality resources even though we've all been busy managing the storm.

CHAIRMAN BERNANKE. Let me also thank the staff for an excellent presentation. This is just the tip of the iceberg in terms of the work that's being done on all these different topics, and in turn we're collaborating with our colleagues here in the United States and abroad, and I guess we'll keep working and hope to find some valuable lessons out of this experience.

I've been asked to remind people that you have until tomorrow close of business if you wish to revise your projections. Brian Madigan raised a few questions about consistency. If you want to think about that, of course, feel free to do so. Our next meeting is March 18. I look forward to seeing you then, and there's a lunch available for those of you who can stay. Thank you very much. The meeting is adjourned.

END OF MEETING