

**Meeting of the Federal Open Market Committee on
January 29-30, 2002**

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, 2002, at 2:30 p.m. and continued on Wednesday, January 30, 2002, at 9:00 a.m. Those present were the following:

Mr. Greenspan, Chairman
Mr. McDonough, Vice Chairman
Ms. Bies
Mr. Ferguson
Mr. Gramlich
Mr. Jordan
Mr. McTeer
Mr. Olson
Mr. Santomero
Mr. Stern

Messrs. Broaddus, Guynn, Moskow, and Parry, Alternate Members
of the Federal Open Market Committee

Mr. Hoenig, Ms. Minehan, and Mr. Poole, Presidents of the Federal Reserve
Banks of Kansas City, Boston, and St. Louis respectively

Mr. Kohn, Secretary and Economist
Mr. Bernard, Deputy Secretary
Mr. Gillum, Assistant Secretary
Ms. Smith, Assistant Secretary
Mr. Mattingly, General Counsel
Mr. Baxter,¹ Deputy General Counsel
Ms. Johnson, Economist
Mr. Reinhart, Economist
Mr. Stockton, Economist

Mr. Connors, Ms. Cumming, Messrs. Howard, Lindsey, Ms. Mester, Messrs.
Oliner, Rolnick, Rosenblum, Sniderman, and Wilcox, Associate Economists

Mr. Kos, Manager, System Open Market Account

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

Mr. Skidmore, Special Assistant to the Board, Office of Board Members, Board
of Governors

Messrs. Ettin and Madigan, Deputy Directors, Divisions of Research and Statistics and Monetary Affairs respectively, Board of Governors

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

Messrs. Slifman and Struckmeyer, Associate Directors, Division of Research and Statistics, Board of Governors

Messrs. Kamin² and Whitesell, Deputy Associate Directors, Divisions of International Finance and Monetary Affairs respectively, Board of Governors

Messrs. Gagnon² and Reifschneider,² Assistant Directors, Divisions of International Finance and Research and Statistics respectively, Board of Governors

Mr. Small,² Section Chief, Division of Monetary Affairs, Board of Governors

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

Messrs. Lebow³ and Williams,² Senior Economists, Division of Research and Statistics, Board of Governors

Messrs. Ahearn² and Wright,² Economists, Division of International Finance, Board of Governors

Mr. Zakrajsek,³ Economist, Division of Monetary Affairs, Board of Governors

Ms. Low, Open Market Secretariat Assistant, Office of Board Members, Board of Governors

Mr. Lyon, First Vice President, Federal Reserve Bank of Minneapolis

Messrs. Beebe, Eisenbeis, Fuhrer, Goodfriend, Hakkio, Hunter, Ms. Krieger, and Mr. Rasche, Senior Vice Presidents, Federal Reserve Banks of San Francisco, Atlanta, Boston, Richmond, Kansas City, Chicago, New York, and St. Louis respectively

1. Attended Tuesday session only.

2. Attended portion of meeting relating to the discussion of monetary policy near the zero bound on nominal interest rates.

3. Attended portion of meeting relating to the above discussion and to the Committee's review of the economic outlook.

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January 29, 2002—Afternoon Session

CHAIRMAN GREENSPAN. Good morning, everyone. To begin today's meeting let me turn the floor over to Governor Ferguson for the election of the Chairman and Vice Chairman of the Committee.

MR. FERGUSON. Is there a nomination for Chairman of the FOMC?

MR. OLSON. I nominate Alan Greenspan to serve as Chairman of the Committee.

SPEAKER(?). Second.

MR. FERGUSON. All in favor say "aye."

SEVERAL. Aye.

MR. FERGUSON. Approved without objection. Is there a nomination for someone to serve as Vice Chairman of the FOMC?

MR. OLSON. I nominate William J. McDonough of the New York Federal Reserve Bank for Vice Chairman.

MR. FERGUSON. Okay. Is there a second?

MR. STERN. Second.

MR. FERGUSON. All in favor say "aye."

SEVERAL. Aye.

MR. FERGUSON. Gentlemen, democracy has ruled yet again. Let me turn the floor over to the person who should actually run the meeting, our re-elected Chairman.

CHAIRMAN GREENSPAN. Thank you. Should I make an inaugural speech?

MR. FERGUSON. If you feel so obliged!

CHAIRMAN GREENSPAN. The first item of business is to elect the staff officers of the Committee. Norm has a list of nominees, and I would appreciate his reading them.

MR. BERNARD.

Secretary and Economist	Donald Kohn
Deputy Secretary	Normand Bernard
Assistant Secretary	Gary Gillum
Assistant Secretary	Michelle Smith
General Counsel	Virgil Mattingly
Deputy General Counsel	Thomas Baxter
Economist	Karen Johnson
Economist	Vincent Reinhart
Economist	David Stockton
Associate Economists from the Board	Thomas Connors
	David Howard
	David Lindsey
	Steve Oliner
	David Wilcox
Associate Economists from the Reserve Banks	Christine Cumming
	Loretta Mester
	Arthur Rolnick
	Harvey Rosenblum
	Mark Sniderman

CHAIRMAN GREENSPAN. Would somebody like to move that slate?

MR. FERGUSON. I'll move the slate.

CHAIRMAN GREENSPAN. Without objection. Next, as you know, we need to select a Federal Reserve Bank to execute transactions for the System Open Market Account. I believe the New York Bank traditionally has been the one selected. Would somebody like to move that we continue that particular historical practice?

MR. FERGUSON. I'll move New York.

CHAIRMAN GREENSPAN. Thank you. Is there a second?

SEVERAL. Second.

CHAIRMAN GREENSPAN. Good. I assume that there are no objections. If there are, tell me later! [Laughter]

VICE CHAIRMAN MCDONOUGH. We are prepared to serve, Mr. Chairman.

CHAIRMAN GREENSPAN. I don't recall asking you any questions, Mr. Vice Chairman. [Laughter] The Manager of the System Open Market Account is currently Dino Kos. I would entertain a nomination for him to continue to serve in that position, subject to his appointment being satisfactory to the Federal Reserve Bank of New York.

MR. FERGUSON. So move.

CHAIRMAN GREENSPAN. Without objection. Congratulations, Dino. I will now turn the floor over to Dino for a discussion, if necessary, of the authorizations and directives that we need to approve.

MR. KOS. Thank you. First, on the domestic side, we recommend that the Committee reaffirm the Authorization for Domestic Open Market Operations and the Guidelines for the Conduct of System Operations in Federal Agency Issues in their present forms. I would note with regard to the "Guidelines" that a reaffirmation would involve the continued suspension of paragraphs 3 to 6. This will allow us to continue to take mortgage-backed securities as collateral in our domestic open market operations, a practice we've engaged in since October 1999.

CHAIRMAN GREENSPAN. Would somebody like to move that?

VICE CHAIRMAN MCDONOUGH. Move approval.

CHAIRMAN GREENSPAN. Without objection. You still have the floor, Dino.

MR. KOS. On the foreign side, the Desk operates under the following Committee instruments: the Authorization for Foreign Currency Operations, the Foreign Currency Directive,

and the Procedural Instructions with Respect to Foreign Currency Operations. I recommend that they all be renewed without amendment.

CHAIRMAN GREENSPAN. Before we go into a discussion on that, let me note that I have recently had conversations with the Secretary of the Treasury in which he reiterated the Treasury's position with regard to foreign currency intervention. It is about as close to ours as you can get. The general view at Treasury is that the history of intervention shows clearly that it has not been effective. And except under extraordinary circumstances, which would be less economic and perhaps more political in an international sense, there is no inclination on their part to do any intervention. Consequently, I think the discussions we've had with previous Treasury officials when we've had activist Treasury Departments are not relevant in this case. I can indicate to you that as far as I can see I believe there is no need to be concerned about problems arising with respect to differences we may have with Treasury about either intervention or warehousing. Would anybody wish to discuss this issue?

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, especially with that background, I enthusiastically move approval.

CHAIRMAN GREENSPAN. Is there a second?

MR. FERGUSON. I second it.

CHAIRMAN GREENSPAN. Any discussion?

MR. POOLE. I would like to make a comment on this. I am, of course, very pleased to hear that the prospects of intervention are very low. It does seem to me, though, that sometimes conditions change and under the press of circumstances people do things that one wouldn't have anticipated. I think back particularly to the most dramatic example in my professional experience, the oft-repeated statements of President Nixon and his people that wage and price

controls were out of the question. Then suddenly on August 15, 1971, we had wage and price controls. I would like to see us position ourselves so that in some future circumstance we might not be able to imagine now it would take a special act of this Committee to authorize any such intervention. I recommend that we provide for that in order to reduce the probability that we would, in fact, find ourselves intervening in such a set of circumstances.

CHAIRMAN GREENSPAN. I would oppose our taking such a measure, first because I don't think it is necessary. Indeed, I'm sure it is not necessary. But more importantly, if we did—and of course we'd make it public of necessity—we would raise questions that I don't think this particular Secretary of the Treasury and this Treasury Department deserve, if I may put it in those terms. They are as strongly opposed to intervention as we are. I don't deny, obviously, that conditions can change. They are likely to change, however, under circumstances that would be extraordinary. At that particular point we always have the ability to call a meeting of this group. We could probably do it in ten or fifteen minutes I suspect. So if actions are contemplated that might seem appropriate only to certain circumstances, I think we could act then. I don't think it's appropriate to do it beforehand, frankly. That's my judgment anyway. President Jordan.

MR. JORDAN. A question. Quite aside from intervening in the narrow and short-run sense, have your conversations gotten into issues of long-term considerations about the appropriate level of our holdings of securities denominated in foreign currencies? We hold securities in two currencies right now, and we got it down to those two over a long period of time. But we've just been sitting with the inherited inventory of assets denominated in foreign currencies, and it doesn't seem as if that is necessarily the right thing to be doing.

CHAIRMAN GREENSPAN. No, I think the Treasury would agree with that. Their conclusion, however, is that the best thing to do is to leave it alone. From their point of view we should not do anything one way or the other on the grounds that, if we start to do something in that regard, it implies that we're open to other types of manipulation. Again, a circumstance may arise where that may change. But should it change, since that clearly would involve actions that affect our balance sheet, it would require a discussion on our part to decide whether or not we wish to advise the Treasury otherwise or wish to act differently on our own behalf. Any further comments? If not, I would entertain a motion.

VICE CHAIRMAN MCDONOUGH. I already made it.

CHAIRMAN GREENSPAN. Sorry about that. You did, indeed.

MR. FERGUSON. Second.

CHAIRMAN GREENSPAN. It has been seconded. All in favor say "aye."

SEVERAL. "Aye."

CHAIRMAN GREENSPAN. Opposed? The "ayes" have it. Would somebody like to move the minutes of our meeting of December 11?

VICE CHAIRMAN MCDONOUGH. Move approval.

CHAIRMAN GREENSPAN. Thank you. Without objection, they are approved. Dino Kos, you have the floor again on open market operations.

MR. KOS.¹ Thank you, Mr. Chairman. I'll be referring to the charts that were circulated earlier this afternoon. The top panel of the first page shows three-month cash and forward dollar deposit rates, represented by the red lines. Those rates moved in a relatively narrow range during most of the intermeeting period. They did fall following the Chairman's January 11 speech but quickly retraced their decline over the next two weeks. The three-month forward rates are now above the cash rates for the first time since November 2000; the current spread is about 3 basis points. In the euro area the three-month cash deposit rate, the solid green line, was stable for much of the period, but forward rates rose as market participants came to view

¹ Materials used by Mr. Kos are appended to this document (appendix 1).

another easing in ECB policy as less likely and by yesterday had priced out further ease by the ECB. The nine-month forward rate is beginning to build in a tightening later this year. In Japan, with interest rates scraping along the zero axis, as shown in the bottom panel, the Bank of Japan (BOJ) announced several operational changes intended to increase the amount of liquidity in the system. The changes announced on December 19 were an increase in the target current account balance to between 10 trillion and 15 trillion yen as well as an increase in the BOJ's monthly purchases of Japanese government bonds (JGBs) from 600 billion to 800 billion. On January 16 the BOJ announced that it would widen the range of collateral acceptable in its temporary operations to include asset-backed commercial paper and other types of asset-backed securities. One option they did not pursue was the idea actively debated in Tokyo at the time of the last FOMC meeting, the purchase of foreign bonds. Apparently a combination of political and legal factors weighed against going that route.

Turning to page 2, the top panel graphs the two-, ten-, and thirty-year Treasury yields along with the target fed funds rate. Treasury yields also moved in a fairly narrow range for most of the period. The heightened volatility observed in October and November moderated in the intermeeting period. Mortgage-related hedging in particular was less of a factor on prices in recent weeks. The spread between the two-year note and the target fed funds rate was wide during the entire period, as the markets began to anticipate an end to the easing cycle. The last time the spread between the two-year note and the funds rate was this wide for any length of time was in February 1995. In the bottom panel is a graph of the Dow, the S&P, and the Nasdaq re-indexed from October 1. During most of December, equity markets were stable or rising, as investors anticipated an economic rebound. That enthusiasm waned in the first week of January and equity prices began to erode, as investors began to get a bit more pessimistic about the near-term economic and earnings outlooks. This downward trend continued today, and the major equity indexes were down between 1½ and 2 percent a short time ago.

Turning to foreign exchange markets, the dollar has been stronger against most major currencies—not only against the euro and the yen but also against other currencies such as the Canadian dollar, which fell to a record low a few days ago, although it has recovered somewhat. As shown in the top panel, the euro traded between 88 and 92 cents over recent weeks until the last few days, when it depreciated more rapidly. The most often cited reason is the belief that the U.S. economy will recover sooner and more vigorously than will the European economy. Some technical factors may be at work as well. Short-term traders reportedly bought euros in late December, anticipating that the currency would appreciate once the note and coin transition was concluded. In the event, the euro began to fall, and these traders unwound their positions, thereby accelerating the speed of the decline. The middle panel depicts changes in the value of the yen against the dollar, the euro, the sterling, the Korean won, and the Taiwan dollar since October 1. The yen has been depreciating since mid-November, as sentiment about the economy, the Japanese financial system, and the political system's ability to deal with these problems all

deteriorated. Two other factors may have been at work. First, the changes to the BOJ's operating procedures that I mentioned earlier, which were intended to add liquidity to the system, may have had an effect on the external value of the yen, although the yen's depreciation was already in full swing for a month before December 19. Second, the constant drumbeat of official commentary by Japanese government officials was taken as reflecting either tolerance of a weaker yen or outright encouragement to the market to weaken the yen further. The bottom panel graphs the ten-year JGB yield, which rose steadily in the last few weeks, perhaps reflecting some unease about the government's handling of the problems in the financial system. Their rates are still low by global standards though the yield, at about 1.45 percent, is at the high end of its range in the last twelve months.

Turning to page 4, let me say a quick word on Latin America. Argentina's problems were very prominent in the news and among market participants in recent weeks. However, despite the continuous stream of adverse news in December and January, markets in Brazil and Mexico were marching to their own beat. The top panel graphs movements in the EMBI+ subcomponents for Mexico and Brazil since October 1. Since that date Mexican spreads have narrowed about 140 basis points and Brazil's about 350 basis points. As shown in the middle panel, the Mexican peso was relatively stable, and the *real* actually appreciated sharply over that entire span. Meanwhile, local interest rates, represented in the bottom panel by the thirty-day swap rate, were actually falling in both countries. Some suggested that the prospect of better growth in the United States and later in Europe was a more important influence in these markets than the distress in Argentina.

Turning to page 5, I want to report briefly on the distribution of collateral in our temporary operations. This chart, which summarizes for both 2000 and 2001 the average daily value of outstanding RP agreements, was included in the Desk's Domestic Annual Report. It breaks out, in dollar terms and percentages, amounts of outstanding RPs according to the three types of collateral dealers can submit: Treasuries, direct agency debt, and agency-sponsored mortgage-backed agency debt. In general, while the percentages move around from one operation to the next, the average amounts outstanding stay in more stable ranges, with direct agency collateral accounting for about a quarter of the collateral, mortgage-backed securities somewhat more than that, and Treasuries slightly less than half of the total. By way of comparison, before we expanded the collateral pool in October 1999 to include mortgage-backed assets, the distribution between Treasuries and agencies would vary widely. In the year before going to the current system, agencies accounted for about 60 percent of the collateral on RPs.

Mr. Chairman, there were no foreign operations in this period. I will need a vote to ratify domestic operations, and I would be happy to take any questions.

CHAIRMAN GREENSPAN. Questions for Dino? If not, Vice Chair.

VICE CHAIRMAN MCDONOUGH. Move approval of domestic operations.

CHAIRMAN GREENSPAN. Thank you. Without objection, they are approved. We now move on to what hopefully is going to be a rather interesting conversation and I trust an academic one, but we never know about these things. It is, of course, a presentation on the zero-bound issue with three briefers, sequentially: Dave Reifschneider, John Williams, and Marvin Goodfriend. David, would you like to start us off?

MR. REIFSCHNEIDER.² Thank you, Mr. Chairman. John and I will be sharing our briefing this morning, and we will be referring to the material that was handed out earlier entitled “Board Staff Presentation on the Implications of the Zero Bound on Nominal Interest Rates.” This afternoon, we will report on work that we have undertaken in the past few years on the implications for monetary policy of the zero bound on nominal interest rates. In these efforts, we have benefited from research carried out by others at the Board, the Reserve Banks, and economists outside the System. With short-term interest rates unusually low and the economy still weak, the question arises as to what might happen if further deterioration were to set in. Specifically, might the Committee find itself pushing the funds rate to zero in the near future, and wishing it could do more, in an attempt to combat rising unemployment and falling inflation? Your first exhibit presents one scenario illustrating how this might occur.

We start with the extended staff outlook that appeared in the Bluebook, shown as the solid black lines in the panels. In this baseline, as the economy continues to recover past 2003, the need for monetary stimulus gradually diminishes, and so the nominal funds rate rises to 4 percent by mid-decade. Now suppose share prices were to drop almost 50 percent by this summer—a big drop to be sure, but one that would still leave the P-E ratio for the S&P500 above its historical average. If the Committee aggressively responded to weakening activity and the implied fall in the economy’s equilibrium real rate, the nominal funds rate—the red line—would fall to zero quickly. Even so, and assuming the funds rate remained at zero for two years, the FRB/US model predicts that the unemployment rate would still continue to climb through 2003 and would not fall below 6 percent until late 2004. In response to such heightened labor market slack, the downward trajectory of core CPI inflation would be more pronounced than in the baseline. As indicated by the first bullet in the bottom panel, this scenario highlights a current vulnerability of monetary policy: In some plausible future situations, you may not be able to take the nominal funds rate as low as you would like. So, while some deterioration in economic performance following a stock market crash would be inevitable, the zero bound accentuates the damage. This point is illustrated in the top and middle panels by the blue lines, which show what would happen if it were possible to drive the funds rate below zero. In this imaginary world, the nominal funds rate turns negative for a time, yielding a smaller increase in the unemployment rate and less of a decline in inflation.

² Materials used by Mr. Reifschneider and Mr. Williams are appended to this document (appendix 2).

The fact that prices fall more rapidly when policy is constrained by the zero bound has important consequences. The reason is that declining inflation with the nominal funds rate stuck at zero causes the real funds rate to rise—as the red line in the middle right panel shows for late 2002 through early 2004. This unintended policy tightening exacerbates the rise in unemployment and under extreme conditions can become self-reinforcing. Still, the economy in this example does eventually recover because the baseline outlook embodies strengthening demand and tightening monetary policy, so that after a time the nominal funds rate is high enough to enable policy to be quite stimulative if necessary—even if not quite as much as you might like in all circumstances. But if the baseline outlook were for a much weaker recovery and instead showed the nominal funds rate, say, remaining flat at its current level, then the ability of the economy to right itself in the event of a major disturbance would be called into question.

Your next exhibit takes a more general look at the economics of the problems posed by the zero bound. In conducting our research, we have made three important assumptions. First, we assume that monetary policy affects real activity in the short-to-medium run primarily through its ability to move the current and anticipated level of the real funds rate and, therefore, real bond rates and other asset prices through arbitrage. Second, we assume that the so-called quantity effects of monetary policy are not that important; in particular, changes in the monetary base have little or no direct influence on real activity or inflation. (I should note that Marvin will have more to say on this subject.) Third, we assume that inflation displays considerable inertia and depends on inflation expectations and the level of resource utilization, among other factors.

As noted in the middle portion of the panel, under these assumptions the zero bound has three main effects. First, it limits the monetary stimulus that can be employed to offset a contractionary shock. If the nominal rate can go only as low as zero, the real funds rate can be driven only to the negative of the current inflation rate. Second, the constraint on policymaker action causes resource utilization and the inflation rate both to move lower than they otherwise would in the wake of an adverse shock. As was noted earlier, if the situation is severe enough, this can become a self-reinforcing downward spiral, with falling resource utilization pushing inflation down further and falling inflation pushing real interest rates higher, putting yet more downward pressure on resource utilization. Under extreme conditions, this unintended erosion in the real funds rate will continue unchecked to produce a deflationary trap.

The practical importance of this threat to stability depends on several factors, which are listed in the bottom portion of the panel. First, the less responsive are output and inflation to changes in the real funds rate, the greater the amount of maneuvering room needed to offset any disturbances that might come along. Second, the greater the magnitude and persistence of shocks hitting the economy, the greater the range of funds-rate variation required to maintain stable employment and

inflation. Third, the slower a central bank moves to head off excessive economic weakness, the greater the risk that a deflationary spiral will develop. Lastly, the lower the average amount of room to adjust the funds rate, the greater the risk of being constrained by the zero bound. In part, the size of this average cushion is outside your control, because it depends on the real interest rate consistent with stable inflation and full employment in the long run—our so-called r^* . However, you can influence the cushion's size through your choice of how low to drive the average rate of inflation.

Your next exhibit provides a quantitative assessment of the implications of the zero bound for economic stability. This assessment closely follows the approach that we took two years ago in the paper that we prepared for the System conference on the subject and that was distributed to you last week. As noted in the upper panel, our goal is to estimate the effect on average economic performance of lowering the target rate of inflation which, as I just noted, influences the relevance of the zero bound. Our approach to estimating these effects is to simulate FRB/US, subject to random shocks similar to those experienced over the past thirty-five years. In these simulations, we assume that households and firms form their expectations in a forward-looking manner that takes full account of the systematic behavior of monetary policy. By simulating the model over and over, we can compile a large set of pseudo “histories” of the economy, from which we calculate statistics on average performance. We run each of these simulations under the assumption that monetary policy responds to changes in economic conditions according to the Taylor rule, in which the nominal funds rate, denoted by “ I ”, is set equal to the sum of four terms—the equilibrium real interest rate r^* , the rate of inflation, one-half the current output gap, and one-half the difference between actual and target inflation.

Two main lessons from this exercise are summarized in the middle panel. First, at low target rates of inflation, the funds rate falls to zero frequently. This can be seen in line 1 of the table at the bottom of the page, which shows the percent of time the funds rate is at zero for three different core CPI inflation targets—0 percent, 2 percent, and 4 percent. Our simulated policymaker puts the nominal funds rate at zero nearly 30 percent of the time with an inflation target of zero, but only about 10 percent of the time with an inflation target of 2 percent and only 3 percent of the time if the target is 4 percent. Returning to the middle panel, the second lesson to come out of these simulations is that economic performance deteriorates in our model when the inflation target is below 2 percent or so. One manifestation of this deterioration is an increase in the variability of the unemployment rate, shown in line 2 of the table. As the target inflation rate rises from zero to 2 percent, the standard deviation of the unemployment rate drops sharply from 1.8 to 1.5 percentage points. But a further increase in the inflation target to 4 percent has only a small effect on the standard deviation of the unemployment rate. A similar break in performance at an inflation target of about 2 percent is evident in line 3, which shows the frequency of deep recessions. Here, the number of major downturns expected per 100 years falls from $5\frac{1}{4}$ to about $4\frac{1}{2}$ when the inflation target is raised from zero to 2 percent but then slips by only a small amount if the target is raised further to 4 percent. Although

these numerical results are specific to the FRB/US model, other models yield qualitatively similar findings. John Williams will now continue our presentation.

MR. WILLIAMS. Under the Taylor rule, policymakers would need to weigh the deterioration in economic performance associated with the zero bound against the benefits of lower inflation in establishing an overall price objective. And to be sure, not all of those benefits are captured by the model. The existence of a tradeoff raises the question of whether there are other ways to design policy so as to mitigate the effects of the zero bound in a low inflation environment. That is the subject of your next exhibit.

According to previous research, policies that are more responsive to fluctuations in output than the Taylor rule do a better job of stabilizing the economy; modestly increasing the responsiveness of the funds rate to deviations in inflation from its target also appears beneficial. There are two aspects to this advantage. First, such rules reduce the probability that inflation will be well below its target if and when a major disturbance hits the economy, and thus they essentially take away one of the ingredients of a deflationary spiral. A second advantage of such rules is that they reduce the funds rate quickly when the economy weakens, thereby limiting the severity of major downturns, again reducing the risk of deflation.

The middle table puts some numerical magnitudes on these advantages. For this exercise, we assume that the more responsive rule reacts twice as strongly to movements in the output gap as the standard Taylor rule but is the same in its other dimensions. As can be seen by comparing lines 1 and 2, the more responsive rule damps fluctuations in unemployment relative to the Taylor rule. And as shown on lines 3 and 4, the more responsive rule is also more effective at keeping the economy out of deep recessions. In fact, the more responsive rule under a zero inflation target is able to match or better the performance of the Taylor rule using a higher inflation target. However, as was the case with the Taylor rule, performance under the more responsive rule drops off noticeably when the target is reduced below 2 percent but improves little when the target is increased to 4 percent.

As noted in the bottom panel, adopting more responsive rules—especially ones with even greater sensitivity to economic conditions than the rule analyzed here—brings some potential disadvantages as well. First, the greater responsiveness of policy to changes in economic conditions implies heightened variability of the fed funds rate and more frequent policy reversals. Although these differences have no direct implications for economic performance in the FRB/US analysis, they may be a cause of concern for reasons not captured by our model. Second, implementing a more aggressive response to the estimated output gap amplifies the risk and magnitude of policy mistakes owing to faulty data and mismeasurement of the economy's productive capacity. Lastly, because more aggressive rules drive the fed funds rate quickly to zero when the economy weakens and rates are already low, they increase the risk of triggering a confidence crisis if investors become unnerved

whenever the Fed has no more latitude for moving the fed funds rate down further. However, such possible effects on confidence play no role in the FRB/US model.

For these reasons, the FOMC might want to consider policies that become more responsive only when it is in imminent danger of hitting the zero bound. Such asymmetric responsiveness is the subject of your next exhibit. As described in the upper panel, to illustrate this idea we consider a policy that under most conditions follows the standard Taylor rule but that lowers the fed funds rate more quickly when economic conditions are sufficiently bleak. In particular, we assume that whenever the standard Taylor rule would prescribe a funds rate below 1 percent, the funds rate is automatically set to zero. Such a policy has the advantage shared by generally more responsive rules of quickly bringing to bear the maximum monetary stimulus possible to offset economic downturns or deflation, thus enhancing average economic performance. At the same time, the cost of higher interest rate variability and the risk of policy mistakes are lessened because the greater responsiveness of policy is limited to episodes of economic distress.

The middle table compares economic performance under the asymmetric policy to that obtained with the Taylor rule. With an inflation target of 4 percent, the Taylor rule only occasionally prescribes a funds rate below 1 percent, so the overall performance of the two policies differs little. But with a lower inflation target, the asymmetric policy mitigates the falloff in performance resulting from the zero bound without significantly raising the overall variability of the fed funds rate. As shown in lines 1 and 2, under the asymmetric rule the increase in the variability of the unemployment rate is less when the inflation target is lowered from 2 percent to zero; lines 3 and 4 show a similar result for the frequency of deep recessions.

As noted in the bottom panel, one possible drawback of the asymmetric rule is that it may be less transparent. In particular, communicating the nature of such a policy to investors may be difficult, and the market may have trouble understanding its full ramifications. This is because an asymmetric policy, unlike the Taylor rule or similar strategies, does not always respond to economic conditions in the same manner. Thus, the private sector might mistakenly interpret a sudden drop in the fed funds rate as a temporary aberration rather than a systematic aspect of the rule. This transparency problem could prevent the rule's benefits from materializing if investors do not correctly incorporate the implications of asymmetric behavior into their expectations, in particular by pricing into bond yields the greater probability of a zero funds rate during economic slowdowns.

Your next exhibit considers another strategy for mitigating the effects of the zero bound. This approach, unlike the strategies that we have discussed so far, responds not only to current inflation but also takes into account past deviations of inflation from target. A key feature of such a strategy is that it involves a promise to keep the funds rate unusually low following an episode in which the zero bound constrains policy. One specific example of this approach is price-level targeting, in which policy is set so that the price level rather than the inflation rate fluctuates around a

predetermined target path. Under price-level targeting, investors expect that any shortfall of the price level from its target will be made up later, so that a period of low inflation will be followed by an offsetting period of high inflation, and vice versa.

Policies that promise above-average future rates of inflation create the expectation that the future stance of monetary policy will be relatively easy for a time. Thus, even with the funds rate presently constrained at zero, this expectation about future policy contributes to expectations of higher future inflation and relatively low funds rates. As a result, real bond rates fall today and stimulate real activity. This effect on expectations thus reduces the severity of recessions and lowers the danger of deflation. Such policies have attracted a great deal of attention by some researchers and have been advocated as a possible strategy for the Bank of Japan in its current situation. Model-based research, including work carried out using the FRB/US model, finds that under the assumptions of rational expectations and perfect policy credibility, these policies can be very effective in reducing the stabilization costs associated with the zero bound.

However, the effectiveness of such policies depends crucially on that credibility—on investors' expectations being consistent with the promised policy. Under certain conditions, investors may doubt whether policymakers will in fact carry through on their pledge. For example, the public may question whether policymakers would really actively seek to bring about high inflation following a period of low inflation, or vice versa, rather than being satisfied with just stabilizing the inflation rate at the long-run target. If investors don't believe the promise, then real bond rates will not come down, and therefore such strategies will be ineffective at mitigating the effects of the zero bound.

Your final exhibit lists the main lessons from this line of research. First, in a very low inflation environment, the nominal funds rate can be expected to hit zero relatively frequently. But in general, such an event is not an insurmountable problem: The economy usually recovers despite the constraint on policy because most economic disturbances are sufficiently transitory and modest in magnitude. That said, if deflation sets in, the ability of the economy to recover can be jeopardized. Funds-rate-based monetary policies can mitigate the effects of the zero bound in several ways—by not pursuing too low a rate of average inflation, by responding relatively aggressively to changes in economic conditions, and by promising higher inflation down the road in the event that the funds rate gets stuck at zero. Finally, it pays to stimulate the economy aggressively when the probability of hitting the zero bound is high; at least from the perspective of the FRB/US model, there is no advantage in “keeping your powder dry.” That concludes our prepared remarks.

CHAIRMAN GREENSPAN. Do you want to proceed with the next presentation, or would you prefer to take questions on this first part?

MR. STOCKTON. I would recommend, Mr. Chairman, that Marvin complete his presentation and then we can address questions.

CHAIRMAN GREENSPAN. Okay. Marvin.

MR. GOODFRIEND.³ Thank you, Mr. Chairman. I recognize that thinking about what monetary policy can do at the zero bound on nominal interest rates is a kind of third rail of monetary policy. As is the case with social security, the various proposals of possible alternatives provoke strong reactions, reactions that are reminiscent of the Keynesian-monetarist controversies of old about fiscal and monetary policy. With that acknowledgement, I offer my assessment of some of the options. I will spend most of my time explaining how what I think is the best option—*expanding the monetary base*—could work to stimulate the economy at the zero bound. I will discuss five other options briefly at the end of my presentation. I plan to follow closely the material that you should have in front of you. So, please turn to page 2 and follow along from there.

Usually, open market operations are constrained to accommodate the demand for the monetary base at the opportunity cost spread between the intended federal funds rate and zero. There is a need to defend an interest rate spread when the federal funds rate is positive, and as a result, the monetary base is not an independent instrument available for policy in those normal circumstances. But once the federal funds rate is zero, there is no need to defend an interest rate spread, and policymakers are free to expand the monetary base further to stimulate the economy.

Central banks can pursue what I call quantitative monetary policy—as distinguished from interest rate policy—at the zero bound. As noted on page 3, to appreciate the power of quantitative policy at the zero bound, we need to distinguish between narrow and broad liquidity services. In models of the demand for money, narrow liquidity services are provided by the medium of exchange, which allows banks and the public to economize on transactions costs or so-called shopping time costs. For example, people hold currency to minimize trips to the ATM; they hold checkable deposits to avoid sales of nonmonetary assets in order to replenish money balances and make payments; and banks hold reserves to save on transactions costs in the federal funds market. When short-term nominal interest rates are at zero, narrow liquidity services of the kind I just described are no longer scarce because there is no opportunity cost of holding currency or bank reserves, and the channel of monetary policy transmission that we ordinarily use is exhausted.

Broad liquidity services are not exhausted, however, and they provide what I will argue is the leverage for quantitative monetary policy to stimulate the economy further at the zero bound. Let me first define what I mean by broad liquidity. Broad liquidity is a service yield provided by assets according to how easily they can be turned into cash, either by their sale or by serving as collateral for external financing.

³ Materials used by Mr. Goodfriend are appended to this document (appendix 3).

Broad liquidity services are valued (page 5) because they minimize the exposure of households and firms to what I call the external finance premium. That premium is a consequence of imperfect information, costly enforcement, and costly monitoring of loan contracts that create a wedge between the cost of funds raised externally and those generated internally. The existence of an external finance premium gives rise to a demand for broadly liquid assets that over time has been referred to in the profession as “precautionary savings,” “a liquid buffer stock,” or “self-insurance.” Broad monetary instruments include bank deposits, money market mutual fund shares, and short-term government securities. These could be used to meet spending needs in excess of current income—in other words, to protect households and firms from having to go to banks or credit markets to borrow and thus pay the external finance premium.

Turning to page 6, quantitative monetary policy at the zero bound must expand broad liquidity in order to be stimulative because stimulus from narrow liquidity is no longer available. Open market purchases of short-term government securities, the usual vehicle for an expansive monetary policy, would create a monetary base by withdrawing from the system an equal value of short-term government securities. At zero interest, the liquidity services provided by base money and short-term securities would be roughly equivalent. So, if the central bank operates in a “business as usual” mode, that would not increase broad liquidity in the economy. Other methods of operations must be employed.

There are three avenues that could be pursued to increase broad liquidity by expanding the Federal Reserve’s balance sheet. One would be to buy from the public relatively illiquid assets such as long-term government bonds, which would provide the public with base money that would then be deposited in banks. The banking system would expand, deposits would grow, and the banks would hold reserves against these additional deposits. It’s important to understand that even if banks do not use these reserves to expand lending—and thus there is no secondary expansion of bank deposits—the Fed has increased broad monetary liquidity in the economy as a result of its purchase of relatively illiquid long-term bonds on the open market. Alternatively, the Fed could buy assets other than long-term government bonds—anything one can imagine that is relatively illiquid—and in that way also increase broad liquidity. The third way would be to monetize a government budget deficit. That would involve the government’s issuing new short-term securities, say, which the Fed would buy. We would thereby be providing the government with a monetary base, which in turn it would transfer to the public through a tax cut or in some other way. The funds placed in the hands of the public would be deposited in the banking system and deposits would increase, as would broad liquidity.

On page 7, I discuss the channels of monetary transmission by which quantitative policy might be expected to work. The two components of the transmission mechanism are the portfolio rebalancing channel and the credit channel. I will discuss those two channels sequentially, though you will see in a minute that to a large extent they are intertwined. By expanding broad liquidity in the economy the

Federal Reserve reduces what I'm going to call the "marginal implicit broad liquidity services yield on monetary assets." The implicit marginal liquidity yield falls because a greater abundance of broad liquidity reduces the exposure of households and firms to the external finance premium. The portfolio rebalancing channel operates this way: After an injection of broad liquidity that drives down its implicit yield, people will feel compelled to hold assets that are less liquid but have a higher explicit rate of return. Portfolio balance would require a similar fall in the explicit yield on nonmonetary assets. Equilibrium prices of nonmonetary assets would be bid up to restore the required return differential.

Turning to page 8, higher asset prices raise desired consumption out of current income. And higher asset prices relative to their cost of production would revive investment. The increased investment would raise employment, and higher utilization rates and profits would raise asset prices further. That is the essence of the portfolio rebalancing channel.

Let me talk for a minute about the credit channel (page 9). Because asset prices are higher, collateral values would be higher, net worth would be higher, and bank capital would be higher. As a result of the higher valuations available to back loans, the external finance premium would come down. Credit spreads would narrow, bank lending would revive, and spending would rise as the cost of borrowing against future income prospects falls. Those developments would occur along with the portfolio rebalancing channel, but I call them the credit channel because they are distinct in that they operate in the credit markets.

Turning to page 10, I want to note two implementation problems that I think would be hard to overcome. Even if the transmission mechanism outlined above works well otherwise, these two problems would hinder making the broad liquidity channels operative. Injections of monetary base can provide an impulse to get the recovery going, but for the recovery to be self-sustaining the public must be confident that base money will be expanded by as much and for as long as needed. That is, monetary policy must be supportive until the economy expands enough to support asset prices on its own. To acquire such credibility, the central bank must overcome the perception that it is excessively concerned about the inflationary risk of potentially very high growth in the monetary base. The monetary authority must be prepared to overshoot—perhaps by a wide margin—base money that will be demanded at stable prices after the economy recovers.

There is a second related, but distinct, implementation problem that would make gaining credibility for quantitative policy difficult. Ordinarily, relatively small changes in bank reserves suffice to support interest rate policy. We hardly have to move the System's balance sheet at all to support even large changes in the intended federal funds rate. At the zero bound, however, policy will have to exert its effect through broad liquidity rather than very narrow reserves liquidity. What we're talking about is operating on a monetary aggregate like M3—which is roughly around 8 trillion dollars—plus the stock of short-term Treasury securities, which involves

another \$1 trillion to \$2 trillion. The order of magnitude of that aggregate is about that of GDP. That will require large-scale injections of monetary base, substantially increasing the size of the Federal Reserve's balance sheet, I believe, in order to have the desired effect through the two broad liquidity channels of monetary transmission.

If all this is true, the Federal Reserve will need more fiscal support for quantitative policy at the zero bound than we usually are granted by the fiscal authorities. For one, there might not be enough long-term bonds to buy in order to expand the monetary base. Of course, we could buy other assets. But either way the Federal Reserve would be exposed to capital losses that might leave it with insufficient assets to reverse the huge expansion of its balance sheet that is being contemplated. In other words, to be willing to use quantitative monetary policy at the zero bound, the central bank must be able to inject large quantities of base money into the economy and be confident that it will have the assets to drain this money after the economy has recovered. In particular, we'd need to be able to drain money that threatens to become inflationary, or we would be reluctant to embark on this process in the first place.

The fiscal authorities could come into the process in a number of ways (page 13). They could promise to transfer to us enough assets—in effect to recapitalize the central bank if necessary—to allow us to drain the amount of base money that needs to be withdrawn from the economy. Alternatively, the fiscal authorities could agree to run a budget deficit at the central bank's request to help us inject broad liquidity into the economy. The central bank could monetize short-term debt issued to finance the deficit and then withdraw excess base money later by selling that debt to the public. Quantitative monetary policy actions at the zero bound could result in a significant increase in government debt in the hands of the public when this process is over. The fiscal authorities might be unwilling to allow the public debt to expand at the discretion of the central bank. Yet the central bank might be unwilling to pursue an aggressive expansion of its balance sheet without a commitment from the fiscal authorities to support monetary policy fully. A prearranged agreement could enable quantitative policy to work credibly, flexibly, and effectively—at least the way this story goes. That concludes my discussion of quantitative policy at the zero bound. In my remaining time, I would like to discuss briefly five other policy options.

The first option, “do nothing unusual” (page 17) involves keeping the federal funds rate at zero without increasing the monetary base any more than would be necessary to do so. As Dave and John pointed out, the contraction would likely be deeper than usual because we'd be constrained at zero. But I want to point out two other risks that I think would arise that are not ordinarily discussed in conventional simulations.

One is that if we have a distressed banking system, banks would provide inside broad liquidity much less elastically than usual. Ordinarily, banks would accommodate an increased demand for broad liquidity by accepting deposits and making relatively illiquid loans. That is, they would reintermediate the funds. If

bank capital is impaired, banks may instead buy Treasury securities with new deposits. If they do, banks would not be accommodating the increased demand for broad liquidity at all. They would accept the deposits but would withdraw other instruments that would have been providing broad liquidity in order to hold those assets on their own balance sheets. In that case an excess demand for broad liquidity, which could be substantial in a depressed situation at the zero bound, would work the monetary transmission process in reverse. The excess demand would not be met by the Federal Reserve in this “do nothing unusual” case nor by the banks, and that excess demand for broad liquidity would depress asset prices and spending. That is one problem with doing nothing unusual. A second is that a policy vacuum would occur, which could encourage ill-advised fiscal actions. Some fiscal actions may be beneficial, but many would not be. For instance, the government might enact legislation that results in wasteful government spending, inefficient credit subsidies, or forbearance in the banking system in connection with deposit insurance. As the debt-GDP ratio rises, the government might resort to off-budget fiscal policies such as anti-competitive measures to help wages and prices in particular sectors. All told, such actions could lower the level of potential GDP and its rate of growth, as they appear to have done in the United States in the 1930s and in Japan in the 1990s. What I’m arguing is that “doing nothing” does not mean that nothing gets done. It means that the ball would be in the court of the fiscal authorities, and we’re not sure what would happen in that case.

A second possibility (page 18) is that the Federal Reserve could commit to holding the federal funds rate at zero by writing options on future short rates to give itself an incentive to keep rates down in the future—Dave and John mentioned this briefly. That possibility has the advantage of acting directly on long-term rates; the disadvantage is that the effect would be relatively small if long-term rates are close to zero anyway—as they are, for example, in Japan today. There is another problem in that I think the credibility of any commitment to keep rates low would be doubtful, given the pressures to take interest rate actions deemed appropriate at each point in time.

Another option (page 19) is that the Federal Reserve could buy foreign assets or depreciate the foreign exchange rate or both. Though different, I’ve grouped these actions together because they both make use of openness. For instance, we could buy foreign government securities to help increase broad liquidity as part of a policy package designed to stabilize domestic economic conditions; such a program need not have any effect per se on the exchange rate. The advantage is that we already are authorized to make such purchases; and if we could do that in lieu of buying long-term bonds, it would help us perhaps to operate independently of our own fiscal authorities. One problem, as with the acquisition of any non-Treasury security, is that we would bear the credit and price risk—in this case, the exchange rate risk. Separately, we could depreciate the exchange rate, which has the advantage that it is a well known and readily understood policy that has been tried around the world. The disadvantage from the U.S. perspective is that our economy is very large and not all

that open, so we could export deflation and recession without helping the domestic economy very much.

Moving on, the expand credit policy option (page 20) would call for increased discount window lending and the purchase of private debt. That would reduce private credit spreads and help to finance credit-constrained firms. The advantage is that we have wide latitude to lend to banks on collateral. We would need new legislation to buy private debt, but by all accounts our current ability to lend through the discount window would be sufficient to accomplish our objectives. However, I believe that the central bank would make a poor financial intermediary. I would argue that a central bank should use credit policy sparingly and temporarily only to foster stabilization in financial markets but not for general policy stimulus. It is worth remembering that quantitative monetary policy, as I discussed earlier, works partly through the credit channel. Quantitative monetary policy would go a long way toward facilitating intermediation in the private sector by raising collateral values and net worth and reducing the external finance premium. It is possible, therefore, that the central bank could improve the flow of credit in the economy at the zero bound without becoming a financial intermediary itself, which I believe is an important factor to bear in mind.

The last option (page 22) is that the central bank could pursue deliberately an inflationary policy—again a possibility raised by Dave and John. Based on my discussion of the broad liquidity channels of monetary transmission, I believe that quantitative monetary policy could stimulate the economy at the zero bound without creating inflation or inflation expectations. Temporary inflation would be desirable to reverse prior deflation that raised the real value of nominal debt. However, unleashing inflation could be counterproductive; if such a policy were utilized routinely near the zero bound, then expected inflation would rise any time that the federal funds rate approached zero. Rising inflation expectations would be destabilizing and difficult to manage, just as inflation scares in the bond market have been difficult to manage in the past. So, I don't think that we would either need or want to create inflation to try to overcome the zero-bound problem. That concludes my remarks. I would be happy to answer any questions.

CHAIRMAN GREENSPAN. That was a very interesting and perceptive set of papers.

Let me start off with some questions. You indicated that the results of your model—and, indeed, implicitly the results of Marvin Goodfriend's model—are peculiar to the individual model in the sense that the structure of the model obviously determines the outcome. What varies are the coefficients that are put into it. You mentioned that other models gave similar results; but the

obvious point is that if they're structured similarly to the model you have and they don't produce similar results, somebody made an arithmetical error. And that's not terribly informative.

I'm a little curious to get from the three of you a sense of how robust you believe the results and your conclusions are. For one, you're operating generally outside the scope for which the data are fitted in your models, and of necessity there's a linearity that is implicit in the structure of your models. Very serious questions arise as to whether in fact, as you approach some of these bounds, linearity is the appropriate presumption regarding how economies function. Very specifically, one issue that I think Marvin raises indirectly is that there is a conceivable possibility that these functions, even if they are nonlinear, are smooth and incremental and that the first differences don't vary all that much from one period to the next. But we're not sure of that. There may in fact be a discontinuity at some point, in which case we may build up a significant amount of inflationary tinder in a deflationary environment, nothing happens for a time, but then the tinder ignites in a way that induces a very dramatic reversal from deflation to inflation. That creates all sorts of instabilities. So I'm frankly curious to get a sense from you, after having simulated the models as much as you have and having an obvious advertence to other structures and other relationships, as to how robust you gentlemen perceive your results to be. To a certain extent, Marvin's results are almost an accounting system. I believe you're merely describing the mechanisms by which we can change the monetary base, Marvin, and those are essentially the result of our institutional structure. We could go ahead as a central bank and just print money and buy assets—we could buy baseball teams for all we need—and we can generate as much currency as we want. So the conclusions of the three of you are fairly specific, and they imply that your models depict how the real world would work. I'm

curious to get your impression not of what the standard deviation of your simulations off the existing structure is but what the standard deviation of your models is from reality. [Laughter]

MR. REIFSCHNEIDER. One of the unnerving things about working on this is exactly the problem that you pointed to at first, which is that we have models that were fit over a period where we didn't hit the zero bound at any point in time. Now we're running simulations in which we drive the nominal fed funds rate into a region where there's a very pronounced nonlinearity, the zero bound. When we run the model—and as you said, it's a mostly linear model, although we can run it in ways that have certain nonlinearities in it—at that point it's not linear, and all sorts of odd things start happening. We worried a lot about how far to push these results and how generally applicable they are because certain changes to the model can make the problem less severe and certain changes to the model can make the problem a lot more severe. We listed some of those at the beginning of our remarks.

If you think that the economy in terms of real activity is a lot more interest sensitive than we have built into the model, then you'd be more sanguine about the zero-bound problem. In that regard I'm fairly confident that we're probably okay because interest sensitivity in our model, if anything, tends to be on the high side of what a lot of people think. The area in which we often get into the most discussion with other people about whether we've got it right is inflation dynamics in the model. If you think that inflation dynamics don't work this way and you believe that some other mechanism comes into play—and one possibility here is that increasing the growth in the monetary base would have a direct effect on inflation expectations—that's a very different world than the one portrayed by the model. In terms of expectations—how people would respond to rates hitting the zero bound and what they would think about where policy is going—we have agents behaving very rationally in the model. Under some

conditions, these rational expectations stabilize the system, and under some circumstances they actually lead the system to instability because people look at the situation and say “Oh my heavens, policymakers are getting themselves into a problem that they can’t get out of.” In running the simulations, in order to keep the model from crashing into “great depression” scenarios when expectations become this pessimistic, we have to have operating in the background the assumption that under very extreme conditions the fiscal authorities come to the rescue.

Under other expectational assumptions it is possible to have a situation where the problem would be less severe because people don’t realize the trouble they could get into. They don’t realize the implications of the situation, and that particular form of ignorance or rule of thumb behavior is actually stabilizing. One can envision other examples where people extrapolate forward and don’t see the potential for getting out of this difficulty in some of the ways we discussed, and as a result things are a lot worse.

So my general remark on this is that we did the best we could, though we’re extremely uncertain about what would actually take place at the zero bound. Our only real guide is to look back at either the Great Depression of the United States or at the more recent experience of Japan. Taking the Japanese experience, we at least know that if we hit the zero bound it leads to a poorer macro performance than we would like. So in that sense we think it’s a real problem. Whether it’s as severe as it becomes in some of our simulations is something I’m not so sure about.

MR. WILLIAMS. One point that Dave raised that is crucial in thinking about model-based analysis is that we are using an estimated model on thirty-five years of data during which we have not seen a period when the zero bound was a constraint. Nonlinearities may pop up

during recessions for short periods of time but are not a dominant feature of the data in terms of their average behavior. So we really are pushing the envelope a bit with respect to what a model can do. And we recognize that. One of the questions that people often ask in thinking about this is, Are we getting enough recessions, or is our model too stable? And in fact, as Dave mentioned and as we described in our paper, we get some whopper recessions or depressions in this model. The shocks that we have in our simulations I don't think grossly overstate or understate the risks to economic performance. But whether the economy would behave as the FRB/US or any other model predicts in a situation like that, we just don't know, in large part because we just don't have that experience to incorporate into the model.

MR. GOODFRIEND. In a way, my discussion had an advantage in that I didn't have a model. [Laughter]

CHAIRMAN GREENSPAN. You have double-entry bookkeeping, which is better than some of the accounting practices we've heard about recently! [Laughter]

MR. GOODFRIEND. I will say that the discontinuity—though I didn't use that word—worried me. There were a number of possible discontinuities that worried me, such as banking system distress or fiscal interventions—things that don't usually happen but that occur at the zero bound. That's why I was focusing on mechanisms that could get money into and out of the system. I was thinking about how we would position ourselves against this kind of unleashing of inflation—that's the term I used—rather than “punting” on where that glass ceiling would be. I wanted to think about designing a system that would be robust against it. That is more or less what I was doing.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Thank you, Mr. Chairman. I also think that these papers are excellent, including the paper on “Lessons from Japan’s Experience.” I’d like to ask a question. Marvin, on your quantitative policy at the zero-bound alternative, it’s interesting to me to think of it in the context of Japan’s experience. Suppose the performance of the Japanese economy is similar to that projected in the Greenbook—a forecast of deflation in Japan in every quarter for the next two years. As a result of all the problems that we’ve seen, people have begun to question what the real equilibrium interest rate is in Japan at the present time and what has happened to the trend of growth rate potential. It seems to me that a quantitative policy may run into particular problems because the real rate of return on cash—on not lending it out—is positive in a deflationary period. In contrast, there’s a lot of uncertainty, given all the travails they’ve run into, about what the rates of return are on other assets. Could you relate this to Japan, please?

MR. GOODFRIEND. Yes, Japan has gone so far down the road that, you’re right, it’s very hard to imagine that it could dig itself out with quantitative policy. But I’ll say this. As I was working on this, I was motivated by the current situation in Japan. I think there are a number of points of contact where I could see what I’ve been talking about happen in the Japanese situation. The first is that if the Bank of Japan were going to engage in quantitative policy—if it were willing to expand the size of its balance sheet by as much as I believe would be necessary to be effective—I believe it would need to get some prior commitment from the fiscal authorities that it would be able to pull the money out later. As you know, the Bank of Japan was made independent from the Ministry of Finance just two or three years ago. I think it’s hard for them to get back together and cooperate when they’ve spent a good deal of the last fifteen years trying to get a divorce. So that’s one problem. As a central banker, I have some

sympathy with the BOJ situation on that score. I'll get to your rate of return question last; that's the most difficult.

The next issue is the banking situation. Much of the problem in Japan is not a central banking problem; it's a fiscal bank regulation problem. If I were a central banker in Japan, I would be willing to pursue quantitative monetary policy aggressively if I could get two commitments from the Ministry of Finance: one, for the fiscal authorities to support monetary policy along the lines of my earlier discussion and, two, for the fiscal authorities to deal with the problems in the banking system.

To get to your last point, it's true that as the deflation gathers speed, it's harder to get out of this jam. But the mechanism I was talking about—the margin upon which quantitative policy would operate—would still be there. The implicit shadow broad liquidity services yield would be still there. In fact, it may be bigger in Japan than it has been for a long time because the value of having liquidity is much higher now than previously. That is the case, in turn, because the external finance premium is elevated as a consequence of the fact that asset valuations are depressed and loans are more costly to monitor and enforce. Therefore, I believe that there would be a substantial shadow margin for Japanese monetary policy to exploit if the BOJ were to do quantitative policy in the way I was suggesting.

CHAIRMAN GREENSPAN. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, like everybody else, I found these studies to be enormously interesting and very beneficial to my own thinking. I do think that we have a problem, as you suggested, in that we don't have any episodes over the last thirty-five years with which to compare this. So we look at the Great Depression or we look at the situation in Japan.

I think the mistakes that were made in the Great Depression are sufficiently known that we can be hopeful that we wouldn't make those mistakes again. I always have a great deal of difficulty in thinking that we could possibly learn anything from the Japanese experience. I say that because if we look just at monetary policy, there's an impression that the rest of the economy and the Japanese society are really quite similar to ours when in fact they are not. The greatest competitive advantage the United States has is that we have the most flexible economy in the world. It could easily be argued that the Japanese have the least flexible economy in the world. And if one compares the two banking systems, it is clear that the banking system in Japan has never been very strong even in its best day, whereas ours—certainly at the moment—is extremely strong. The quality of bankers in Japan, in terms of their being able to analyze a credit and understand how it is likely to be repaid, is extraordinarily low, whereas in fact in this country we have some very good bankers.

On occasion in any democracy one is challenged to ask if the elected officials really are dedicated to the good of the people. In the case of the United States of America, the answer to that is clearly "yes," whereas I think the elected officials in Japan are demonstrably interested in only one thing and that is being re-elected. Therefore, I think their patriotism is open to considerable question. So I really don't think that the Japanese experience tells us very much. We don't even have to go into the self-congratulatory area of comparing the relative qualities of the central banks because that probably would be unkind.

I have a bit of difficulty in dealing with some of Marvin's thoughts—not the recommendations. I think there's a certain point, when there is a degree of togetherness between the central bank and the Treasury, at which the central bank's independence has long since become a thing of the past. Leaving aside that institutionally we at the Federal Reserve probably

wouldn't like that, I think the American people would notice that, and there would be a tremendous loss of confidence in the system as a whole. I think that's a price that we shouldn't pay.

I'd say that my principal interest is in the recommendations for monetary policy that stem from this research. If I'm right in my thinking, the Reifschneider-Williams paper leads, after a very good analysis of the problem, to the following three recommendations on monetary policy: Aim for a long-run average inflation rate that is not too low; respond aggressively to movements in inflation and output; and pursue policies that promise higher inflation following zero-bound episodes. Let me assume that that's pretty close to what you've concluded.

As for the first recommendation—aim for a long-run average inflation rate that's not too low—we actually already do that. There are occasional efforts by my distinguished friend Mr. Parry and one or two others to suggest that we take advantage of the opportunity to drive the inflation rate lower. And as an admirer of hope conquering experience, I think it is good to discuss that every now and then. But clearly, there is no mood on this Committee to drive the inflation rate down to 1 percent or 0.5 percent, say, and get near the area that many of us would find, for the reasons you cited, to be a little dangerous. Let me go to the second recommendation, which is to respond aggressively to movements in inflation and output. In both directions the Committee in recent years has shown an incredible willingness to act aggressively and highly preemptively. Therefore, I think we're doing that also.

As for deliberately pursuing policies that promise higher inflation following zero-bound episodes, I actually believe in doing that. To me the question is, Do we go about giving speeches about it? If we did, I think we'd have the problem that a number of us have been concerned about for some time, and that is the issue of whether to have a formal numerical inflation target.

My own view is that if there is to be such a thing, it should be established by the Congress. And I'd rather not have the Congress do that because I believe the people of the United States have been served very well by the fact that in our minds, and not necessarily way to the back of our heads, we do have an inflation target. It's not a numerical target but a movable one. It's the Greenspanian definition of whether people are thinking of inflation as they make their decisions. That's the kind of inflationary target I like. So, after considering the staff analysis of the problem and their recommendations, I came to the conclusion that we're so close to where the research staff suggests we should be that I'm not sure what in addition the staff would want us to do. At long last, that's my question.

MR. REIFSCHEIDER. I think I agree—I'll speak for myself and John can chime in—with everything you said. One point we deliberately didn't emphasize in our presentation is that following the generally more aggressive rule produces behavior for the last year that looks remarkably like the decline in the fed funds rate that actually occurred. Now, I'm not saying that that's how monetary policy was made last year. But it just so happens that if you had been using that kind of rule and you thought that was how policy behaved, you wouldn't have been surprised by the speed at which the fed funds rate came down in 2001. So in that sense, your view is broadly consistent with the model we presented.

Second, the Committee probably would never want to go as low as the zero inflation target for core CPI shown in our example because of the bias in it and for all sorts of other reasons. And if you thought that core PCE inflation of 1½ percent seemed okay, well that's equivalent to the 2 percent that we were talking about. So that's the same. Finally, I don't know how enthusiastic we really are about the promise to run higher inflation down the road that we show as one strategy. I think our view would be that it certainly wouldn't hurt, and at least it

would be better than some of the public statements made by Bank of Japan officials when they assured the public that they weren't going to let inflation get out of hand. I'm not sure there was much point in saying that. I suspect it was counterproductive, although it may not have done any great harm. In any event, it's not wise for the central bank to say that it is in favor of staying with a zero inflation target under those deflationary circumstances.

MR. GOODFRIEND. I'm a little confused about one thing. I could see that reflation would be beneficial if there had been a prior deflation. But are you arguing that even if there were no prior deflation you would want to set up expectations of inflation as a way to help us out of a zero-bound situation? I might disagree in that second case.

MR. WILLIAMS. To be clear on the analysis that we did in our paper and that we talked about here today, running at that higher inflation rate was really just to repair the damage that had occurred because of the zero bound. So whether or not we had inflation or deflation didn't determine what we did. If inflation were below where you would have had it for your policy rule because of the zero bound, you would offset that through an easier policy for a while. So your average inflation would still be right, but you would not be inflating just to inflate.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. I want to note first of all, without going into any detail about the lessons we may or may not have learned from Japan, that the relevance of the Japanese experience for so-called quantitative policy is clear because it hasn't been tried. Japanese money growth, as I understand it, never exceeded 4 percent in the past decade, and for most of the 1990s it was a good bit less than 4 percent. And in the 1980s it was more like 8 percent or close to it. So what Japan did was to allow money growth to sag as the country went into a period of ongoing recession and the Bank of Japan never attempted to use quantitative policy to get out. So we

don't know from the Japanese experience whether that is going to work or not. In fact, the Japanese experience would be consistent with a traditional Chicago view, which says that the economy can fall into a depression if money growth is allowed to be too low for too long.

Now let me ask a question about the characteristics of the econometric model that we've been talking about. Imagine a simulation in which there is ongoing deflation—I'll just pick a number of 10 percent a year for the sake of argument here—and expectations have fully adjusted and people are anticipating ongoing deflation of 10 percent. Now imagine another case of the same sort with 5 percent deflation or 15 percent or 20 percent where expectations are fully adjusted. In the meantime, all government interest rates have settled at zero on all maturities. As I understand it, the characteristics of the model are such that it will generate a higher amount of unemployment the greater the rate of deflation, and monetary quantities don't enter into this calculation at all. So, that's a characteristic of the model. And the simulations that we have talked about that were in the paper you presented embody that characteristic where expectations are consistent with the deflation that will be generated by the way the model works. But, of course, that is an experience that we have not in fact had.

Suppose you were to generate a simulation with a different assumption, such as that any deflation that got under way would not last beyond five years and that after five years expected inflation would be zero. That would result in very different dynamics, I think, at least as it applies to the behavior of long-term investment because it would mean that very long-term interest rates would not in fact be driven high in real terms as a consequence of just a short period of deflation. So the issue has to do in part with the characteristics of the model and in part with the assumptions under which the model is simulated to give these results. I see people shaking their heads in agreement, so I guess I'm on the right track there. Now, you say that the

model assumption is that quantities are not too important. That of course reflects the fact that if you had a simulation with, say, 5 percent deflation a year for many years, it turns out with a fixed monetary base, for example, to generate an enormous increase in the monetary base per capita. And you're saying that it would not matter. Of course, this argument was explored quite thoroughly back in the 1950s and 1960s with all the discussion about Keynesian unemployment equilibrium and real balance effects. That was sort of the origin of Patinkin's book, on which I cut my teeth as a graduate student. Your model assumes that those quantitative effects can't work or are not operable. I just want to be clear about the nature of the experiment that we're running. Surely, in terms of U.S. experience, you would not be able to estimate parameters about the expectations process to distinguish between an assumption of continued deflation and an assumption that, whatever might happen in the meantime, zero inflation is expected after five years. That's not within the realm of experience. So you couldn't really come up with any estimates to distinguish one assumption versus the other assumption because it's not in the data set.

Therefore, the characteristics in the model that you used, particularly this full rational expectations equilibrium, are critical to the output that you get. I'd like to make just one other comment about that, and I think Marvin was getting at this point. As a practical matter, if we ever fell into an ongoing deflation—and certainly the U.S. experience in the 1930s illustrates this very well—all sorts of other things would happen in terms of the reaction of the government. If we think about what has happened in Argentina, the way I read it is that essentially the conversion of all dollar magnitudes to pesos destroys any possibility of a capital market in dollars because any contract made in dollars can be undone by the government at any time. That's the experience that country has just gone through. So interest rate policy is irrelevant as

well because there is no security in contracts going forward. Anything can be undone at any time. Consequently, Argentina is in a terrible mess because it has destroyed the possibility for a normal functioning of its monetary economy with normally functioning credit markets.

CHAIRMAN GREENSPAN. The very definition of an interest rate presupposes property rights.

MR. POOLE. Exactly. One has to be able to count on contracts being fulfilled on both sides of the transaction, and that assurance is gone in Argentina. Now, as a practical matter, in extreme circumstances something along those lines also would begin to happen in the United States. In fact, something of that sort did start to happen with cartelization in the 1930s, where normal commercial activities found themselves being conducted under a new set of rules—rules in which there was not very much confidence because they could be undone at almost any time. To me that's the more important lesson of our experience as to what happens if a country ends up in a period of depression—that a lot of the normal commercial activity begins to be questioned as a consequence of other activities that might take place. The reason I want to emphasize that point is that the characteristics of the model and the assumptions in the model are obviously critical to the simulation exercises that were run. And given that I would put a lot more weight on quantitative effects, if you will, that are not in the model at all, I regard the model as being of limited—not zero, but limited—relevance on the issue of what the appropriate long-run inflation target ought to be. I'm not convinced, given the assumptions and the way in which the model is simulated, that the results tell us very much about the question of what rate of inflation would be most appropriate or most stable.

MR. WILLIAMS. I'd like to respond to a couple of comments you made regarding how the model was simulated, just so I can clarify a few points.

MR. POOLE. I was raising questions more than making assertions.

MR. WILLIAMS. With regard to the assumption of rational expectations, what we did in the paper and in what we reported today was to assume rational expectations, meaning that the expectations people form are those of the model. We also assumed that fiscal policy comes in aggressively after five years to stop a “great depression” from occurring or at least to limit the damage. One of the implications of that is that after five years the zero bound is not constraining policy anymore. Basically, fiscal policy is replacing monetary policy; that’s the way we think of it. So in your example, you could think of the zero bound in play for five years, affecting the five-year bond completely. But the ten-year bond would have five years for which it wasn’t affected, and the thirty-year bond obviously would be affected even less. So the way we did this, when we bring in the fiscal policy I think that is closer to what you consider a more reasonable way of thinking about this—that it would only be going on for about five years.

MR. POOLE. What happens to the inflation rate five years out?

MR. WILLIAMS. The expectations are still rational in the sense that, if we had deflation for five years, say, the inflation rate would start coming back to zero gradually depending on the quantity dynamics. It wouldn’t jump to zero, but it would come back gradually.

MR. REIFSCHNEIDER. So a ten-year bond would be pricing in a deflation rate of 5 percent five years out, but it would also be pricing in an inflation rate that would be back to zero ten years out.

MR. WILLIAMS. Right, and that would depend on whatever your target was. So with regard to what happens in the “great depression” scenarios, it’s clear that our FRB/US model breaks down under conditions such as a 25 percent unemployment rate. Again, with fiscal policy coming in, the rescue package avoids these situations generally. Our analysis has few of those

events occurring and, one could say, “contaminating” our results. In our paper I believe we reported that with a zero inflation target, we would have a major depression once every century or so. So I think that addresses those two questions.

On the quantity effects, it’s true that what we are saying is that if quantity effects don’t matter—the monetary base doesn’t matter—this is what the problem would be. Clearly, if one were to layer on the effects that Marvin was talking about, that could lessen or change the results we would get. I would note that at the Vermont Woodstock Conference, Ben McCallum looked at the question of how big the quantity effects would be, and his conclusion was that normally they wouldn’t be that big. But that’s a point that I think one might dispute.

MR. POOLE. May I ask one other question about investment behavior in the model under these circumstances? I remember, and you may, too, if you ever read the macro textbook written by Martin Bailey of the University of Chicago—not the Martin N. Baily who was recently on the CEA—a very striking chapter in which he was trying to address this issue of unemployment equilibrium in a Keynesian context. What he pointed out was that, if you have investment projects, a finite amount of capital spending can produce returns into the indefinite future. The examples he used were land improvements. My favorite one, which always made me smile, was leveling the Midwest. [Laughter] The Midwest is not perfectly level and in fact there are drainage problems in all the agricultural areas in the Midwest. At any rate, Bailey had these fun applications. In this case he said that you could strip off the topsoil, bring earth up from the shallow parts of the Gulf of Mexico, use it to fill in various areas, and level the Midwest. Then, once you had created this level agricultural land at some finite cost—it would be expensive but the cost would be finite—you would have an indefinite stream of higher productivity from the improved land. And, as you push the interest rate down to zero, the value

of that indefinite stream becomes as large as you'd like and covers any finite cost of doing the project. So he argued that the notion that the investment demand function hits the axis at a zero rate of interest doesn't make any sense. Critical to that argument, of course, is the existence of property rights because the argument doesn't work if in fact you can't realize the returns—if they are cut off as a consequence of seizures of land or whatever.

Japan, of course, has not pushed long-term interest rates down to zero, which would be within the realm of possibility for the central bank to do. Presumably the Bank of Japan could push out the maturity structure. So one of the questions I would put to you is, What are the characteristics of the investment demand function that you've been working with? If we push long-term interest rates down to zero, or as close to zero as we please, we can make those present values for indefinite streams of income as large as we please. Now, of course, there's the question about risk premiums, or a lack of securities, and I understand that.

MR. REIFSCHNEIDER. That's why that never actually occurs in a simulation. While you could be driving down expected long-run rates on a riskless security close to zero, for private investment these endogenous risk premiums are going up because the health of the economy is not good in that state of the world. So I think in principle, if you could somehow get rid of that risk, you could mitigate these slumps by quite a bit in that world. But what exacerbates those slumps in the world that we're simulating here is that the risk premiums on private assets—the default premiums—are rising. And that's not a small effect, actually.

MR. POOLE. Right—although let's look at the Japanese case. Clearly, if Japan had moved earlier and more aggressively to drive long-term government rates down to zero, that would have produced, at least in the short run—because all those risk premiums were already there—a decline of the private rates as well, presumably basis point for basis point.

MR. REIFSCHNEIDER. It might even have been more than one-for-one because the expected default risks might have been dropping under those conditions.

MR. POOLE. Right.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you, Mr. Chairman. I also find it interesting to go through this kind of exercise, academic as it is, in part because it helps to get one thinking about what we can learn from our own historical experience and that of other countries. We also learn something about what the literature has had to say about these kinds of issues over time. What other people have said in past times might be relevant in the future, even though it hasn't been relevant over the mostly inflationary period of the last several decades. Like Bill McDonough, I don't think we can learn a lot from the experience of Japan in the 1990s that would help us because the starting point is so different. To me the starting point for the Japanese experience, 1989, was more comparable to the situation in which the British found themselves in the 1920s than the problems our country experienced in the 1930s. Japan started off with the price of cantaloupe at about \$70 and the land under the Imperial Palace worth more than the State of California—or so it was said—and constrained itself on the exchange rate regime. In that environment, if you're going to liberalize your economy, either you're going to have falling goods and assets prices—what we call deflation—or you're going to have a falling exchange rate. If you say “no” to the falling exchange rate and also say that you are going to try to prevent the deflation in goods and assets prices—futile as it may be—then the notion of having quantitative easing or an interest rate policy in that setting isn't going to take you anywhere. Something has to give, and it may give violently.

Last year, when Japan announced quantitative easing, there was a very interesting piece by John Greenwood saying that, yes, it was a move in the right direction but it wasn't nearly enough. He had some estimates, and I've forgotten what they were, as to how much Japan would have to do for the policy to be effective. By the end of the year the amounts probably got to the order of magnitude that he was suggesting last March when the Japanese introduced this program. But he also was very clear about the implications for the exchange rate of pursuing that kind of policy.

A problem with a deflation—we talk about disinflation meaning that the real rate rises relative to nominal rates—is that deflation means, as I look at it, that we get into an asymmetry where the real rate is above the nominal rate. And if you have a zero-bound nominal rate and you accelerate deflation and build in expectations of falling prices, that results in a situation where the more you drive policy in that direction, the more you have the real rate rising. So you have a self-reinforcing contractionary mechanism unless you can somehow turn that around. This is just the inverse of Parkin's paradox, where in an environment of accelerating inflation with people adjusting their behavior, the quantity demanded of nominal balances is going to fall, so a lower monetary growth is expansionary. The inverse is that, if people are expecting a sustained disinflationary process, then the quantity of demanded money rises and so a faster money growth is consistent with a disinflationary model. Therefore, it's called a paradox. The same thing, I think, applies to deflation. It says that you have to have much, much greater increases in the quantity of money—you have to engage in quantitative easing—to get out of that.

One of the writers on this, going back several decades, was Axel Leijonhufvud, when he was working with Clower at Northwestern. He said that the problem the general theory was

addressing is that even a market economy that normally is inherently stable within a corridor can be blown out of this corridor of stability—into an inflationary spiral or a deflationary spiral—by various types of shocks. Then he brought in what he called a more general theory Keynesian-type policy. Also important is that the distinction between what we would call monetary policy or fiscal policy wasn't very useful because the mechanism by which central bank money is created was no longer there. We saw this in some real-life cases in Germany. This goes to Marvin's point about how the central bank gets base money into the system or takes it back out. Germany had a situation in 1970-71 and thereafter—when all the exchange regimes were coming apart—where they had a massive inflow of foreign-owned deposits into their system. They also had what they considered to be a very expansionary monetary policy, and they didn't know how to contain it. They could go only so far with reserve requirements and so on. So what they introduced was a special stabilization surcharge where they added a surtax on personal and corporate income taxes to constrain demand. I asked, "Well, how does it work?" They answered that they put the balance at the central bank and just build that up by as much as the amount of the surtax. And I said, "Oh, that's monetary policy, which contracts the base." And they said, "No, it's fiscal policy." They said that in the political dialogue it was important to call it fiscal policy. Okay, that's fine with me. Well, they also had sold all their government securities, again a problem that Marvin raised. And then they asked, "Now what do we do?" I said that it was simple—they should just issue money market liabilities on the central bank. And they said, "How much?" And I said, "As much as it takes; just offer a positive rate of interest and sell them and you can contract base money."

As a part of a pedagogical exercise, since this is an academic discussion, I did it the other way around. How would you as a central bank expand the monetary base if you didn't have the

opportunity to go out and buy government securities or something like that? My answer is that you should simply run a positive sum lottery. There's no question that you could sell an awful lot of tickets [laughter] if you have a positive sum lottery offering to credit the winner's account. You can blow up the monetary base as much as you want, and you can sterilize it as much as you want.

CHAIRMAN GREENSPAN. Any more comments, gentlemen? President Broaddus.

MR. BROADDUS. I had a very narrow follow-up question to the original question that I believe you raised, Mr. Chairman, about discontinuities. I would address it to Marvin. I thought I had asked him everything I needed to ask, but I guess I haven't! The key element that works in Marvin's mechanism is the broad liquidity premium and yield and the ability to move that. So my question is this: Is it necessarily the case that the mechanism can't work incrementally at the zero bound? In other words, because of the nature of the mechanism that is at work, it seems to me that we can't rule out the possibility that we wouldn't have to pump in a lot of money and then run the risk of a big resurgence in inflation. Is that right?

MR. GOODFRIEND. Yes, I think that's true. If this policy were known to be effective and all the pieces were in place to make it work, it's probably true that you could get by with a much smaller increase in the monetary base. That's because once people saw that it was going to work, they would be more optimistic about the future. As with all these models, credibility is everything. If the policy is really credible, asset prices would begin to rise, and then the economy would start to recover. I think that would be true.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. I have a couple of comments by way of expressing some reservations or uncertainties. When I first looked at Marvin's work, I was reassured. It seemed as if there was a

long list of options we might try and sort of roll on our own. But quantitatively I don't know the significance of any of this, and I don't know if there are any estimates around. I suppose not, given the circumstances. So I guess I'm less reassured than I was earlier.

However, my major point is that the other paper seems to suggest that one way to avoid trouble is not to set the inflation target too low. Of course, if we phrase it that way, that makes good sense. But if I think about it a little more intuitively, I'm not quite sure I buy that. There is respectable literature that says optimal policy should aim for low interest rates and low inflation. I admit that, at least in my world, the economy is largely self-correcting. I also agree with the comments that we can't learn much from looking at Japan. And what I think we can learn from looking at the major depression in our own country is that a series of policy mistakes were made, and if we avoid those mistakes, we're likely to avoid those kinds of problems again.

My final observation along those lines, and I wouldn't push this too far, is that if we look at the performance of the U.S. economy in the second half of the nineteenth century, at least superficially, we see a mild deflation accompanied by fairly steady increases in per capita GDP. That suggests that overall the economy could operate in that kind of environment. I think I'll let it go at that.

CHAIRMAN GREENSPAN. Okay. Why don't we take a coffee break and then we'll turn to the chart show.

[Coffee break]

CHAIRMAN GREENSPAN. We will now have the chart show presented by David Wilcox, Larry Slifman, and Karen Johnson.

MR. WILCOX.⁴ Thank you, Mr. Chairman. We will be referring to the material labeled "Staff Presentation on the Economic Outlook." Your first chart sketches the broad outlines of the staff projection. As you know from the Greenbook, we believe

⁴ Materials used by Mr. Wilcox, Mr. Slifman, and Ms. Johnson are appended to this document (appendix 4).

that economic activity is close to or at a trough. If this indeed turns out to be the case, we will have experienced a very mild contraction in some dimensions. For example, as shown in the upper left panel, we now expect that four-quarter growth in real GDP may just touch zero rather than dipping well below, as has been more typical of postwar recessions. As shown in the panel to the right, our Greenbook projection had output edging only slightly lower last quarter—a considerably better outcome than we had been expecting just six weeks ago. Moreover, as Larry will be discussing in a few minutes, the data on manufacturers' orders, shipments, and inventories that we received this morning were a shade stronger than we had been expecting and, all else equal, would cause us to nudge up a shade further our estimates of growth last quarter and this quarter. I should note, of course, that BEA's adding up of the fourth quarter will be released tomorrow morning. We see real GDP growth gathering steam over the first half of this year, moving modestly above the growth of potential by the third quarter and remaining above potential through the end of next year. As shown in the middle left panel, we expect the unemployment rate to peak soon at only a little above its current level and then to drift down over the remainder of the forecast period. Slack in resource utilization, together with the indirect effect of lower energy prices, should be sufficient to put core PCE price inflation—shown by the red line in the middle right panel—on a downward trajectory. And with structural productivity growth expected to rebound a bit next year, we see core PCE inflation moving down into the neighborhood of 1 percent by the end of 2003. The bottom panel outlines some of the major forces shaping the outlook as we see it. First, on our assumptions, monetary and fiscal stimulus will be substantial enough to offset considerable restraint from the stock market and the dollar. Second, the inventory correction should be coming to an end. Third, excess capacity in many industries is likely to weigh on the strength of the recovery in equipment spending. Finally, inflationary pressures remain in check.

Your next chart provides some historical perspective on the recession that we believe is just concluding. As you may know, the Business Cycle Dating Committee of the National Bureau of Economic Research applies three criteria in determining whether a given historical episode qualifies as a recession; these criteria are often referred to as “the three Ds” of recessions—duration, depth, and dispersion. To qualify as a bona fide recession, a slowdown in activity must last long enough, involve a large enough contraction of activity, and affect a broad enough swath of the economy.

The top panel of this chart measures recessions in terms of the first “D,” duration. If the staff forecast were to come true in every respect, we are guessing that the Business Cycle Dating Committee would eventually declare the trough in activity as having occurred either this month or next, putting this recession right at the postwar average in terms of its duration.

The middle panel turns to the second “D” and presents various measures of the depth of postwar recessions. As shown on line 1, if measured by the absolute decline in real GDP from its own peak to its own trough, this has been a very mild

recession—involving a reduction of only 0.4 percent, roughly a fifth of the postwar average and the mildest of the bunch. An important feature of this episode, though, was that the official period of recession—as defined by the NBER—was preceded by a period of subpar growth. So if one defines depth on the basis of the change in the GDP gap from its own peak to its own trough, then—as shown on line 2—the current recession bulks a bit larger relative to the postwar average. Similarly, if one measures severity according to the increase in the unemployment rate, line 3, the recession just ending was again about two-thirds as severe as the average. Finally, as shown on line 4, if industrial production is the metric of choice, then the current episode clocks in at a three-quarters rating relative to the postwar average. These comparisons highlight that every recession is different. In this episode, the decline in real GDP was quite mild compared with the historical average, whereas the decline in IP was only a bit less than the average.

Turning to the final “D,” the bottom panel presents one measure of dispersion—that is, how broadly the slowdown has been felt. This panel shows the BLS’s three-month diffusion index for private nonfarm payroll employment. For this series, which is based on employment changes in 353 different industries, readings below 50 signify that more industries reported a decline in payroll employment over the preceding three months than an increase. The latest few readings on this series suggest that the recent slowdown has been about as broadly felt as the prior three recessions for which this series is available.

The next two charts review our assumptions about four key conditioning variables in the staff projection. Chart 3 focuses first on the real federal funds rate, defined here as the nominal rate less the four-quarter rate of change in the core PCE price index. As shown in the top panel, the Committee’s actions over the past year have brought this measure of the real funds rate down almost to zero, a low level by historical standards but not unprecedented.

The middle left panel takes a different approach to comparing the current cyclical experience to previous episodes. In this panel, the black line shows the trajectory of the real funds rate for the eight quarters preceding the peak (to the left of the vertical line) and the eight quarters following the peak (to the right of the vertical line). For this purpose, we treated the first quarter of 2001 as the peak quarter, in line with the NBER pegging March as the peak month. The red line shows the average path of the funds rate in the nine earlier postwar recessions. Finally, the blue region shows the entire extent of the range of values taken on by the real funds rate during each of the nine earlier episodes. Several features of this panel are notable. First, relative to earlier episodes, the real funds rate coming into the peak this time around was on a shallower upward trajectory—presumably reflecting that inflation was under far better control toward the end of the most recent business cycle expansion than in the average previous episode. Second, and perhaps more important for determining the contour of the recovery, the real funds rate turned down earlier and more decisively and is projected to remain lower throughout the projection period than was the case in

the average previous experience. Indeed, a central driving force in the staff outlook is the stimulus provided by monetary policy.

The remaining two panels on this chart turn to another major source of stimulus, namely fiscal policy. As you know from the Greenbook, we abandoned the partial-expensing provision and the second round of personal income tax rebates that we had built into the December projection. However, as indicated in the middle right panel, we still anticipate that the federal budget will provide a considerable boost to activity this year, even without those provisions. A good chunk of the anticipated impetus reflects the next installment on the phased-in tax cuts that were enacted last year. But the greater amount of the overall impetus will come, we expect, on the spending side of the budget—most of it already enacted, but we also have a small placeholder in the projection for some additional appropriations this year. As shown in the bottom panel, the impetus that we are expecting this year—a bit more than 1 percent of GDP—is on a par with the levels of 1982 and 1983 and a considerable turnaround from the late 1980s and early to mid-1990s, when fiscal policy was restrictive.

Your next chart turns first to the behavior of the dollar. As shown in the top panel, we have the real exchange value of the dollar hanging up near its current level throughout the remainder of the forecast period. A glance at the history of this series suggests that there really is no “typical” behavior of the exchange rate around a business cycle turning point: In two of the NBER recessions since the breakdown of the Bretton Woods agreement in the early 1970s, the dollar tended toward appreciation, while in the other two it trended down. As shown in the middle left panel, compared with the average of these very different experiences, the dollar in the current episode was on a steeper upward trajectory before the peak and has remained relatively strong despite the Committee’s aggressive move toward an easier stance of monetary policy.

In a similar vein, the middle right panel suggests that the stock market, which had importantly fueled demand until 2000, has been a restraining force around the most recent business cycle peak relative to the average historical experience and on our assumptions will remain so through next year. As shown by the black line in this panel, the market—represented here by the S&P500 price index—declined sharply coming into the peak and lost another 10 percent in the two quarters after the peak, ending the third quarter of last year down a total of about 30 percent from its high. Part of that loss was recovered in the rebound during the fourth quarter, but even so, we believe that some additional restraint on consumer and business spending is probably still in the pipeline. As you can see from the dashed portion of the black line in the middle right panel, we have assumed only a mild uptrend in equity prices over the forecast period. We view our assumption about the stock market as a relatively neutral one, but we are aware that traditional measures—such as the price-earnings ratio shown in the bottom panel—continue to suggest that equity valuations are rich by historical standards.

On balance, as is illustrated in your next chart, our assumptions for these conditioning variables and other considerations lead us to expect a milder-than-average recovery. As shown on line 1 in the top panel, we expect real GDP to grow a bit more than 3 percent over the four quarters beginning in the current quarter—roughly half the average rate of increase over comparable periods in postwar recoveries. With potential GDP expected to grow about 2½ percent over the next four quarters, the projected recovery would close about ½ percentage point of the gap (line 2) that we believe currently exists between actual and potential GDP. Reflecting the relatively tepid pace of the recovery, we expect the unemployment rate (line 3) to be about unchanged over this period rather than declining a little more than 1 percentage point, as has been the historical average. Moreover, we expect the industrial sector to be very slow in rebounding, with growth over the next four quarters of only 3¾ percent—far slower than the double-digit postwar average. At least in one respect, the milder-than-average projected recovery is not to be lamented. As shown in the middle panel, we believe there is considerably less slack in the economy currently than has typically been the case at troughs since 1960 and thus, in one sense, not enough room for a cyclically “normal” rebound.

The bottom panels attempt to shed some light on the question of where the slower-than-average recovery shows up. These panels show contributions to GDP growth over the next four quarters from key components of aggregate demand, with some interest-sensitive elements of household spending on the left and the business sector represented on the right. Turning first to the household sector, we have residential investment and durable goods spending contributing less than 1 percentage point to the growth of GDP over the next four quarters, whereas in previous recessions they have generally contributed considerably more than that. The seemingly lackluster performance of these components of spending this time around is the flip side of their having held up remarkably well through the contraction phase of the cycle and thus should not be expected to move up by the average amount from their current levels. On the business side, the ongoing tribulations of the communications and aircraft sectors have helped shape our judgment—reflected in the lower right panel—that business fixed investment will add less than ¼ percentage point to overall GDP growth over the next four quarters, whereas in many previous expansions BFI has made a positive contribution of more than ½ point. Larry Slifman will now continue our presentation.

MR. SLIFMAN. Let me turn now from the broad contours of our projection to some of the details. Chart 6 shows a few of the high-frequency production indicators that have influenced our judgments about the current state of the economy. One important indicator that has informed our thinking is private payroll employment (the upper left panel). As you can see, the rate of decline began to slow at the end of last year. More recently, initial claims for unemployment insurance—shown to the right—have continued to fall, on balance, and are now reaching a level that typically is consistent with stable employment. In terms of production itself, assemblies of motor vehicles (the middle left panel) have been moving in a sawtooth pattern during the past few months but at a fairly high level on average. And as shown by the

dashed line, automakers plan to maintain output at close to the recent pace. However, elsewhere in manufacturing—the middle right panel—we estimate that production continued to contract at a substantial pace through December. Even here, though, the very recent news is promising. For one thing, an index of selected weekly physical product data, excluding motor vehicles and electricity generation, which is constructed by the staff, appears to have stabilized during January. The weekly index is illustrated in the black line of the lower left panel, while the bars show the monthly averages. Although this index represents only about 8 percent of industrial production, the fact that it seems to have stabilized is certainly a good sign. Moreover, the ISM—formerly known as the NAPM—new orders diffusion index turned up sharply in November and December. Based on historical relationships, these increases, if maintained, suggest that the contraction in the IP sub-component shown in the panel above should come to an end in the not too distant future.

Turning from production to sales, the table at the top of chart 7 shows some key near-term indicators of private domestic final purchases. By now, the story for sales of motor vehicles—line 1 of the table—is quite familiar. The only point I would make is that, even with the phasing down of the zero percent financing incentives, sales are still relatively buoyant. More broadly, real consumer spending for goods other than motor vehicles (line 2) rebounded in October from a depressed September reading, and sizable gains were maintained in November and December. Moreover, for what it's worth, the weekly readings on chain store sales (not shown) suggest that spending held up reasonably well in the first four weeks of January. Activity in the housing sector—line 3—also has held up quite well. The outlook for business investment, however, is more mixed. I'll talk about the information technology sector in a few moments. Let me note here that outside of IT, shipments of nondefense capital goods—line 4—have yet to show a sustained pickup. But the orders data we received this morning—line 5 of the table—were encouraging and could contain the first hints of a turnaround in this sector.

The near-term path for production is being influenced importantly by the dynamics of the inventory cycle. The middle two panels show measures of the days' supply of inventories. These measures are based on a system that uses industrial production and other indicators to trace the flow of goods and materials through the economy. The left panel shows the huge overhang of semiconductors and other items related to the IT sector that developed during late 2000 and the first part of 2001. While severe overhangs still plague producers of communications equipment, stocks of semiconductors and computers have been brought down to more manageable levels, and the days' supply for the entire sector has retraced a good part of its earlier run-up. Outside the IT sector (the right panel), progress has been more uneven, and inventories in several industries—notably, paper, electrical machinery, furniture and apparel—remain excessive. Accordingly, we expect production in many of these industries to remain subdued a while longer.

The bottom panel shows how we see the near-term inventory dynamics playing out. The solid black line shows the level of GDP excluding motor vehicles, while the

dashed line shows final sales excluding motor vehicles. When the level of GDP exceeds the level of final sales, the gap is shaded green and reflects the extent of inventory accumulation. Similarly, the red-shaded area is a period when production is below sales and inventories are being liquidated. In our projection, the maximum amount of non-motor-vehicle liquidation is estimated to have occurred in the fourth quarter of 2001. We expect the pace of liquidation to diminish over the next couple of quarters as businesses boost the level of production up to the level of final sales, providing a considerable fillip to near-term GDP growth.

The next exhibit focuses on the outlook for two key components of GDP—business and household spending. As shown on line 3 of the table, the prime mover of business investment this year in our forecast is a revival in spending for computers and peripherals, which we think is already under way. Indeed, with the growth of real computer shipments surging well into positive territory lately—the right panel—we estimate that investment outlays increased at an annual rate of 30 percent in the fourth quarter of 2001. The question, of course, is whether this is just a short-lived burst or the start of a sustained upswing. The anecdotal reports have been increasingly favorable, with stories of a pickup in the demand for high-end servers near the end of last year and the likelihood of an “upgrade cycle” for PCs beginning during 2002. In terms of hard data, one encouraging indicator is the series from our IP system on production of semiconductors (the middle left panel), which we have found to be useful in predicting computer investment for up to two quarters ahead. As you can see, this series has recorded solid gains in recent months. As firms step up the pace of spending for new computers, we expect that they will want to upgrade their software as well—line 4 of the table. In contrast to computers and software, the outlook for communications equipment—line 5—remains negative. Both our near-term indicators, such as production and new orders, and the anecdotal information suggest that a substantial capital overhang is still weighing heavily on this segment of the market. At best, we don’t expect the situation to stabilize until sometime this summer. Business spending for other equipment (line 6) is also projected to be quite soft. A sizable portion of the spending for this category, which includes such things as metalworking and industrial machinery, comes from manufacturing firms. But as shown in the middle right, manufacturing capacity utilization currently is quite low, and it stays relatively low throughout the projection period, providing little incentive for many manufacturers to boost spending on new equipment.

The lower panels examine our consumption forecast. In light of the robust performance of PCE last year, especially given the rise in unemployment and the slump in the stock market, one might be tempted to ask whether our wealth effect story has been failing us. One crude way to answer the question is to compare the behavior of the wealth-income ratio (the black line in the left panel) with the ratio of PCE to income, essentially 1 minus the saving rate, which is shown by the red line. As you can see, over time these two series track each other fairly well, and they have been well aligned recently. Moreover, our more-elaborate econometric models of consumption that include wealth have not been making persistent errors. One reason that consumption growth has been as strong as it has is that real income growth—the

yellow bars in the lower right panel—also has been relatively well maintained. Looking forward, consumption spending is held up in part by the strong growth of real disposable income that we expect in 2002, with a chunk of that gain coming from the cut in tax rates that went into effect on January 1.

The upper left panel of chart 9 shows our projection for core PCE price inflation. As David pointed out earlier, we expect core PCE inflation to slow by $\frac{1}{2}$ percentage point over the next two years. The projected deceleration of core inflation reflects, in part, the indirect effects of declining energy prices. As shown in the middle right panel, according to staff estimates, energy input prices faced by nonfinancial corporations other than energy producers have reversed all of their 2000 spurt, dropping rapidly since early 2001. Of course, changes in energy input prices are not necessarily fully, nor immediately, passed through to final purchasers. But over the next year, we expect lower energy input costs to reduce the rate of core inflation about 0.2 percentage point—essentially offsetting last year's boost. Another important factor leading to a deceleration of inflation over the next two years is the low rate of resource utilization that we anticipate. As shown in the middle left panel, we expect actual GDP to be below the estimated level of potential GDP throughout the projection period, albeit with the gap narrowing somewhat; and, as David mentioned earlier, the unemployment rate remains in the vicinity of 6 percent. The slack in labor markets is likely to be a damping influence on the growth rate of unit labor costs over the projection period judged relative to either actual productivity (as illustrated by the bars in the middle right panel) or structural productivity (the line). That said, the bottom panel highlights one upside risk to the inflation forecast, which we discussed in the alternative simulation section of the Greenbook—namely, extremely narrow profit margins. As you can see, the profit share dropped sharply between 1997 and 2001, and we expect it to remain low. In part, this reflects strong competitive pressures from prices of imported goods. However, historical experience suggests that the profit share won't stay this low forever. Thus, we face the risk that over the next two years firms may begin increasing prices in an attempt to rebuild profit margins. Karen will now continue our presentation.

MS. JOHNSON. The staff's outlook for economic activity in the rest of the world is for a rebound to moderate growth this year, which strengthens somewhat next year. Although we already see tentative signs of positive developments in many regions, the projected recovery depends importantly on the projected acceleration in U.S. real GDP just discussed by David and Larry. The global economy does contain weak spots, notably Japan and Argentina, where economic developments could be dramatically worse than in our baseline during the forecast period. I will discuss the problems in those countries shortly. However, our judgment is that those risks are unlikely to have a major effect on the U.S. economy during the forecast period.

Your first international chart reports recent developments in financial markets. The foreign exchange value of the dollar, shown in the top left panel, has risen further over the past several months. The staff index of major currencies—the black line—has been touching sixteen-year highs in recent days. The dollar is now significantly

stronger against the yen—the red line—than at the time of your last chart show, amid more news that the Japanese economy continues to falter and ongoing public exchanges about official views on the yen-dollar exchange rate. The dollar has recently moved up against the euro but is still below the latest peak reached at mid-2001. The panel at the right contains futures quotes on three-month interest rates for this year and next taken from eurocurrency markets. These curves reflect market expectations that dollar interest rates will rise more sharply over the forecast period than will euro rates, in line with general anticipation of a relatively stronger rebound in U.S. real output growth. As is evident from the middle panels, both dollar and euro short-term market interest rates have fallen over the past six months, but the decline in euro rates is markedly less than that in dollar rates. This reflects the more-aggressive easing of policy done by the Committee relative to that done by the ECB. The net changes in both U.S. and German long-term rates over the same interval have been quite limited, and those rates have moved in similar ways for some time. In contrast, Japanese short-term rates have remained essentially at zero, and Japanese long-term rates are still low but are up very slightly from mid-2001. Stock prices in all three regions, shown at the bottom left, have moved down on balance since last June. U.S. and European stock prices have tracked closely, whereas Japanese stock prices have moved down to near-record lows for the period since the bubble of the late 1980s. At the right are analysts' expected earnings from I/B/E/S for the S&P 500 companies and from Morgan Stanley's euro area index. As you can see, those earnings have been steadily revised down since mid-2001, with the European decline exceeding that for the S&P.

In your next chart the top panels show trade data by region, with the average for October and November represented by the dot. Note that the scales are equivalent but shifted; imports by region uniformly exceed exports by region. As a consequence of the slowdown in activity, both here and abroad, exports and imports actually declined during 2001. Decreases in exports came earliest in Canada and latest in Europe, reflecting the onset and extent of slowdowns in those regions. Exports to developing Asia fell sharply, as those economies were particularly hard hit by the global collapse in the high-tech sector. The decline in imports primarily reflects developments in the U.S. economy. Signs in the most recent data of an increase in our imports from developing Asia suggest that a turnaround may have started in semiconductors and high-tech more broadly.

Our outlook for the price of oil is presented in the middle left panel. The spot price for West Texas intermediate has fallen significantly since the June chart show and more than the futures markets at that time—and our forecast—had expected. This retracing of much of the earlier run-up in oil prices is a major factor supporting our view that output will accelerate over the forecast period in most regions of the global economy. Embedded in our forecast is the projection that oil prices will move up only slightly from current levels, as now anticipated by the futures market. The prices of imported goods other than oil, computers, and semiconductors—termed core goods—are shown to the right. Those prices dipped during the first three quarters of 2001, as goods prices fell broadly, particularly prices of industrial supplies. Going

forward, as prices of industrial supplies cease falling, the index for core goods prices should stabilize and then rise at a low rate.

The bottom panels show the analysis behind our outlook for a return to moderate growth in exports and to more-vigorous expansion of imports. Core exports—the red bars on the left—should recover from a sharp decline last year; we expect them to be flat this year and then to grow more than 4 percent next year. The blue bars represent the portion of core export growth attributable to foreign GDP growth, and the yellow bars capture an additional cyclical effect from growth that improves forecasting accuracy in our model. Together, these variables only partly explain the weakness of exports in 2001. Going forward, they account for much of the acceleration we are expecting. The lagged effects of the strong dollar, reflected in the green bars that measure the contribution of relative prices, act as a drag on exports throughout the interval. Because we expect that some of the unexplained weakness in 2001 will be reversed this year and next, our judgmental forecast calls for exports to recover a bit more than the sum of the foreign growth and relative prices would predict. A similar breakdown is shown for imports of core goods. In 2001, core imports declined despite flat U.S. GDP and dollar strength that would be expected to impart a positive impetus to imports. Over the forecast period, core import growth should recover strongly, with U.S. GDP accounting for about half that growth this year and more next year. Lagged effects of the strong dollar boost imports in 2002, but much less so in 2003 as our forecast calls for the dollar to stabilize at its current elevated level. As with exports, our judgmental forecast is a bit stronger than the model output. The panel on the right shows the arithmetic contributions of imports and exports of total goods and services to U.S. GDP growth. In 2001, the decline in exports subtracted from output growth while that in imports contributed positively. For this year and next, we expect to see the more normal positive contribution from exports as they rise through 2003. The negative contribution of imports is expected to be consistently larger in magnitude during both years.

The outlook for the global economy that lies behind our projection for exports is reported on your following chart. The top left panel compares real GDP growth in the United States with average growth in the rest of the world. The United States essentially led the world slowdown in 2001, and it is the projected recovery in U.S. growth that lies behind much of the rebound shown for foreign growth. Both this year and next, we expect that U.S. growth will exceed the average of our trading partners. The panel to the right shows that the swing from declines this year to growth next year is expected to be largest for the Asian developing countries. Our baseline forecast is for a more muted recovery on average in Latin America and in the industrial countries. Recent production data for Canada, Germany, and Japan are shown in the middle left. The downshift of production in Japan is clearly evident. Some retrenchment also occurred in Canada and Germany, with industrial production and GDP contracting during 2001.

The panel at the right contains our forecast for real GDP growth over the forecast period for the industrial countries. We look for positive but low growth in the euro

area early in 2002 and then an acceleration of output later this year and next. The pattern is similar for Canada and the United Kingdom, but growth is judged to be stronger in the near term for both these countries and to accelerate to higher growth rates in Canada, largely as a consequence of its close ties to the U.S. economy. Japan is the exception. With current indicators suggesting further deterioration for some time, we have output declining further during this year, stabilizing toward the end of the year, and then growing weakly in 2003.

Many of the emerging-market economies of Asia, the subject of the bottom panels, depended heavily on exports of high-tech goods to support the strong pace of economic expansion they recorded during 1999 and early 2000. As can be seen from the example of Singapore, exports for these countries dropped sharply starting in late 2000, and real output contracted during 2001. Even in Korea, where the economy is larger and more diversified than in most other Asian economies, the fall in exports was a major factor in the downturn last year. Mainland China experienced a pause in the rapid export growth that had been occurring; however, expanded domestic spending, including government expenditures, sustained output growth around 7 percent despite the slowdown in the global economy. Looking forward, we see a rebound in activity in the region as the high-tech sector resumes growing and as export demand recovers more broadly.

Your next chart highlights the problems currently confronting Japan and the scope for macroeconomic policy to address those problems. As is evident in the red bars in the top left panel, the temporary buoyancy in real GDP in 2000 gave way to contraction in 2001. The contribution of domestic demand, shown by the blue bars, had been the source of strength in 2000; private investment in the high-tech sector was a major part of that strength. The global bust in high-tech and some overhang of capital in that sector and more generally became a source of contraction for output in 2001. With corporate profits sliding and unemployment on the rise, we see even lower investment and personal consumption this year, but we expect that by 2003 domestic demand will expand enough to support low but positive growth with a small boost from net exports. Along with the deepening of the output gap this year and next, we expect that deflation of consumer prices, shown to the right, will continue throughout the forecast period.

The middle panels provide a snapshot of the scope for macroeconomic policy to address the deflationary trap ensnaring the economy. Money market interest rates are widely expected to remain at zero. The debate over monetary policy has shifted to the Bank of Japan's options for providing more liquidity. Over the past year, the BOJ has stepped up its target range for current balances held on its books by financial institutions and others. From totals of 5 trillion to 6 trillion yen during much of 2001, the BOJ has moved to maintaining these deposits at around 15 trillion yen. What remains unclear is the extent to which this additional liquidity, by itself, will stimulate aggregate demand. Fiscal policy, shown to the right, confronts the problems of past high debt issuance and unfavorable demographic developments that are now close at hand. As a consequence, Prime Minister Koizumi has pledged to limit issuance of

JGBs this year. Fiscal policy, which had recently been about neutral, is therefore likely to be slightly contractionary this year and next.

The bottom panels provide some information on the unrelenting problems besetting the financial sector. Bank credit, on the left, has contracted for the past three years. Total corporate bankruptcies, the middle panel, have been rising; recognition and resolution of the many bankrupt firms that lie behind the banks' nonperforming loans (NPLs) over time will prove to be beneficial; but in the near term, NPLs are likely to rise further. The bars on the right show the steady downgrading by Moody's of ratings of Japan's major banks in terms of their financial strength. The problems of the financial sector and the country's general macroeconomic malaise are mutually reinforcing. Some bold policy moves on both fronts at once are needed, but to date Mr. Koizumi has not delivered on his campaign promises to push the reform agenda. The Japanese economy has been moribund for so many years, however, that unless it takes a very hard turn for the worse, it should not prevent recovery in the global economy.

Your final international chart focuses on the acute crisis now raging in Argentina and the effects of those events on Brazil and Mexico. In early January, following political upheaval and severe financial market pressures, Argentine officials ended the one-to-one peg of the peso to the U.S. dollar. As can be seen in the top left panel, the floating rate for the peso immediately shot up to nearly two pesos per dollar, but neither the Brazilian real nor the Mexican peso was significantly affected. At present, the floating rate for the Argentine peso is being contained somewhat by illiquid conditions within Argentine markets and by intervention by the authorities, so further depreciation could well occur. Argentine risk spreads are shown to the right. The growing sense in late 2001 that the situation at that time could not be sustained resulted in spreads of more than 5,000 basis points. Some changes in the way the index is constructed since December and disruptions to trading during January make precise comparison of the spread over recent weeks impossible; but spreads clearly remain at extremely elevated levels. Our baseline forecast, shown in the middle left panel, does not envision any significant recovery in Argentina during the forecast period. Nevertheless, given the projected recovery in the United States and the limited contagion to date from the crisis, we expect a rebound to moderate growth in Mexico by the second half of this year and some strengthening of activity in Brazil.

The situation in Argentina is fraught with enormous risks for that country, as well as the possibility that we may yet see more contagion effects elsewhere in Latin America than have been evident so far. The panel at the right indicates the scope of economic problems that need to be addressed within Argentina, in addition to the resolution of its international debt obligations. These problems are severe and pose a challenge to the political stability and institutions of Argentina. With respect to fiscal matters, thorough reform of the tax system is needed, including particularly the area of tax compliance. The fiscal relationship between the federal and provincial governments needs to be restructured in order to enhance fiscal discipline. Excessive public-sector employment, wages, and pensions must be corrected. As a consequence

of the currency devaluation and the effective debt default by the government, the banking system is at risk of insolvency. Proposals for distributing the burden of this capital loss among depositors, borrowers, shareholders, and taxpayers are provoking street violence, followed by frequent changes in regulations. A new exchange rate regime and a monetary policy framework consistent with that regime need to be put in place. Concerns about protecting some elements of the economy from the effects of that change are hampering establishment of sustainable policies that can prevent a return to hyperinflation and other excesses of the past. The tensions raised by these economic problems threaten to overwhelm the political system. We recognize this risk but have not tried to quantify it in any way.

The bottom panel presents some additional detail from the simulation reported in the Greenbook in which contagion effects from the current situation in Argentina are greater than we incorporated in the baseline. In this alternative, the risk premiums associated with the currencies of Mexico, Brazil, Chile, and Venezuela are assumed to rise sharply, putting downward pressure on their respective exchange rates. In addition, this financial stress is assumed to depress domestic spending on consumption and investment somewhat in South America, by a lesser amount in Mexico, and slightly in developing Asia. As reported in the Greenbook, these additional negative developments associated with the Argentine crisis would have a minimal effect on U.S. real GDP growth. For Mexico and Brazil, however, there would be a substantial decline in real GDP this year from the direct and indirect effects of such shocks.

The negative effect on growth is augmented by our assumption that monetary policy officials in these countries would seek to contain the inflationary consequences of their falling currencies by raising short-term interest rates. As can be seen on the right, inflation does rise in both countries, but the weakness in activity and prompt policy response induce some reduction by next year in the extent to which inflation exceeds that in the baseline forecast. In the staff's global model, real GDP in Mexico and Brazil begins to recover strongly in 2003 as a result of the boost to exports from the real depreciation of their respective currencies. We offer this simulation as a possible scenario of what contagion from the Argentine crisis might entail in the event the current benign situation proves to be too good to last. David will now complete our presentation.

MR. WILCOX. Your last chart displays the projections that you submitted for this year. The central tendency of your projections for the growth of real GDP is revised down from the June meeting. Likewise, the central tendency of PCE inflation projections is revised down a notch from last year. We would now be pleased to address your questions.

CHAIRMAN GREENSPAN. That was an excellent summary. Well done. Governor Ferguson.

MR. FERGUSON. I have a couple of questions. On chart 8, is the semiconductor production chart normalized for advances in computing capacity?

MR. SLIFMAN. Yes. This is our industrial production index, which is actually constructed by looking at production on a chip-by-chip basis—at that level of detail. So by doing that we are accounting for changes in quality over time.

MR. FERGUSON. Okay. What expectations do you have for real prices with respect to semiconductors? Presumably that's a key part of your production outlook.

MR. SLIFMAN. Well, there are two things going on. One, in the very short term D-RAM prices actually have shot way up, as you know, apparently because of demand. But over the longer haul, we expect a return—because of technological improvement—to the rapid rates of decline that we saw over the course of the 1990s, which would be on the order of 25 to 30 percent.

MR. FERGUSON. If I may ask one more question, Mr. Chairman. The NBER Business Cycle Dating Committee, when they announced their call that we are in recession, put in an unusual sentence with respect to September 11 suggesting that they might not have made the call had the terrorist attacks not occurred. Does the staff have a perspective about what the data looked like before, or in some sense what the Dating Committee was looking at that led them to put in that sentence about September 11?

MR. WILCOX. I think what the Dating Committee was reacting to primarily was that until September 11 the depth criterion hadn't been met. It was that event, with the rapid falloff in activity after September 11, which in their minds pushed the preponderance of evidence over the line.

MR. PARRY. It was also the duration issue as well, I think, because before September 11 people thought that the chances of the economy turning around in the short run were greater.

CHAIRMAN GREENSPAN. Is there any chance those data may get revised so that the shallow recession will be very difficult to find without a magnifying glass?

MR. WILCOX. It's conceivable. Certainly Doug Elmendorf's and Karen Dynan's work with GDP data suggests that those data are susceptible to great revision. That's not the main focus of the Dating Committee's examination. They tend to rely on monthly indicators. But, as you know, the contours of those indicators can be revised on the basis of new information. Indeed, it was only a matter of a few days after the NBER Committee made their announcement, as I recall, that our industrial production folks issued a comprehensive revision of the IP index, which pushed back the peak in IP to several months earlier. So, these determinations of a particular month for the peak are always difficult to make, as the NBER emphasized in their announcement. As the revisions sort out, it will be interesting to see whether the clarity of the peak determination improves and whether the date is shifted.

MR. PARRY. David, if I may ask, am I correct that the only statistic that peaked in March was employment?

MR. WILCOX. That's correct.

MR. PARRY. Industrial production had peaked much earlier anyway.

MR. WILCOX. It peaked earlier—and several months earlier after the revision.

MR. PARRY. Yes, but even with the revision the NBER dating was still valid.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. I just want to ask a question about the orders data, where we've seen some positive news. Of course, this was at a time when there was a strong expectation that a tax

cut for business would be enacted to encourage orders. My recollection is that it was going to be retroactive—at least in the bill that was introduced—as well. I was just wondering if this is something that we should be concerned about. Do you think people were ordering in anticipation of that legislation being enacted whereas obviously, at this point, it is unlikely to be enacted?

MR. SLIFMAN. That's certainly a possibility. But I'm not aware that we were hearing a great number of stories along those lines from our business contacts.

MR. MOSKOW. You had done some survey work at that time as to what the impact of those tax cuts would be. Did you get any insights based on that?

MR. STOCKTON. I agree with Larry. We did not hear any reports of actual anticipatory ordering on the basis of the possible enactment of that expensing provision. So while that's certainly a possibility, as you note, I don't think I would give much weight to that as being a factor.

CHAIRMAN GREENSPAN. Excuse me. Why would a firm take anticipatory action when there's the chance that it would put itself on the wrong side of the date when the tax would take effect?

MR. MOSKOW. Well, it was going to be retroactive.

CHAIRMAN GREENSPAN. Well, business firms can't be sure of that. That's the point. The one thing they can be sure of is that the provision will be effective subsequent to the legislation. But they don't know how far back it would go, even if the Congress did make it retroactive.

MR. POOLE. On this particular point, I heard some business contacts saying they were delaying orders, waiting until they saw the shape of the legislation.

MR. SLIFMAN. If anything, I think that was the kind of report that we were hearing from our business contacts as well.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Dave, I have a question about the three-month diffusion index for payroll employment at the bottom of chart 2. Could you repeat what you said? I thought I heard you saying something about 300 large firms.

MR. WILCOX. The BLS puts out an array of these series. One set in the series has to do with the total private nonfarm sector; the other has to do with the manufacturing sector. This is from the former constellation. Within that there are one-month, three-month, and six-month diffusion indexes. This is the three-month version of that. There are 353 so-called three-digit industries in the nonfarm private sector. This is a diffusion index of the change in payroll employment in each of those industries over a three-month period. A reading above 50 indicates that more industries reported a payroll employment increase than a decrease.

MR. JORDAN. Okay. Maybe you can help me out further. I have a question on the “contributions to the initial recovery in real GDP” illustrated at the bottom of chart 5 and the differences in the contribution of the consumer sectors—“interest-sensitive elements of household spending,” I think is what you said. We went through a period when recessions had “victim” sectors. Inflation would push up nominal interest rates, which would lead to disintermediation because of Regulation Q. The housing and auto sectors would get clobbered, and then we’d get a big snapback recovery. We don’t have that occurring this time. So when we look at something like a diffusion index of employment, knowing the nature of what caused contractions in the past, are we looking at the same thing?

MR. WILCOX. It's a truism that every business cycle is different, and no doubt that applies here as well. There is another factor going on in the background at the same time. While it may be that previously the recession itself was more concentrated in certain sectors, as you suggest, most of these earlier episodes were deeper as well. All that is required for an industry to contribute to a reading below 50 is for it to have a decline in employment. So if the absolute depth of a recession is greater, one would expect the dispersion magnitude to go lower even if the recession is more concentrated by industry.

MR. JORDAN. Okay, that helps me. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. I have a couple of questions about the Greenbook projection. How much of the decline in consumption for the current quarter is model-driven and how much of that is judgmental, driven primarily I suppose by the assumption that the automobile surge in the fourth quarter was borrowed from this year?

MR. SLIFMAN. When we do our current-quarter estimate for consumption—2002:Q1 being the current quarter now—it pretty much is not model driven.

MR. POOLE. So it's mostly judgmental?

MR. SLIFMAN. It's based on a several factors. One is the pattern of the monthly data as we move into the quarter. In part the PCE projection is driven by what we think we know about auto sales even in January, which plays a role there. So we're thinking about those kinds of things much more than any consumption model.

MR. POOLE. What I'd like to press you on much more than that, though, has to do with the inventory situation. It seems to me that the outline that you have for business fixed investment and consumption makes a lot of sense, given what we know about those sectors. But

during the near term, activity in those sectors is going to be driven a lot by what happens to inventories. At least the way I read the situation, the liquidation of inventories in the four quarters of last year was the largest for any four-quarter period since we've had quarterly data, going back in its earliest days to about 1947. I'm using the Macroeconomic Advisers' assumption for fourth-quarter inventory investment, a very big negative number. So we've had, I think by any measure, a very large inventory liquidation. In the past when we've had significant inventory liquidation, we've had some substantial accumulation—not just the swing that occurs going from a big negative number to about zero. If consumption turns out to be reasonably decent—and by that I don't mean rapid growth but even just zero—it would seem to me that the pattern in the Greenbook has a great deal of upside uncertainty or risk to it. I believe your assumption is for a very gradual increase in inventory investment—small positive numbers that are growing as we go into next year. We could have a very significant upward surprise. I just wanted you to comment on that calculation.

MR. SLIFMAN. An important consideration in our minds as we look beyond the current quarter or so is some notion of a target inventory-sales ratio. We think these target ratios have been on a downtrend for at least the past decade and maybe longer. In order to get a forecast that has a target inventory-sales ratio that behaves the way we think it should, we basically need to have businesses get rid of the excess inventory that built up in late 2000 through 2001—a process that is going on now. We think those inventory-sales ratios are generally in a range that is close to the target levels. So, after firms get rid of their excess inventories, they have production and final sales growing in line with each other, as the panel at the bottom of chart 7 shows, in order to keep those ratios from going back up again. That's the logic behind our forecast. You can quibble about the exact numbers, but that's the basic philosophy that we use.

VICE CHAIRMAN MCDONOUGH. That's certainly consistent with all the anecdotes we're hearing as well. That's exactly what they have in mind.

CHAIRMAN GREENSPAN. Okay, let's recess until tomorrow morning. I understand that this room will be secure so if you'd like to leave papers here, feel free to do so. At 6:00 p.m. we will have cocktails—double martinis and the usual [laughter]—followed by a dinner during which we will honor Larry Meyer, who is still legally a Board member until January 31 at midnight eastern time! [Laughter]

[Meeting recessed]

January 30, 2002—Morning Session

CHAIRMAN GREENSPAN. We are now back in session. Before we go to a general Committee discussion of the economy, are there any residual questions left over from last night for the chart show participants? Yes, Governor Gramlich.

MR. GRAMLICH. I don't have a question. But maybe it would be helpful for everybody if the staff would just run down the GDP numbers released this morning and note how they compare with what was in the Greenbook.

MR. STOCKTON. With the Chairman's permission?

CHAIRMAN GREENSPAN. Please.

MR. STOCKTON. I'd say a couple of things about this morning's GDP release. First of all, in broad terms the story is very similar to the one that we had in the Greenbook, which was that there was very strong growth in final sales in the fourth quarter and that was substantially met by a very significant liquidation of inventories. So in that sense, I see nothing either in the top line or in the composition that suggests any major discrepancies.

Now, splitting the hairs, the GDP figure was stronger than we had projected. As David and Larry indicated yesterday, we already had moved our forecast up close to zero on the basis of the shipments and orders figures that we'd seen, so part of that we had already incorporated. But final sales in the GDP release were just a bit weaker than what we had projected, and the inventory drawdown was not quite so large as we had forecasted. That by itself might imply less upward momentum in the first quarter. But as David and Larry noted yesterday, the orders figures that we got for December were strong enough to make us think that we'd probably be revising up our investment forecast in the first quarter, so I'd say on net this does very little to change our outlook.

One other interesting piece of information in this release is that the implications of these data for fourth-quarter productivity are that nonfarm business output per hour probably rose 3.1 percent. We had already incorporated a strong productivity figure in the forecast, but that's even stronger than our projection. So that piece of the forecast, too, certainly looks firmly in place, and if anything—if this number holds up in subsequent revisions—is even better than we had been expecting.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Are both the inventory and the international figures based on two months of data essentially?

MR. STOCKTON. Yes, that's right.

MR. POOLE. So it's all subject to possible revision.

MR. STOCKTON. Indeed. And I would say that at least a part of the discrepancy on the inventory side is attributable to a different assumption for December; we had somewhat more runoff built into our forecast than BEA has. There are not just missing data but, of course, revisions to earlier figures as well. The retail sales number stands out as an important one that is subject to substantial revision and that could have an effect on these figures.

CHAIRMAN GREENSPAN. Further questions?

MS. MINEHAN. I have one.

CHAIRMAN GREENSPAN. You have a question or you want to start the Committee discussion?

MS. MINEHAN. I have a question.

CHAIRMAN GREENSPAN. Go ahead.

MS. MINEHAN. First of all, I just wanted to say that I thought the chart show presentation yesterday was very well done and extremely clear on all the underlying factors of the Greenbook forecast. I was interested, though, in people's assessment of where they thought the major risks were, particularly in terms of the fragility of the consumer. There are aspects of this more positive GDP report that in my mind call into question a little more how much strength is there or how much of the strength is borrowed from 2002.

MR. STOCKTON. As you know, through the fall we highlighted the consumer sector as an area where we thought there were some potential risks, especially as the unemployment rate rose sharply and the labor market deteriorated. At least according to this preliminary estimate, it looks as if consumer spending rose 5.4 percent at a time when the economy lost nearly a million nonfarm payroll jobs. Consumer sentiment has remained firmer than we had been anticipating earlier. Auto sales—where again we had at first discounted very heavily the increase in motor vehicle sales, figuring the payback would be both prompt and significant—have remained much more resilient than we had anticipated. So I see the near-term downside risks, while still very large, as having diminished somewhat. But over the forecast period we do see consumers having to swim upstream in some sense against the deterioration in their overall net worth and balance sheet positions, which leads us to think that there should be some underlying uptrend in the saving rate. Something could happen to trigger a more rapid upward adjustment in the saving rate; I don't know what that would be, but it certainly looms out there as some risk.

The other risk outside the consumer sector—and one we have tried to highlight in a number of alternative simulations and some of our briefings, including David's yesterday—is that our profits outlook is definitely weaker than what equity analysts are currently expecting. That's true, even making some adjustment for the normal bias that they have in their forecasts.

Our view is that the stock market will remain rather flat through the first half of this year and only then begin to trend up. So there is still some tension, if you will, in our forecast between relatively meager profits performance and what the markets currently seem to be anticipating. That would be another downside risk associated with the forecast, if earnings disappointments were to show through more significantly into lower share prices going forward. Now, that is balanced off by the fact that a number of small errors in our projection could make the profits outlook considerably better. If we got just a little more deceleration in compensation per hour, a little better productivity performance as we have been seeing in recent quarters, and a little firmer prices—maybe a little less disinflation than we are forecasting—profits could be higher. And that could go a long way toward resolving what appears to be a tension in the current forecast.

On the upside, an issue that President Poole mentioned yesterday is that we at least have to be aware of the fact that we could see a sharper snapback on the inventory investment side. This liquidation was enormous in the fourth quarter and in our view firms still want to bring down inventory-sales ratios. So the environment will be one in which, if we're right about relatively sluggish growth in final sales going forward, there isn't any pressing imperative to restock quickly or to end that liquidation rapidly. But just as we see inventories pile up in ways that we can't anticipate, one could imagine getting a sharper impetus from the end of the inventory liquidation and that could feed on itself and provide considerable upward momentum to output going forward. So the risks to the forecast seem to me reasonably balanced. But I think we're still confronting a fair amount of uncertainty on both sides of that projection.

MS. MINEHAN. Thank you.

MR. PARRY. May I ask a question? Dave, the GDP price index, of course, was down. What was the PCE price index? The forecast in our projection was a little over 1 percent, but I have a feeling it was quite different.

MR. STOCKTON. I don't know the answer to that but let me see if I can look it up quickly. It was 0.8 percent on the total price index, and the core was 2.8 percent.

CHAIRMAN GREENSPAN. Core was affected by insurance premiums. That's the impression I got.

MS. MINEHAN. What was the core?

MR. STOCKTON. The core was 2.8, but that was again, as the Chairman is indicating, a reversal of an insurance effect, which had held down prices significantly in the third quarter.

CHAIRMAN GREENSPAN. Further questions for David? If not, who would like to start the roundtable? President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. The tone of reports from contacts in the Seventh District has improved significantly since our December meeting. At that time I indicated that most contacts were not seeing signs of a bottom let alone a recovery. Now, reports of stabilizing, bottoming out, or nearing a bottom are more frequent and people seem less pessimistic. No one is saying activity is expanding rapidly, but there is a definite sense that conditions are not getting any worse, particularly in the manufacturing sector. The latest Chicago Purchasing Managers' survey results, for example, show that, although the composite index remained below the 50 percent threshold, it did climb in January to 45.1 percent. That was its highest level in thirteen months. The production component rose to a level slightly above 50 percent in January, also the first signal of expanding production in thirteen months. Let me note that these results should be treated confidentially until they are released tomorrow.

In the auto industry, sales of light vehicles came down from the lofty levels recorded in October and November but with incentives remaining generous, sales continued to surprise on the upside in December and, according to our contacts, in January as well. Last week we had a meeting with auto company representatives and industry analysts and their forecasts for light vehicle sales in 2002 have been raised. They now range from 15.5 to 16.2 million units, with auto manufacturers being more conservative than the industry analysts. Production has been picking up somewhat, in part to replenish dealer inventories that were extremely lean at the end of last year.

In the airline industry, although air traffic remains 12 to 15 percent below year-ago levels, both United and Boeing indicated that they see a slow but steady improvement in travel, which they expect to continue throughout the year. After being weak in the fourth quarter, demand for corrugated boxes was described as fairly strong so far in January, and contacts report that machine tool orders have either bottomed or turned up. Signs of improvement in manufacturing at this point generally are seen as reflecting efforts by firms to rebuild inventories, and a concern going forward is whether there will be sufficient final demand to sustain a recovery. On that issue, none of our contacts with markets abroad noted any strengthening in export demand. More often, concerns were voiced about weakness abroad and particularly about conditions in Japan. In terms of capital spending, we have not heard any reports that suggest firms are increasing investment or plan to do so soon. Businesses seem to be continuing to delay even productivity-enhancing capital expenditures as one way of conserving cash and boosting profits at least in the short term.

So, in terms of looking for strength in final demand, we're back to depending on the consumer where the story is mixed but seems somewhat more promising than a month or so ago.

Residential housing markets, for example, have held up quite well, perhaps reflecting more-favorable weather in the Midwest. Overall, total holiday season sales were slightly better than had been expected, and inventories generally remained in control. After a slow start to the holiday shopping season, sales improved over the last two weeks of December and have continued to show relative strength so far in January. As is usually the case, results varied considerably across different types of retailers and merchandise in a season marked by heavy discounting and extended shopping hours.

One firm headquartered in our District that did very poorly was Kmart, which as you know filed for Chapter 11 protection last week. Kmart has significant long-term problems that many people in the retail industry have been talking about for some time. But our contacts indicated that the speed with which their financing sources dried up largely reflected a spillover effect from the extensive publicity surrounding Enron.

Future strength in consumer spending and housing will hinge in part on employment prospects. On that score, reports suggest that labor markets in our region are still weak. However, the rate of job losses appears to have eased in some areas, and there have been scattered reports of some new hiring. Contacts at two large national temporary help firms indicated that, while conditions were basically flat or near bottom in that industry, there were early signs of improvement in the demand for workers in manufacturing.

Turning to the national outlook, the key questions are when the recovery will begin and how robust it will be once it takes hold. On the first question, the evidence increasingly points to the economy being near a bottom, and obviously today's GDP report reinforces that. For some time I've been concerned that rising unemployment would erode incomes and confidence enough to cause a more significant slide in household spending, which could lead to a wider and deeper

recession. But the recent drop in unemployment insurance claims and the broad-based increase in the workweek are signaling that the deterioration in labor market conditions may be near an end. To be sure, the signs of a bottoming out are still tentative and not universal. For example, the demand for temporary workers, usually a leading indicator of labor market conditions, remains weak as I mentioned earlier. And, of course, we could still get some downside surprises.

Regarding the strength of the recovery once it begins, several factors suggest that growth may be more restrained than is typical in post-recessionary periods. For instance, given the recent pace of vehicle and new home sales, it's hard to imagine that there is much pent-up demand for consumer durables or new homes. Moreover, consumers likely have not yet fully factored the declines in equity markets into their savings decisions. And with profits and capacity utilization still low and uncertainty high, businesses are likely to be slow to increase capital spending. On the other hand, given what looks to have been an extraordinary pace of inventory liquidation last quarter, we should get a fairly good sized pop from inventories, a point that ties in with the discussion we were just having. And, of course, there is still significant policy stimulus in the pipeline. Moreover, productivity growth has been very well maintained, again as evidenced in today's data, which should provide a foundation for growth in incomes and household spending.

Weighing all the factors, we think that the most likely outcome is for slightly stronger growth in 2002 than in the Greenbook projection. But the level of uncertainty remains high. In addition to the risks that I mentioned, there is reason to be concerned about a further deterioration in the international situation as well as fallout from the Enron debacle. So, although the situation looks better than it did in December, I still think that the risks remain tilted to the downside.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, employment in the Twelfth District continued to contract in late November and December, as firms in nearly every sector and in most District states shed jobs. Still, signs of a turnaround are beginning to emerge, suggesting that conditions may improve in coming months. Looking back on 2001, it's now apparent that the attacks of September 11 changed the character and composition of the economic downturn in the Twelfth District. Prior to the attacks, District job losses generally were limited to the manufacturing and IT service sectors and were concentrated in IT-dependent geographic areas such as Phoenix, Portland, and the San Francisco Bay area. Following the attacks, job cuts were much more far-reaching, with employment in states and sectors that had been holding up earlier in the year contracting at a rapid pace. Indeed, the bulk of the job cuts during the fourth quarter occurred outside the IT industry—in sectors such as transportation, retail trade, and travel-related services—and they were spread across District states. The attacks also accelerated and deepened the District's contraction, putting it on a par with the downturn in the rest of the United States. District employers shed nearly three times more jobs in the fourth quarter than they had in the previous two quarters combined. And the Districtwide unemployment rate jumped $\frac{3}{4}$ percentage point from September to December, the largest three-month increase since the BLS started recording individual state data. Overall, the attacks ensured that nearly every District state would experience the national recession. Many states had continued to expand well into the summer of last year, especially those without a large IT presence. But widespread employment losses in the District during the fourth quarter eliminated any advantages that states had accumulated from their delayed entry into the recession.

That said, signs of a turnaround are visible. Orders and sales among District IT providers have picked up, especially recently, driven by improved demand for consumer electronics, personal computers, and certain wireless communications devices. With limited inventories on hand, producers have increased production to meet demand. The increase in production has not been limited to the IT sector. Data for California indicate that average hours worked per week in the manufacturing sector as a whole rose in December, hitting the highest level since 2000. Beige Book contacts outside of California confirmed this trend, with a number indicating increased use of overtime at their firms.

Turning to the national picture, recent data have been encouraging. While not yet conclusive, these indicators suggest that, as in the District, the national economy is in a transition to a new expansion. Important among these indicators are signs that the retrenchment in business investment in inventories, equipment, and software may be nearing an end, with inventories falling sharply and orders for capital goods appearing to be on the rise again. In addition, evidence that consumers are continuing to look beyond the recession to sound economic fundamentals also is encouraging. In particular, consumers' willingness to buy big-ticket items like autos and houses in the fourth quarter was impressive.

We've revised up our near-term forecast from the one prepared in December and, like the Greenbook and the Bluebook, we now incorporate an end to the recession in the first quarter. We expect a $\frac{3}{4}$ percent increase in the current quarter, which represents an upward revision from the small decline we had projected in December. The projected pickup in the first quarter rests primarily on a large swing in business spending for inventories. The recovery by the fourth quarter of this year in our forecast is not much different from that of the Greenbook, with real GDP rising in our projection by $2\frac{1}{2}$ percent for the year. Our inflation forecast is little revised,

with slack in labor and product markets holding the increase in the core PCE index to just over 1¼ percent in 2002.

Although it's likely that the recession is about over, that outcome still is vulnerable to the possibility of well-known negative shocks largely having to do with the stock market and consumer confidence. At the same time, there are some upside risks. For example, once a rebound in business investment takes hold, it easily could exceed the rather moderate acceleration in our forecast and that of the Greenbook. Overall, this seems like a good time to leave policy unchanged for a while to see if the apparent turnaround in activity continues to materialize. If that process were to stall, of course, we could quickly implement further rate cuts with little loss. Thank you.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Thank you, Mr. Chairman. The New England economy continued to slow in December, but the pace of its decline moderated. Indeed, the available information from a wide range of contacts with District businesses and the Bank's directors suggest some light at the end of the tunnel. Uncertainty remains high, however, and caution is likely to characterize business spending, bank lending, and labor market developments for some time.

Employment in the region declined in December and was below year-earlier levels in all states except Rhode Island. Help-wanted advertising and weekly hours worked in manufacturing declined as well. But the pace of decline in all of these indicators was more moderate than earlier in the quarter. And the regional unemployment rate did not change at all. Indeed, the region's unemployment rate is nearly 2 percentage points lower than the nation's, a surprising fact given the importance of high-tech businesses in the area. Residential real estate markets remain healthy, with perhaps a better alignment of supply and demand. And housing

construction continues to hold up reasonably well, probably because of rather mild winter weather.

Retail trade seemed to hold up fairly well through the new year, with reports of crowded shopping malls and consumers willing to take advantage of the many discounts available. Indeed, for some products, discounts weren't necessary to encourage buying. One of the Bank's directors, a manufacturer of very high end audio equipment, reported the best December ever, with sales that continued to grow in volume through the holiday, whereas in years past sales had tended to trail off two weeks or so before Christmas. A personal trip to a local electronics retailer two days before Christmas revealed that that huge store had not one single DVD player at any price! [Laughter] Both consumer and business confidence indicators, while deteriorating or holding steady as regards the present, are improving markedly in terms of conditions six months ahead. The available leading indicators data for Massachusetts have turned up as well, with signs of a weak recovery emerging through the first half of the year.

So much for the light at the end of the tunnel. What about uncertainty? Two areas are worthy of note in that regard: state and local spending and the attitudes of regional businesses, especially manufacturers, toward investment and the labor market. Within the region a serious fiscal crisis is looming in the three southern New England states. Connecticut, Massachusetts, and Rhode Island are facing budgetary difficulties not unlike those experienced during the late 1980s and early 1990s. The three northern states face problems as well, though the severity is much less. State revenue collections over the first half of fiscal year 2002 are much lower than in the same period in fiscal year 2001, with declines of some magnitude in both general revenue and sales taxes in Massachusetts and Rhode Island. Only New Hampshire has managed to increase its revenues, largely through an increased tax rate—a solution that seems politically

unfeasible elsewhere. Indeed, increased taxes in New Hampshire are a bit of a historical anomaly, probably best explained as a way out of a court-mandated school funding problem. In Massachusetts the funding challenge is being met in part by cuts in many types of social spending. One saving grace is that all the New England states have much deeper fiscal reserves than were available during the recession of the early 1990s. The question is how fast these reserves will be depleted.

Manufacturers contacted in early January spoke of the emerging light at the end of the tunnel that I noted earlier. However, they also noted their determination to be as conservative as possible in 2002 given great uncertainty about how long the tunnel might eventually be and how bright the light. Most manufacturing contacts reported that capital spending would be tightly controlled this year. Customers of high-tech firms are reportedly expressing caution about capital spending in the first half of 2002 and have a wait-and-see attitude about the second half. Some reported that 2002 IT budgets are down or flat and that companies are deferring implementation of new applications and demanding more return from their current IT investments. Preserving cash flow is at a premium, which will likely mean that inventories will be kept as low as possible for as long as possible. In sum, New England contacts expect a recovery in 2002, but they do not see it as robust. As a result they're hedging their bets, reducing spending if they can, hiring judiciously if at all, and waiting to see how things play out.

On the national scene, I see the same mixture of hope about the near term and uncertainty that is reflected in the region. Certainly the incoming data suggest that the economy perhaps is bottoming out and that activity may well be in the process of turning up. Employment losses have begun to slow. Claims data suggest that the rising trajectory in the unemployment rate could well flatten. And the steep fall in inventory investment in the last quarter certainly holds

out a real promise for increased growth in the near term. If inventories just stop falling, the impact on growth would be sizable.

Now, sooner or later inventories can no longer be drawn down, just as a matter of physical reality. We may be coming closer to that point, though inventory-sales ratios suggest that this will be an uneven process at best. What would help is the continuation of relatively solid consumer demand. I wrote these comments last night, but that thought is reinforced by the GDP data released today. Certainly the Q4 numbers on consumption are eye opening. But I keep asking myself how long consumers will keep buying homes and cars and whether even the relatively muted contribution to growth in 2002 expected from purchases of consumer durables is realistic. As I see it, the consumer is a major risk. If spending continues, even despite tepid corporate profit growth and likely rising unemployment—though not so much as we had expected—then businesses will feel more confident not only in stopping inventory liquidation but also in beginning to spend on new inventories and additions to capital. Some of this business spending may be happening already, as seen in data related to chip production and in recent orders data. But as I see it anyway, the future hinges on the consumer.

Turning to the outlook, the Boston Fed's assessment of the prospects for the upcoming year, at least as reflected in headline macroeconomic data, is not terribly different from the Board staff's Greenbook forecast. We see real growth in the mid 2 percent area, inflation as measured by the PCE at 1.3 percent, and unemployment in the fourth quarter around 6 percent. But the Greenbook has policy tightening at that point, and we don't. We question whether that would be necessary. At that point in the forecast the economy is growing at about its potential but just for two quarters. After about two years of growth below potential, inflation is quite low, and the unemployment rate is well above both what we experienced in the late 1990s without

much inflation and what statistical exercises now suggest is the level at which labor markets can function without inflation. Why would policy need to be tightened? The Bluebook suggests that we would tighten because we want the rate of inflationary growth to settle in at 1 percent. I wonder whether that is in fact what we want and whether it is ideal to have unemployment remaining as relatively high into 2003 as it does in the Bluebook simulation.

In that regard I find myself attracted, though reluctantly, to the “inflation cushion” scenario in the Bluebook, with all that implies about the need for further policy stimulus sooner rather than later. Why do I say reluctantly? Well, for one thing, I don’t think the U.S. economy faces a major deflationary risk. We talked about this a bit yesterday. I see growth in productivity, real wages, levels of confidence, and the health of the banking system as all saying that a major deflationary spiral is not likely. I’m uneasy about reducing rates to ever-lower historical lows only because it seems to imply a sense of deep concern about the prospects for the economy that I don’t share. Moreover, it leaves much less room if the economy really does get bad. I also am quite agnostic about the ability of any of us in Boston or, with apologies to the Board staff, in the forecasting community more generally to get the numbers right over as long a period as a couple of years ahead. Just a glance at our collective Humphrey-Hawkins forecasts of last July for 2001 and 2002 encourages some humility. However, the shape of the outcome in the “inflation cushion” simulation—with a faster rate of decline in unemployment, a rate of inflation that still starts with 1, and presumably a bit higher growth—looks rather good. I just wish I felt more comfortable that I was sure how to get there.

In the short term and for the purposes of this meeting, I do see reason to believe that a recovery is under way, albeit perhaps a slow one. I think the risks remain on the downside. Those risks include the potential for earnings disappointments and the effects that could have on

equity markets, on unemployment, and eventually on the consumer; the continued economic challenges faced by our major trading partners; less fiscal stimulus than had been expected; and the high risk premiums in credit and capital markets. But I also believe that current policy is stimulative, so at this point waiting out the uncertainties seems the most prudent course. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Thank you, Mr. Chairman. I read the report from the First District as being rather cautious or even downbeat. I must say that the view from St. Louis is a good bit more optimistic. I tried to convince President Minehan to accept a bet yesterday on the Super Bowl. I offered her a case of Budweiser against a case of lobster, and she just wasn't interested! [Laughter]

MS. MINEHAN. Somehow, even I know the value of the two!

MR. POOLE. I tried to smoke out her odds, so I suggested a case of Bud against a lobster dinner, and she still wasn't interested. Then I said "How about against a lobster claw?" [Laughter]

MS. MINEHAN. I just got over feeling good that our New England team didn't disgrace themselves. [Laughter]

MR. POOLE. Well, we're a little more optimistic than that in St. Louis.

MS. MINEHAN. Ned just realized that this discussion was about football! [Laughter]

MR. GRAMLICH. I thought you were talking about the economic outlook!

MR. POOLE. Well, let me comment on some of the reports from our District. Incidentally, Wal-Mart is headquartered in our District and is doing just fine, Mr. Moskow.

MR. MOSKOW. We noticed. [Laughter]

MR. POOLE. I talked to my contact at Wal-Mart on January 18. He said that December sales at Wal-Mart came in substantially better than had been anticipated; sales at comparable stores were up 8.2 percent over the prior year. And at that point in January, sales were running above plan, at better than 6 percent year over year. He indicated that they had become cautiously optimistic. Before they had believed that the turnaround was going to occur in the third quarter, and now they're anticipating a noticeable turnaround in the second quarter. He noted that their inventory situation is the best they've had in the last four years; it's very low and exactly where desired. They are totally cleaned out of seasonal merchandise. But he went on to say that actually in some respects they ended up with too little inventory. Ordinarily they rely on sales after Christmas, but they didn't have a lot of merchandise to put on sale because the inventory had been pretty well cleared out. He mentioned that Wal-Mart is ordering goods now, particularly from Asian suppliers, for next fall but is ordering very cautiously, expecting things to remain about the same. They don't see themselves in a position yet to order aggressively. He also noted, though, that there's something of an inconsistency in the nature of the demands that they see. Discretionary items such as electronics—Cathy made a comment about that—sold very well during the holiday season, and yet consumers continued to go for goods at the entry level price across a wide range of products. So in apparel or electronics or any of a broad range of goods, consumers are generally buying the lowest priced items in a particular line.

My UPS contact spent quite a bit of time talking about the labor situation. The company's contract with the Teamsters expires in July, and they've already started negotiations on a new contract. That actually was reported in the newspapers just a day or two ago. Both UPS and the Teamsters are well aware of the fact that the strike they had several years ago was very disruptive and harmful to the company's business. My contact said that they already are

seeing some signs that their customers are making alternative arrangements for shipping. And, of course, they are concerned about losing that business permanently if customers develop relationships with other shippers. But he anticipates that they will be settling that labor contract early and will get it out of the way. He also commented that they view the outlook as fairly flat, given that their customers are not showing a great deal of optimism. Inventories are very lean; firms just don't want to carry inventories. So, he was not terribly upbeat. On the other hand, my contact at FedEx said that although they haven't seen much sign of a pickup as yet, they are expecting increased volumes. The customers that FedEx talks with are anticipating increased shipping needs, particularly because of the need to rebuild inventories. Lastly, my contact at J.B. Hunt, a trucking firm, noted that they don't see business picking up as yet.

Let me make a comment about the prospects going forward. I want to start with an interpretation of what happened after September 11. My interpretation is that a lot of business leaders were unnerved by those events and they went into something of a cash preservation mode. They laid off a lot of people; they cut orders; they did not make any commitments that they didn't feel they really needed to make. But consumption demand remained surprisingly strong. Though business people are still in a rather cautious mood, I think that, if we can get by for a few more months, some of that caution is going to begin to turn. So, my instinct is that sometime this year we're going to see some inventory restocking that will be big enough to skew the GDP numbers upward for a quarter or two. But obviously a lot is going to depend on the maintenance of consumption demand in order for that to work through. I don't have any particular disagreements with the Greenbook forecast except possibly on the inventory side, which I talked about yesterday. I think there is much more of an upside risk there than a downside risk. Thank you.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. Mr. Chairman, if we looked at the actual statistics on current economic activity in our District, I think we'd have to say it's still edging lower. Let me cite a couple of examples: Retail sales in particular have weakened most recently, according to a monthly survey we conduct; factory shipments are down in our District; unemployment rates have risen in several states; and we're still seeing plenty of layoff announcements. Despite that, similar to the comments we've heard this morning about other regions, my sense is that the overall health of the District is improving. When one takes into account anecdotal information, more recent data, business expectations, and indicators of what actually is happening currently, I think there have been improvements.

The picture in manufacturing, which of course is very important in our District, is clearly better. New orders appear to be rising; inventories of both finished and intermediate goods are in better shape now than they have been for some time; and capacity utilization is increasing in at least some industries. And we hear some reports that earlier decisions to freeze capital spending have been relaxed to some extent, which I think is encouraging. The outlook for the furniture industry, which is one of our most important industries, is particularly bright now. Sales are increasing. A lot of those sales are clearly sales of imported goods, but our own factories still get a good share of the business, and they are more optimistic than they've been in a while. And for the first time in a long time there are actually signs of life in the textile industry. That might be related to the strength of furniture sales—I'm not sure—but it is a very encouraging development. So overall, I think the situation is clearly better in our District.

Like most others who have spoken, I certainly feel better about the outlook for the national economy than I did at the November or December FOMC meetings. The apparent

increase in domestic final purchases in the fourth quarter—I guess it's more than apparent now, perhaps at least semi-official given today's report—is really quite remarkable considering the situation we were looking at and the projections that were being made for that period not very long ago. The milder-than-expected decline in business equipment spending, apparently driven in large measure by spending on computer hardware and software, is especially encouraging. I mentioned this at the regional level, but it's the case nationally as well, that the strong overall demand does seem to be driving inventories down. And that is improving the outlook picture.

The Greenbook projection says that the economy is bottoming out, and we certainly have more reason to believe that may be the case now than we did not very many weeks ago. The projected recovery is very much in line with the anecdotal information we're receiving from our own business contacts. For the most part they are much more sanguine about their individual industries and businesses than they were before the holidays.

So, all in all, I think the Greenbook forecast is plausible and it rests on a stronger foundation than it did a month ago, when much of the emphasis was on the expected fiscal stimulus package. It seems fairly clear to me that the risks in the forecast are better balanced now than they were at the time of our December meeting. But I still believe that the risks are tilted to the downside. As the Greenbook points out—and I don't think the numbers released this morning change this observation—the strong overall final sales performance in the fourth quarter was driven in large part by the extraordinary volume of car sales and the fallout from that. I think that's something we need to remember. The sales incentive programs were truly unprecedented, and I think the unusually warm weather played a role in helping to keep housing activity up. These favorable conditions probably won't be sustained fully, so we may well get some weak numbers in the weeks immediately ahead. And with the unemployment rate likely to

continue to increase, some less bullish economic reports—especially if we have some further deterioration in equity markets—could feed back into consumer attitudes and ultimately into consumer spending. So, I think we need to keep that in mind. I don't view the situation as fragile. I wouldn't say that. But I don't think it's as firm as some of the headline numbers might suggest.

My bottom line is that it's more plausible now than it was at the time of the last meeting to believe that we might have eased as much as we're going to need to ease in this cycle. But with inflation and inflation expectations still well contained and with the downside risks still out there, I think we need to continue to be in a position to ease policy further if necessary. Thank you.

CHAIRMAN GREENSPAN. President Santomero.

MR. SANTOMERO. Thank you, Mr. Chairman. Last time I reported that economic conditions in the Third District appeared to be stabilizing. This time I can report that conditions in the District are improving somewhat. Retail sales of general merchandise exceeded the pessimistic forecasts for the Christmas season and were about even with last year in real terms. Housing activity, while not as strong as in the nation, remains healthy. Nonresidential construction contracts increased for the fourth consecutive month in December. I should note, however, that some of those increases represented state and local government projects, which may not be sustained given the deteriorating fiscal situation in our three states. While some banks have tightened terms selectively for the lowest credit quality borrowers, our banking and business contacts report no evidence of a credit crunch.

But the best news comes from our January business outlook survey (BOS) of regional manufacturers. The index of general activity turned positive for the first time in fourteen

months. The swing was significant from a reading of minus 13 in December to plus 15 in January, indicating that 15 percent more of our manufacturers reported an increase in activity than reported a decrease in January. The historical data on this index show that the current swing of almost 28 points is larger than the usual swing from negative to positive at the trough of the BOS index. Analysis also indicates that the swing in the index from negative to positive is typically not a false signal; such a swing usually occurs near the end of recessions. Many of the other measures in our survey showed a similar pattern in January. In particular, the new orders index and the shipments index turned positive, and the magnitude of the swings exceeded their average swings at a trough. Respondents continue to be optimistic about future activity, although they remain cautious about hiring plans. Thirteen percent of those surveyed planned further cuts in their workforce this year. Half of the firms plan to hire or rehire workers this year, but most will delay the hiring until the second quarter or later.

Another piece of positive news from our survey was a noticeable improvement in plans for capital expenditures. The index posted its highest reading in sixteen months, with nearly 30 percent of firms expecting to increase capital spending over the next six months. The relatively weak demand for labor but more bullish outlook for capital spending is consistent with the secular upward trend in productivity in the manufacturing sector. The more positive BOS numbers and the fact that the gains are fairly widespread among the industries covered in our survey suggest that the foundation for economic recovery is in place in our District.

The more positive news from the Third District is consistent with recent data on the national economy. In light of recent developments many forecasters, including the Board staff, now project an early end to this recession. Most see the end in the first quarter, notwithstanding the data that just came out. Indeed, the forecasters see underlying economic strength now

compared with previous forecasts since in fact the sizable fiscal stimulus is no longer assumed in the projections.

My own view continues to be a bit less optimistic for the short run. I believe that the fundamentals support an economic recovery but that we are unlikely to see any substantive recovery until the second quarter. The recently released GDP numbers changed this view somewhat, but I still remain concerned about the short run. Consumer spending is the linchpin of our forecasts. As growth in consumer spending accelerates, inventory cutting ends and inventory building resumes, followed eventually by a pickup in investment spending, which helps solidify the recovery. This is the most likely outcome. The recovery in consumer confidence since September 11 and the fact that debt service burdens remain at manageable levels are all positive factors for the consumer. However, there is some risk that continuing increases in unemployment will have a damping effect on consumer confidence, income, and spending. And while the recovery of the stock market since September 11 is a positive, the declines in equity prices over the past year will make the consumer more cautious.

Then there is the link to inventories. Obviously, inventories must turn as sales continue to exceed production. But the business community is extremely cautious, and I expect that the inventory adjustment will be slower than many anticipate. Therefore, I share the Greenbook's general view that the recovery will proceed relatively slowly, at least at first. On average in postwar recessions the acceleration in growth between the recession trough and the first quarter after the trough has been about 7 or 8 percentage points, as was noted yesterday by the Board staff. Our own forecast is for about half that much this time. We don't expect a strong resurgence, in part because we expect this recession to be relatively mild. Also, the inventory

swing in our forecast is less sharp than that in the Greenbook. I'll point out that one of our major misses in last year's forecast was a premature call to the end of the inventory cycle.

That said, I do note that forecasters tend to underestimate the strength of recoveries and, in particular, underestimate the response of output growth to expansionary monetary policy. And such a policy has been in place for the last year. There is significant monetary stimulus still in the pipeline and stimulus from fiscal policy is already in place. Both of these factors should support continued spending.

Although I believe inflation—or deflation for that matter—is not a problem at the moment, I'm less optimistic than the Greenbook about the longer-run inflation outlook. Indeed, if the recovery turns out to be stronger than expected, the Committee will need to reverse course sooner and more sharply than is incorporated in many forecasts. We need to begin preparing the public and the market for the inevitable change in our policy course. Thank you.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. Mr. Chairman, one advantage that Texas has over many other states is our billboards. We have a lot of high-quality billboards in Texas. [Laughter] I was in San Antonio last week and on the way to the Dallas-Fort Worth airport I saw a huge billboard that said "San Antonio loves God, country, and supports free enterprise." That's probably the reason that Texas has done better than the rest of the country over the last eleven years! But on the way to the Dallas-Fort Worth airport to come to this meeting I saw an even better billboard. It also was very large, and it was an ad for the classified section of the Fort Worth newspaper. It said, "Make Alan Greenspan proud. Sell something." [Laughter] Mr. Chairman, I thought you were encouraging buying rather than selling. At any rate, we're trying to do our part to make you proud of Texas.

I helped cut the ribbon on the new headquarters building for the American Airlines credit union last week. It's the fourth largest credit union in the country. I learned during the course of that event that the credit union has taken on some of the furloughed American Airlines employees and also that some related entities have hired others. Then I later learned—and I don't think this received much publicity—that American Airlines was taking back several hundred of its furloughed employees. As I recall, the number rehired was 800 in total and a little over 200 in the Dallas-Fort Worth area. I think it is that sort of thing that goes on behind the scenes without much publicity that helps to explain the apparent contradiction of continuing announcements of large layoffs at the same time that we're seeing declining new claims for unemployment insurance. Continuing with airlines, I'm told that air travel was down 30 percent in October from the previous October, off just a little over 20 percent in November, and down less than 14 percent in December. So the airline industry seems to be recovering somewhat. That's favorable for Texas because Texas is the headquarters of three major airlines—American, Continental, and Southwest. Southwest traffic by the way was up a little last year over year-earlier levels.

Let me say a word about Mexico, which is also important to our economy in several ways. The boom of the late 1990s drove our border town unemployment rates down below 10 percent for the first time any of our directors from that part of Texas could remember. The economic slowdown that has taken place since then has not reversed that as much as we had expected. There is growing anecdotal evidence that this may be due to Mexican immigrants departing the United States in search of a better life in Mexico. Mexican consulates reported a dramatic jump in applications for the document used by illegal immigrants to make a legal crossing into Mexico. Maybe I ought to repeat that. [Laughter] There has been a jump in

applications for the document used by illegal immigrants to make a legal crossing into Mexico! As for those coming the other way, immigration arrests fell 25 percent in the first nine months of 2001 and fell 54 percent in the fourth quarter compared with the fourth quarter the year before. These factors have contributed to our border unemployment rates going up less than the rates have risen in the central Texas cities.

Staying with the subject of Mexico for a minute, I once told Governor Ortiz that he had only two kinds of monetary policy—tight and tighter. That has paid off on the inflation rate, which dropped to a record low of 4.4 percent last year. Earlier this month, Fitch's upgraded Mexico's sovereign debt to investment grade. Moody's had done so earlier, but Standard & Poor's has not acted yet. There seems to have been very little fallout on Mexico from Argentina's problems. The peso has appreciated over the last year by a little more than 5 percent in terms of the strong U.S. dollar. The Mexican economy is in a recession, but this is the first time Mexico has had a recession without a financial crisis. Our manufacturing recession, which began before March 2001, was transmitted to industrial Mexico before our overall economy was deemed to be in recession. In other words, our slowing economy was transmitted to Mexico as a recession because of the concentration of our slowdown in manufacturing and their heavy manufacturing component. Longer term, however, there is concern that Mexico's prosperity along the border, especially in the maquiladora industry, may have made it uncompetitive in future years vis-à-vis China and other countries with lower wages than Mexico.

The greater Dallas area has been the region in Texas most adversely affected by the slowdown and recession because of the area's heavy concentration of high-tech industries, especially high-tech telecom firms. The computer high-tech sector is showing signs of stabilizing or even rebounding a bit, but there are no signs of that as yet in the telecom sector.

Energy, which is often a countercyclical force in Texas, has weakened recently along with other sectors. The rig count has declined substantially, and energy employment has declined somewhat. Twelve of the twenty largest cities in Texas had higher sales tax receipts in November than a year ago, and that included the large cities of Houston and San Antonio as well as McAllen, which is near the border. Most of the declines in sales tax revenue were concentrated in Dallas and its nearby suburbs, where the telecom corridor is located.

For me the significant development in the national economy is that data that had been uniformly bad have recently turned mixed and, in fact, most recently have been almost uniformly positive. I have in mind, for example, the rebound in consumer confidence, the leading indicators, and the indexes of manufacturing activity. The declining inventory depletion that will probably take place in the current quarter is likely to give a confidence-building boost to the headline GDP number. But as the staff has pointed out, the real question is the sustainability of the initial boost the economy will get from a turnaround in inventory liquidation. We have no quarrel with the broad outlines of the Greenbook forecast and the staff analysis. We tend to agree with their views, and we think the staff projection is about right. If anything, I'm a bit more optimistic. Personally, I wouldn't be surprised if the fourth-quarter GDP number came in as a small positive! [Laughter]

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you, Mr. Chairman. The latest readings on the District economy are consistent with what we've been seeing and saying about the business news more broadly. Consumer spending has been strong, particularly for home furnishings, electronics, autos, and at bars and restaurants. Housing had a very good year in 2001. Construction activity was strong, and home sales were at record levels. And realtors are optimistic; they think 2002 will be even

better than 2001. On the other hand, layoffs have continued. But the unemployment rate Districtwide and in the major metropolitan areas such as the Twin Cities remains in the neighborhood of 4 percent. That suggests that a lot of the laid-off workers either have been absorbed elsewhere in the economy or perhaps have chosen to spend a few months in Florida or Arizona, as Minnesotans are wont to do this time of year, and wait things out there. Manufacturing is struggling but does appear to be stabilizing. And I would say that the tourism business has been adversely affected by the weather. The weather has been too good. But the other side of the coin is that the mild weather has had a very favorable effect on household utility bills, which are running well below last year's.

As far as the national outlook is concerned, I think the prospects for the economy are favorable. I don't have any significant quarrel with the Greenbook forecast. My own view is that the first half of the year will probably be a bit slower than in the Greenbook and that the second half may be a little stronger, but overall the difference is not significant. Our VAR forecasting model, which has a pretty good track record except perhaps at turning points, [laughter] has the same general path as the Greenbook, although a bit more subdued. Certainly there is some possibility that the consumer will be a cause for concern, especially if labor market conditions deteriorate further or don't even stabilize. But I'm wondering whether there isn't less of a mystery about consumer behavior than one might otherwise think. After all, disposable income has risen consistently over many years now and household net worth, while down from its March 2000 peak, is still considerably above where it was five or ten years ago. Against that background, I don't find the ongoing strength in consumer spending all that big a surprise.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. Our District economy in terms of the level of activity is still relatively weak. But as others have said about their Districts, the signs are growing that the situation is likely to improve, and there is a great deal more optimism among manufacturers and businesses operating in the region. Turning to manufacturing for a minute, the level of activity in that sector remains low. Our Bank's latest manufacturing survey found that production was down again in December after improving somewhat in November. Employment, new orders, and capital spending were again low in December relative to a year ago.

But importantly in my view, firms have become considerably more optimistic about the future. Many more of them are predicting a pickup in business and actually are seeing some early signs of improvement in orders. So, looking forward, I think the situation is quite encouraging. In terms of our manufacturing survey, the six-months-ahead index for production climbed fairly significantly. Granted, the rise was from a low level, but the index almost doubled. The new orders index more than doubled, and raw materials inventories as well as finished goods inventories increased rather significantly according to the survey. So, there is a fairly strong positive attitude about the future among manufacturers. Anecdotally speaking, I talked with several manufacturers who seemed very pleased with the inquiries they're getting and the orders that are now being placed. Moreover, they were saying almost uniformly that their inventory levels and those of their customers are such that they are hiring or intending to hire people again. So there's a great deal of positive news there, recognizing, though, that these are improvements from a low level.

As for consumer spending in our region, the story is very similar to what you've heard from others. Retailers throughout our District were very pleased on balance with the holiday

season. They talked some about the extensive discounting, and they expressed concerns about the pressure that has placed on their profits. Still, they are very positive about the volume of sales. Auto sales, like elsewhere, were very strong. There is some concern about used car sales and about financing related to earlier leases. A fairly large distributor in the Denver region told us that each car coming back in on a lease has about a \$5,000 write-down that someone has to absorb. So they are a little worried about the impact that will have.

The energy sector has slowed. Obviously, with prices coming down, the level of activity has backed off considerably throughout the District, more so in the Oklahoma area than in the Wyoming area, though activity in Wyoming is still down. Labor markets continue to be fairly easy in terms of the ability to hire workers. It's still rather easy to find new employees, and there are no real signs of wage pressures that anyone is talking to me about. The farm economy is legislation-dependent, so we'll have to see how that develops. But overall, as I said, there are signs of improvement.

Looking at the national picture and comparing our outlook with that of the Board staff, we're generally in line with the Greenbook forecast. We see a little slower rebound as we get into 2002, but activity picks up later, and for the year as a whole our forecast is about the same as the Greenbook's. One thing I consider important is that, as others have pointed out, the balance of risks is shifting. The risks are becoming more balanced, though I'm not saying that they are balanced at this point. And I think it is a fact that we continue to have a very accommodative monetary policy, which should be a positive factor for growth as we get further into 2002 and beyond. Thank you.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Thank you, Mr. Chairman. Overall business conditions in the Sixth District are now more mixed than I reported at the last meeting. While clearly not as positive as some read the evidence at the national level, things are marginally less negative and at least are not inconsistent with the suggestion that activity may have bottomed out. For example, our consumer sector continues to display resilience. Most merchants noted that sales had met or exceeded their expectations. But I must add that this was not the case for smaller specialty stores. Discounting continues to be widespread, and the majority of the people we talked with said that their profit margins were noticeably worse during the fourth quarter than a year ago. The most positive reports continued to come from discount retailers like the Wal-Marts of the world, whose profit margins were steady and whose sales growth was higher. Automobile sales remained solid but predictably were down from their high levels in November as the incentive programs played out. Real estate agents and homebuilders in our area noted an improvement in home sales in December from the November pace, and the volume of new permits issued remained strong, especially at the low end of the market.

Our important tourism industry and travel-related activity are still hurting, although we're seeing some gradual improvement. Markets such as Orlando are under considerable stress because of the low number of visitors and the abundance of hotel space. The key factor in south and central Florida has been the decline in the number of European visitors. Airport traffic through Miami International Airport was down 11 percent from year-ago levels, and advanced bookings at resorts for the first quarter of 2002 were 10 to 15 percent below last year's level. Reports suggest that several Orlando hotels are in serious financial trouble, with a number of borrowers having failed to make required debt-service payments. Additionally, the corporate travel market remains soft. Conventions are not being cancelled, but attendance is low. Reports

that car rental rates are beginning to increase and the fact that airline discounting is being scaled back may signal some improvement in business demand conditions.

Our manufacturing sector remains weak overall, and layoffs continue at a fast pace in the apparel industry, which accounts for one-third of the District's job losses during this contraction. At the same time, new orders have improved for some producers of industrial electronic equipment, and some firms have even noted that they were rehiring some staff and extending production hours. Not surprisingly, producers of security equipment reported strong growth in demand since September 11, and both Lockheed Martin and Gulf Stream continued to benefit from federal government and foreign government programs and from the demand for private secure plane travel.

Large cost increases continue to be noted in health care in the form of higher wages for health care workers and higher health insurance costs to employers. Bankers in our region, while slightly more optimistic than in December, still report that they are flush with liquidity. Commercial loan demand is limited to nonexistent. A contact at Equifax, a leading provider of credit rating services, indicated in recent conversations that the firm had several new and very attractive credit-related products but was unable to generate any interest in them from their customers. The senior executive I talked with likened the hunkering down of business executives to a "deer in the headlights" phenomenon.

Commercial real estate markets have remained weak in the District. State and local government projects, which as someone else noted had taken up some of the slack as commercial projects dried up, have now also slowed markedly as local governments face their own budget pressures. The CEO of one very large commercial builder told me on Monday that he fears a significant gap in building activity before it gets restarted.

On the national front, the recent flow of more-positive information, which many of us have noted in our public statements since the first of the year, suggests that we may now be at or near the bottom of the cycle. The deterioration of the labor market seems to be easing, with average hourly wages and the workweek rising and jobless claims continuing to fall. Even small businesses are noting that some jobs are becoming harder to fill. Both of the consumer confidence surveys, which I take as coincident indicators, are now less weak. Even manufacturing, as measured by industrial production and demand for core capital goods, is less weak. Also, the signs of renewed demand for noncommunications equipment are encouraging. While caution dictates that we not become over confident and declare victory prematurely, I find it interesting and reassuring that this is the first time in three or four months that the professional outside forecasts, our own internal models, and the Greenbook do not contain further downward revisions. Furthermore, with the exception of Argentina, forecasts for the rest of the world have been revised upward.

While the evidence suggesting that a recovery is under way has become more convincing, the strength of the recovery once we get past the initial boost from a significant inventory swing is less clear to me. Like those who prepared the chart show for yesterday afternoon, my staff devoted considerable time in our briefing earlier this week to looking at how various sectors behaved in the quarters leading up to the recession. That work underscores how differently a number of important factors varied from other recent cycles. Those differences and the questions they raise about how the same sectors will behave coming out of this recession point out the uncertainty and the risks we face in trying to ascertain the shape and strength of the recovery. I'm particularly struck by the remarkably strong consumer spending and housing numbers. Like some others who have commented already this morning, I think one can make a

good case—and the Greenbook has done that to some extent—that we are likely to get only modest additional contributions from those sectors in coming quarters. I may be even more cautious in my outlook for those areas because I think there's a reasonably high probability that job losses still to come will be greater than in the Greenbook baseline forecast. And therefore, the return to job growth may look more like what we saw after the 1990-91 recession.

Businesses are under more pressure than ever to show profits and very likely will continue to squeeze their labor costs.

I have argued in the past that the outside reading of the implicit policy rule being followed by the Fed is to cut the funds rate until we see signs of a turnaround in economic activity. The economy seems to be at that point. While further fiscal stimulus now looks less likely and probably less needed, significant monetary stimulus remains in the pipeline. Thinking more now about the longer-term path of policy, further easing at this point would appear to hamper our ability to return the funds rate to appropriate levels as we get into the recovery.

Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you. Those of you who live in the warmer climates of the nation probably don't realize that we are now at the peak of the boating season in the north of the country! That's because boating is not about having a large, expensive piece of fiberglass bobbing up and down in a marina someplace. It's about boat shows because that's where all of the real excitement takes place. The ten-day-long Cleveland boat show concluded this past Sunday. I reported to you a year ago that a vendor of jet skis and personal watercraft had sold only 9 items last January versus 100 the year before. I had thought that that was actually a positive development. So I rather reluctantly report that there has been a sharp rebound in

personal watercraft sales this year. In light of what people were reporting about the excitement at the Cleveland boat show, I did an Internet search to see what was going on elsewhere. The boat show season kicks off every year with the big show in New York at the Javits Center. This year attendance at that show, which was held over the first nine days of the year, was over 100,000. According to some vendors, they saw an increase of as much as 40 percent in sales. Some boat dealers claim that half their sales occur during the January through April boat show season, so they take the strong sales in these first few shows of the season as an indication that it may be a strong year. One industry analyst on boating offered the view that the rebound we're seeing in that industry involves a shift in consumer spending toward family recreation. He claims that this is consistent with a lot of other recent developments, such as more family events at arenas and entertainment centers. He believes people are substituting buying a boat, for example, instead of going to Orlando or other so-called family destinations, to achieve a sort of "feel good" effect.

As a side note let me mention something about auto shows—a phenomenon kicked off, of course, with the big Detroit show. This has nothing to do with macroeconomics, but we were told that the excitement among the crowds was overwhelmingly at the GM exhibits. Second in popularity was Chrysler. There were virtually no crowds and no excitement at the Ford exhibits, which underscores what we are already seeing about that company and the problems it is facing.

In the retail sector, even large national retailers that had reported declines in sales versus a year earlier expressed essentially relief that the declines were smaller than they had expected. Certainly by the end of September most people were marking down very, very sharply their expectations about fourth-quarter sales. One director with a large national retail company said, "We were prepared for a complete disaster, and it did not happen." Let me note an interesting

twist regarding what is going on in retailing—which may feed into the GDP numbers released this morning and may reflect my ignorance about how those numbers are put together. A director said that, even with a year-over-year decline of only about 8 percent, his company experienced a much, much bigger increase in the volume of goods moved than he had thought possible. Then he said that, of course, inventories were dropping by more. I asked why, and he said that his company is running sales of 50 to 70 percent off, which means that they have been losing money on all those discounted items sold. He said that the cost of what comes out of inventory is higher than the price that goes through the cash register. I don't know what deflators are being used to adjust these data, but it's hard for me to understand how the Commerce Department knows how to do that. I don't understand how Commerce knows what is actually moving and what prices are appropriate—the deflators to use—for either the merchandise coming out of inventory or that going through the check-out stand. One final note on the retail sector: A number of directors indicated that we should expect in our region a significant increase in unoccupied retail space because a number of store closings in major urban metro areas have been announced and our directors think there will be more.

From the manufacturing standpoint, as in Mike Moskow's District, cautious optimism was the general tone that we were hearing from our contacts except those involved in the manufacture of large trucks—eighteen-wheelers—or related industries. With the exception of Ford, the auto assembly and parts plants all indicate that they are operating at high levels. And probably reflecting the unusually warm weather this winter, going on three months now, both residential and nonresidential construction are very strong, at least on a seasonally adjusted basis. We're told that manufacturers of electronics, plastics, and chemicals are now seeing the first improvement in orders in a year. A large regional bank said that it now has openings for 1,500

people and is offering existing employees a \$500 referral bonus for bringing in someone who is hired and stays with the bank for at least six months.

On the national front, in terms of this Greenbook versus the last one, I probably would not have marked down the second half as much as the staff did because of the absence of fiscal stimulus. Then again, given the discussion we had last time about how much of what was called fiscal stimulus was really an effect on the timing of business fixed investment spending, it is hard for me to judge the likely effect of the changed fiscal outlook. To the extent that there is a fiscal impulse on certain expenditures, I do tend to think of it as only a timing effect. So the Greenbook may be right. Perhaps activity from 2004 or 2003 is not going to be pulled into the second half of 2002 as much as it otherwise would have been. It's hard for me to say. But I still think that the basic trend is more likely to be stronger rather than weaker. I suppose I wasn't counting on as much from so-called fiscal stimulus in the first place.

To me an emerging risk that we're all going to have to think about a bit more—and I certainly am trying to understand it a little better—is what I view as a fallout from the Enron debacle. Yesterday, as you saw, it was announced that

got caught up in

the accounting issues that have emerged of late. That was something we had been addressing, of course, for some weeks, and we knew that if there was a disclosure, there could be a reaction. If a sequence of these types of disclosures comes out, I think we're going to have to worry about whether people's general confidence in and the quality of the earnings reports we have seen for some time are as good as we would like to have believed. That has to be bad for the equity market because the risk premium is going to be influenced by that.

Let me fold in some thoughts about the national outlook and what Bob McTeer said about Mexico. It is true that, when our economy slowed, the Mexican economy dropped as well. However, that pattern is symmetric. When our economy tends to recover, theirs will also; I think of it as something of a slingshot effect. The Canadians certainly are hoping for a slingshot effect if the U.S. economy picks up more than had been expected earlier. I view this \$10 trillion economy as a strong locomotive which, if it starts to perform a little better, will help pull along not only Mexico and Canada but most of Asia except for Japan. I think those countries are poised to do quite a bit better assuming that we also do better. As we shake off pessimism in this country—and that pessimism may have been rational but I do think there has been excessive caution in the business sector—I believe those countries will also. The result will be a building momentum of optimism that is going to show through in a lot more commerce on a global basis. There is some lag involved, but I do think it's fairly short. My conclusion about the risks to the outlook is very similar to what Tony Santomero said, so I won't repeat that.

CHAIRMAN GREENSPAN. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Thank you, Mr. Chairman. Economic conditions in the Second District continued to improve since my last report, and inflation has remained negligible. State governments in the District face very significant budget gaps, but they are handling them in my view both responsibly and well. New York City, to a large degree related to the events of September 11, has a rather significant budget gap for the coming fiscal year. But the general feeling of the City is extremely positive, as we continue to recover from September 11 and as the new mayor is off to an extraordinarily positive start. He has been successful not only in attracting some unusually good people to his administration but also in reaching out to

minority communities in a way that has brought to the City a renewed feeling of togetherness. It seems to be a very positive beginning.

Retailers report better-than-expected sales in late December and early January and say that inventories are lean. Private-sector job losses in New York State, New York City, and New Jersey abated noticeably in December. In fact, in the City we lost 70,000 jobs in October, 20,000 in November, and only 10,000 in December. Indeed, it looks very much as if the District is not going to have as much of a problem period as it did in the early 1990s, when its economy performed much less well than the rest of the country. Rather it seems poised to do at least as well, and perhaps even a little better, than the nation. The office market in New York City appears to have improved somewhat in December, but the suburban markets in the metro area continued to soften. You've probably been reading about the announcements by some securities firms that they are moving their backup sites. That was really anticipated, so it's not particularly new news except perhaps to the reporter who broke the story.

On the national level, we share the view that the economy is already recovering and that the inventory correction will return the economy to fairly decent growth by midyear. We believe the expansion will then continue but at a pace that's a bit modest, as the Greenbook suggests. On the downside, let me expand on one risk that has been mentioned and cite some additional factors that are of concern. The stock market and the yield curve in the bond market clearly are forecasting a much stronger economic recovery than any of us is anticipating, with much stronger growth in profits. The equity markets could, as the Greenbook suggests, limp along sideways for a while and then grow. On the other hand, when profits disappoint, as I think they will, we could have an equity market correction of some significance with a resulting adverse effect on consumer confidence.

In the business community there is such a degree of gloom that, in response to the clear views of the board of directors of the Federal Reserve Bank of New York, we have in fact been recommending a discount rate cut since December 29. The only way I could have avoided that was to tell our directors that they should do what I want and not what they want, and I don't believe that's what the president of a Reserve Bank should be doing. To what degree this gloom could become a self-fulfilling prophecy is very, very difficult to predict. I think what is likely to occur is that business fixed investment will come back more slowly than any of us would like to see. Of course, as in the Santomero-Jordan view, we could have excessive gloom, then a big swing toward a rebirth of optimism, and then business fixed investment would come back even stronger than we anticipate. I believe that the risks are somewhat to the downside in that I think the economy could experience a recovery in the middle of the year and then pause—not stall out and go back into recession but look as if it's not going to pick up further. At that time, we might be required to do some additional easing of monetary policy. On the other hand, even though I view Tony Santomero's scenario as less probable, I think it's entirely possible. Therefore, it seems to me that in the monetary policy area we have to be unusually watchful and prepared to move in whichever direction appears appropriate, if either does.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Thank you, Mr. Chairman. The list of indicators that are beginning to show signs of strength is long and getting longer. I won't go through all the upbeat statistics, but let me focus on two summary measures. One is what other forecasters are saying. These forecasts can be viewed as summaries of all the leading indicators and statistics now available on the economy. I don't have a complete time series, but both the Greenbook and the Blue Chip forecasters have been revising their projections upward lately, in contrast to last year when

revisions were sharply and continuously downward. The second is what financial markets are saying. The staff in its Monday briefing devised a statistical measure that combines leading information from the stock market, term spreads, and the real fed funds rate to measure the probability of recession. This measure rose sharply around March of last year, indicating recession. It is now dropping sharply, indicating that the recession is over, roughly replicating the behavior of the index in earlier recessions. Now, I wrote this a day or two ago, and I would add a cautionary note that essentially follows what Jerry Jordan said a minute ago. If there is what I'll call an accounting shock to the stock market, we may have to take that into account in our thinking in some way. But aside from that caveat, based on this evidence and all the other things we've heard this morning, there seems to be far less need for an expansionary monetary policy than there was previously.

I also want to focus on a different side of the question that we haven't talked about very much in our meetings. It concerns what could be called the marginal impact of monetary policy. There are two ways to think about this marginal impact. One is what I'll call the orthodox approach, and the second is what I'll call the regression-to-the-mean approach. In the orthodox approach, a drop in short-term interest rates lowers long-term interest rates and raises consumption and investment. Models using this approach—our own FRB/US model doesn't really use this approach—are usually complicated and not strictly linear. But the impact of monetary expansion is approximately linear. That is, the impact on consumption and investment is roughly the same when the funds rate is, say, 4 percent as when it is 2 percent. By contrast, in the regression-to-the-mean approach, long rates stay within their historical bands. Long rates average expected future short rates over a long period of time, and it is natural that, when bond dealers form long-term expectations, there is a strong adaptive component. In this sense, when

short rates get well outside their historical ranges, it becomes progressively harder to budge long rates. In this approach, the marginal impact of changes in short rates could be much less when short rates are 2 percent than when they are 4 percent.

The logic is essentially the same as with the zero-bound liquidity trap argument except that the motivating factor is not so much the zero bound as such but a comparison of long rates to their historical ranges. It's not hard to figure out where I'm going with this. We just may be getting to the range where further reductions in the funds rate will not have that much impact on long rates and on the real economy. And this point is magnified by another factor that is contrary to what most textbooks have these days, as amply discussed in the Reifschneider-Williams paper. At least for the United States right now, rate reductions are unlikely to raise net exports, one of the important channels of monetary policy. The effects of overall economic strength, good policymaking, and other factors seem clearly to dominate the Mundell-Fleming mechanism, whereby easier monetary policy lowers the currency values and stimulates net exports. The combination of less need for monetary expansion and, if true, the declining marginal impact of monetary expansion means that we may have hit a crossing point. For most of last year, the need for expansionary policy was clear, and policy easing was presumed to be effective. Then the choice was relatively noncontroversial. Now the need is dubious, as is the effectiveness, and there is a much stronger case for standing pat.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. As others have already said, the recent indicators have on balance been more positive than one might have feared at the last meeting, and they are broadly consistent with recovery starting before long. Unlike Governor Gramlich, I'm not going to put much weight on the consensus forecast because, while it is obviously meant

to be a compendium of a large number of forecasters, I'm not so sure the forecasters have gotten it right thus far.

Actually, I would put more weight on some of the incoming data, particularly in my case on the new orders for capital goods. Given the nature of this slowdown, the place where I thought I'd first look to see if there's any turn is in that area. And indeed new orders for capital goods did firm in the latter part of 2001, especially for computers and semiconductors. In addition, there's a variety of survey data that others have talked about, which I think might be indicative of a turn, as well as the initial claims data. Moreover, there are some forces that will be at work to give a lift to the economy in the months ahead. Inventory liquidation has been brisk over the past year or so, and the accelerator relationship bodes well for recovery in business investment once firms see final demand stabilizing and turning up. In addition, I take some comfort from the fact that returns on investment in tech goods outside the telecom sector appear to have remained high, which should bolster investment and continue to keep labor productivity growing relatively strongly.

Having said all that, I think the major policy issue here really has to do with the so-called balance of risks. There are two ways one can look at that. One involves the risk of some surprise that throws us off the baseline forecast. In that regard I think a number of forces are restraining the economy and create some downside risks. I'd like to pick up on one that Jerry Jordan and Ned Gramlich touched on, which strikes me as very important. The most recent profit reports have been roughly in line with expectations or even a little better, but profits continued to fall relatively sharply last quarter. Moreover, the scope for improving profits will likely be affected by a limited ability to raise prices at a time of ongoing competitive pressures. The equity markets do seem to continue to incorporate a fairly sharp turnaround in profits in

2002. That could, if it fails to materialize, send stock prices lower and adversely affect both business and household spending. I would add to this the point that Jerry Jordan made, which is that the so-called Enron effect or accounting effect creates some greater uncertainties, which again add to the potential downside risks there.

There are other kinds of risks that one might point to. Declines in energy costs have been supporting consumption and business profits in the aggregate. But as I recall from the chart show yesterday, it seems as though going forward energy prices have only a little more room to decline in a lagged response to the previous drop in the price of oil. The wealth effect that we've talked about is probably still mainly negative, with more drag on household spending to play out. Finally, there's the entire question of the interplay of the asset and liability sides of the balance sheet with respect to both households and businesses. If profits remain weak, if unemployment continues to pick up, and if the ability to increase compensation remains in any sense constrained, there's a possibility—in a context where both households and businesses have taken on a lot of debt in recent years—that debt service burdens may become increasingly onerous. I'm not suggesting that this will necessarily play out in the way that the newspapers or magazines portray it, but there is still a possibility that debt service burdens will exert downward weight, if you will, on households and businesses. So from that standpoint, I believe the risks are primarily to the downside.

One way to think about our policy decision—and no one has raised it thus far—is that we have a dual mandate. The fact that inflation appears to be under control currently and is likely to remain under control gives us a little more scope to look at the other side of the mandate—to foster maximum sustainable growth. Here I'd like to point out that in the staff projection the output gap is persistent and positive during the entire forecast period. If one is to believe the

staff forecast or others, we will have an output gap for the next eight quarters that goes from about 1.8 percent of GDP down to about 1 percent of GDP. One might argue—and this might be consistent with what Cathy Minehan was saying earlier—that in that environment the easier monetary policy scenario in the Greenbook, which suggests a bit more easing and is similar to the “inflation cushion” scenario in the Bluebook, might not be totally inappropriate. Again, that’s contrary to what Ned Gramlich just said, and I’m not sure my position necessarily is one of strongly recommending further easing. But I’d like to leave that possibility on the table because we do have a forecast scenario in which there are a variety of downside risks. Moreover, even if the baseline forecast materializes, it will mean a very weak recovery with a persistent positive output gap. And I think we should not let the second half of our mandate go unheeded in a period when inflation and inflationary pressures seem well contained. Thank you, Mr.

Chairman.

CHAIRMAN GREENSPAN. Governor Olson.

MR. OLSON. Shortly after the last meeting I heard two major retail bankers—one on the East Coast at the Boston Fed board meeting and then a couple of days later one on the West Coast—describe their loan portfolios with surprising optimism, both in terms of loan performance and of loan demand. Given that so much of our focus at the last meeting—and it’s the case again today—was on the question of the resilience of the consumer, I’ve informally surveyed about a dozen other banks and one finance company as to what their experience has been on the consumer side. I have a couple of observations to report.

First of all—and I corroborated this with our own numbers from Call Report data—thirty- and ninety-day delinquencies at the end of the third quarter of 2001 were roughly the same as in 2000 and 1999. Although charge-offs were up slightly, one institution accounted for

a significant number of those. In each case, I would say that the contacts I talked with expressed optimism and they said that loan performance was positive very much across the line with the exception of the subprime market. Both in automobiles and in real estate the subprime market is weak. One factor that may be having an impact there is that we are getting very close again, for at least the third or fourth consecutive year, to having bankruptcy-reform legislation. And each time we do, we get an upturn in the number of bankruptcy filings, which particularly affects the subprime marketplace.

In terms of products, the growth product for consumer loan portfolios has been the home equity line of credit, almost across the board among banks. And bankers are hopeful that they can resume auto lending, with the automobile industry changing its incentives from the zero percent financing immediately following September 11 to the rebate in 2002. But the real increase, of course, has been in the refinancing of real estate. That has had two interesting effects. One, it cuts off the growth in home equity lines of credit because a homeowner cannot withdraw his home equity by refinancing and also commit it to secure a line of credit. They are mutually exclusive. But because there have been a lot of refinancings, either for purposes of debt consolidation or to obtain a lower interest rate, we have the seeming contradiction of growth in the consumer loan portfolio actually freeing up funds for discretionary spending because of the reduction in overall debt payments.

In sum, the consumer sector has clearly outperformed expectations to this point from a year ago. The movement in retail credit portfolios has supported discretionary spending. But lenders are cautious. They are aware that unemployment has not peaked and that loan performance on the consumer side will lag, so they do expect to see some further weakness in coming months. In general, I don't hear anybody describing consumer sentiment as buoyant.

Their assessment is more cautious. I would say that their evaluation of the consumer's ability to participate, either at current or slightly higher levels, is neutral or maybe just slightly above neutral.

CHAIRMAN GREENSPAN. Governor Bies.

MS. BIES. Many of the comments I had put together we've already focused on, but let me summarize the issues I've been looking at. First, on the inflation front—after today's numbers particularly—I continue to be quite surprised by how little evidence there is of price increases. The fact that we actually had a fall in nominal GDP in the quarter is unusual, over a period of a couple of decades anyway. It leads me to be concerned about what is going to happen to gross corporate earnings in the coming year. To get the PE ratios that the market is pricing in—to get to those double-digit earnings increases—would imply huge increases in unit sales in the context of a lack of pricing power. So, I share some of the concerns stated earlier about the ability of companies to generate that quickly the earnings turnaround implied in current PE ratios.

This recession, as we've discussed, has been shallow in large part because consumers continued to spend throughout the whole recessionary period. One can look at the events of September 11 as a shock that produced something of a cocooning effect—people didn't go anywhere and didn't buy anything for a few months. We're now seeing consumer confidence back to the level that prevailed before the September 11 events. And to the extent that consumers can just hold the course for the next few months, I think we have a strong base and I believe that we have turned the corner on economic activity.

The rapid liquidation of inventories by businesses in the fourth quarter is another sign that inventories are close to the levels companies will need to have, even though the small

business survey, as I read the numbers, indicated that those firms still plan to cut inventories in the first quarter. Moreover, as Governor Ferguson noted, the good news is on the business investment front as a whole, since that is what got us into this recession. The fact that new orders for computers and peripheral equipment have grown for three months suggests that we probably have hit the bottom on that. Even small businesses, while still intending to liquidate inventories, now indicate that they actually are looking at plans to increase their capital investment expenditures. Since I believe small businesses have been critical in creating job growth in this country, I see that as the starting point for getting us back to a faster pace of growth.

Let me note two areas I am concerned about. One was mentioned quite a bit in the various District reports, and that is the problems that state and local governments are facing. Many state and local governments are running out of their rainy day funds. Several are under severe stress. Many that had unemployment reserves are not going to have much left, barring any additional assistance that comes from the federal government, and that is already showing up in layoffs and reduced support for local services in a lot of areas. These reserves were accumulated for the purpose of helping the people who have probably lost their jobs. So I am concerned about the effect and the potential drag on economic activity from the state and local sector, whether it's in construction or employment more generally.

I also share the concerns that several have mentioned about confidence in the capital markets due to the Enron scandal and other recent accounting restatements. I think the noise is going to get even worse, given that some of the earnings boost this year is due to changes in good will accounting. Those changes effectively stop amortization and give a one-time uptick to stated earnings. But it really isn't earnings; it's just another accounting change. I also worry that

if companies are forced to bring joint ventures back into their consolidated statements, they may be bringing them back on the books just at the point when the joint ventures are going from losses to profits, and that may make the earnings picture cloudy. It will further reduce confidence in the quality of the accounting standards in this country. On balance, I believe that the economy has turned. I see neither risk of inflation nor risk of deflation. The forecast in the Greenbook is close to what I would project, but I am more pessimistic about companies rehiring workers. I think that will occur much more slowly than is forecast in the Greenbook.

CHAIRMAN GREENSPAN. Thank you very much. Coffee is available in the next room. Shall we take a break?

[Coffee break]

CHAIRMAN GREENSPAN. Mr. Kohn.

MR. KOHN. Thank you, Mr. Chairman. Increasing signs of stability in demand and production lend credibility to a forecast that the economy is in the process of turning up, potentially leading to a resumption of sustained economic growth. The better news of the last few months suggests that the major forces that have been depressing final demand over the last year or so are abating and their further effects will be limited, even though they have not yet completely played themselves out. For example, although previous declines in equity prices will continue to restrain consumption, the net rebound of equity markets in recent months, if not reversed, should limit the extent of the negative wealth effect. In the business sector, the firming in orders for capital goods helps to support an assessment of good progress in working down the overhang, and the persistence of productivity gains suggests strong incentives for capital investment going forward. The terrorist attacks have left little lasting imprint on consumer confidence. And overseas, economies also show some signs of stabilizing and have been resilient to contagion from Argentina.

But while this evidence on demand and asset prices provides some comfort that the recession will be shallow and end soon, it leaves considerable margin of doubt about the strength of the recovery. The forecast of the staff and FOMC members for 2002 is that the pickup will be moderate, consistent with some further slackening in resource utilization in the near term. In the staff forecast, the output gap closes slowly in the second half of 2002 and in 2003. As suggested by the staff memo on monetary policy effectiveness, the nature of the shocks of the past year—by lowering expected profits, raising risk premiums, and affecting economies overseas—has led to asset price movements that imply that the gap between the funds rate and its equilibrium level significantly overstates the degree of demand stimulus embedded in financial markets. That is, owing to a higher cost of equity capital,

lower wealth, a stronger dollar, and elevated risk premiums in credit markets, the monetary policy pipeline is not as full as might be supposed. And these more adverse financial conditions may unwind only gradually in the recovery. Pressures on profits and cash flow in coming quarters could well damp increases in equity prices and reductions in risk premiums, as well as hold down growth in investment more directly. Moreover, as Dave Wilcox pointed out yesterday, because household spending has been so well maintained, the release of pent-up demand for durables and a rally in residential construction that historically have accounted for some of the vigor of recovery are not likely to be present this time around. As could be seen in the extended baseline in the Bluebook, the continuing restraints on demand in the staff forecast mean that the degree of ease in the stance of policy must be reversed only gradually to permit the economy to return to its potential.

In fact, an outlook like that in the staff forecast could be seen as providing support for another modest policy easing. With the federal funds rate held at its current level through most of this year, substantial output gaps persist over the next two years, and inflation comes down appreciably further. Easing policy another notch would promote growth while allowing some, more limited, further decline in inflation. Indeed, the rate of inflation forecasted in the Greenbook for 2003 is quite low—in the zone the Reifschneider-Williams briefing yesterday identified as elevating the odds on policy being constrained by the zero nominal bound. If the economy were to be hit with major downward shocks over the next few years, the scope for achieving negative real interest rates to counter the effects of those shocks would be narrow. Since it's not difficult to conjure up a number of candidates for such adverse developments, the Committee might feel more comfortable if the economy were stronger and inflation a little higher over the period in which those shocks might occur so that real short-term rates could be lower in the future, if necessary. In this context, a further reduction in rates today could be seen as “insurance,” though against the possibility of a future adverse surprise requiring a substantial monetary policy response rather than against a possible near-term shortfall in the economy stemming from recent developments.

But the recent more upbeat data also make it more likely that policy may already be positioned to support a sufficiently robust expansion to provide a margin of safety against adverse shocks. And these data increase the odds that a further ease would risk policy overshooting—of fostering a rebound in demand that could be difficult to contain. Keeping policy unchanged at this meeting would allow the Committee to assess better the likely strength of demand and its response to its previous easing actions, a considerable portion of which was undertaken in the last few months. Those actions were taken partly in anticipation of a period of further weakness in economic activity and decline in resource utilization and were influenced as well by an assessment of substantial downside risks in the forecast. In the event, the outcome perhaps has been a little better than many of you probably expected after the terrorist attacks, and the odds on even more adverse outcomes from the forces that have been bearing down on the economy have diminished considerably. Indeed, the positive cast to the data may suggest increased chances that the economy could continue to come in stronger than forecast, better balancing the considerable remaining downside risks. If firms have been calibrating their reductions in inventories, investment spending, and labor force to the possibility of very weak outcomes, the persistent strength in consumption could spark a reasonably robust rebound in business spending.

Moreover, the current very easy stance of policy as measured by short-term interest rates itself provides some cushion against downside economic risks. The gap between market and economist evaluations of the most likely strength of the recovery has narrowed over the intermeeting period, but it remains wide, and the yield curve retains a steep upward slope. Should incoming data point to a weaker recovery than is implicit in current market prices, a funds rate of 1¾ percent leaves considerable scope for intermediate-term and long-term market interest rates to work lower, which could lend support to the economy while the Committee evaluated the need for further policy action.

Although the Committee may see the risks around the type of rebound in the staff forecast as now better balanced, they may still be weighted to the downside, and the forecast itself suggests unbalanced outcomes, at least for a time. With growth in output remaining below that of potential for a while and inflation on a downward trajectory through the forecast interval, your goal of maximum sustainable growth would seem to continue to be at greater risk than your objective of keeping inflation low. The decline in inflation, by itself, will tend to increase the real federal funds rate. The message of an announcement of unbalanced risks and an unchanged funds rate target would be that on balance you were still more concerned about subpar growth than about rising inflation but your concerns had diminished considerably.

In the current circumstances, with inflation likely to be falling, a judgment that the risks were balanced would seem to require some confidence that final demands were strengthening enough, and the recovery had taken hold sufficiently, to promise sustained growth above the trend of potential at the current stance of policy. Such growth is needed to reduce the output gap and eventually put a floor on the rate of inflation. Financial market participants apparently expect the economy to be sufficiently strong to put high odds on substantial tightening beginning this summer. If you share their outlook, you probably should adopt an assessment of balanced risks at this meeting. Under conditions of the staff forecast, however, it is not until late this year that the Committee needs to begin moving the federal funds rate more actively back toward a neutral stance in order to forestall the economy later overshooting the level of its potential. You may consider even that delayed tightening as premature if you are concerned about low rates of inflation and resource utilization in 2003.

Despite the expectations embedded in interest rates, most market observers anticipate that you will retain the current balance of risks assessment at this meeting, perhaps on the way to balanced risks at the next meeting or so, and market reaction to such an announcement should be minimal. Your implied doubts about the strength of the recovery might lower long-term rates a little further, but if the stance of policy is kept unchanged at this meeting, markets are unlikely to build in expectations of additional near-term policy easing unless the information becoming available over coming weeks turns unexpectedly weak.

CHAIRMAN GREENSPAN. Are there questions for Don?

MR. PARRY. Yes, I have a comment more than a question. I found chart 4 in the Bluebook on alternative strategies for monetary policy quite interesting. To me it seems to highlight the important point that inflation has gotten low enough that the particular inflation goal matters for near-term policy decisions. In addition, the inflation goal has become important in the context of the discussion that we had yesterday regarding the zero bound on nominal short-term interest rates. In my view these considerations call for some further Committee discussion at some point, perhaps at the June meeting, about the desired steady-state rate of inflation.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Don, you referred to the framework reflected in chart 5, which depicts the current fed funds rate versus various estimates of the equilibrium real fed funds rate. I find this a useful framework even though I do have problems with the use of a lagged PCE as a proxy for inflation expectations. Nevertheless, you cited a number of reasons why, in the current situation, the funds rate may not be as stimulative as it appears. Given that, let's say you superimpose on that chart the relationship of the nominal funds rate to other market rates—the spreads of the two-year, five-year, and ten-year rates over the funds rate. If those spreads are wider, would you characterize that as more stimulative or the same amount of stimulus for a given nominal or real fed funds rate?

MR. KOHN. I would characterize that as markets believing that the current nominal funds rate is quite stimulative and likely to result in fairly vigorous growth before too long and, therefore, they expect the funds rate to have to rise. To me that would indicate that markets are optimistic, as reflected in the yield curve and as reflected in the equity markets. It says that financial market participants are more optimistic than the Board staff—or I think than many of you, judging from your forecasts submitted for this meeting. I don't know that it indicates

relative to your own forecast that policy is stimulative. I think it indicates that the markets believe policy is stimulative, however.

MR. JORDAN. Okay.

CHAIRMAN GREENSPAN. Further questions for Don? President Moskow.

MR. MOSKOW. Don, also on chart 4, I was curious about the projection of the unemployment rate in the price stability scenario. I realize, obviously, that these are long-term projections, but when the forecast is run out to 2006 the unemployment rate is still significantly above the NAIRU at that point. I was just wondering how this model works. When would you expect the unemployment rate to start coming down closer to the NAIRU?

MR. KOHN. I think it would be coming down over subsequent years. As we get to 2005 and 2006, the real federal funds rate is about at its equilibrium. When it's at its equilibrium, the economy should come to its equilibrium. So, convergence to the NAIRU would be occurring. It's just a question of how fast it would happen. The dynamics of this are such that, in order to make it happen faster, you could have a somewhat lower real federal funds rate, obviously, for a time and then come up to the equilibrium later. But the way this model is constructed, convergence will happen gradually as the economy comes to its equilibrium.

MR. MOSKOW. So it would happen but beyond the 2006 timeframe?

MR. KOHN. Yes.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Not to prolong this discussion too much, but following up on the last couple of commentaries, I want to raise a concern. I've never been one to think that having a number that we agree is our inflation target—or certainly that publicizing such a number—is a good thing. But I must say that these charts raise that issue, particularly when as in chart 4 price

stability is defined as $\frac{1}{2}$ percent, measured by core PCE, and that chart suggests that it takes three to five years to get there. Granted, who can really rely on the results of a model when one is projecting out that far? Still, using that framework for thinking about this issue is a little disturbing, given the amount of resource slack that is embedded in that kind of price stability number. I'm not sure I want to go in Bob's direction, but I must say that these charts are a little troubling to me.

MR. KOHN. I think an interesting, almost extraordinary point here is that this Committee faces a problem that no FOMC has faced in years. What is it, nearly forty years? Many of you—and some people who aren't here and departed recently—used to say that it would take just one recession to get back to price stability. We had that recession plus a nice burst of productivity growth, and inflation is in the neighborhood of price stability. The Committee for the last twenty years really has not worried about how low inflation should go. But now you have something new to factor into your thinking about monetary policy. That doesn't necessarily mean that you need to vote on what that number is and publish the number. But it does mean, as you're thinking about your policy choices, that you need to keep in mind that it is possible for inflation to go too low. Actually, I think it's a compliment to the Committee that you've gotten to that point over the last twenty years.

MR. PARRY. That's exactly the point I was trying to make in saying that we need further Committee discussion of this.

MR. MCTEER. Maybe we ought to enjoy it instead of worrying too much about it!
[Laughter]

MS. MINEHAN. Yes, why doesn't it feel enjoyable?

CHAIRMAN GREENSPAN. Well, those are your central banker credentials at work.

[Laughter]

MR. FERGUSON. Our job is to worry about everything. Good news is good and bad.

CHAIRMAN GREENSPAN. Further questions for Don? If not, let me get started. I don't have much to add to what has been said, but there is an issue that I think requires some attention. Earlier today, Dave Stockton raised the question of a potential internal inconsistency in the forecast, which stipulates that profit margins will remain flat at a very low level but also assumes that the stock market holds up, the wealth effect does what it does, and the demand for capital goods starts to come back.

There also is a question as to whether the lower portion of chart 9 from yesterday's presentation, which depicts nonfinancial corporate profit shares over the last twenty years, depicts the true underlying profit potential. Current and projected profit shares are shown in the chart as being below those of 1991 and even those of 1982. In constructing the national income accounts, BEA includes stock option realizations in the wage and salary component of the accounts but largely excludes the capital gains of companies that may offset those costs. The reason is that, by definition, capital gains are stripped out of the national income accounts. However, one should seriously question whether including the realized capital gains on company-issued stock options in employee compensation while excluding capital gains from company profits constitutes "single-entry bookkeeping." Indeed, if the capital gains on the exercise of options were to be included in company income, the profit share would be boosted by a sufficiently large amount to bring it back to 1991 levels at least.

Nonetheless, the decline in that profits share ratio, even after taking appropriate account of both sides of firms' books, is still very pronounced, and it raises some interesting questions as

to why the forecasted recovery is so tepid. The reason surely is that we had a 3.1 percent annual productivity growth rate in the fourth quarter at what might have been the bottom of this cycle. The usual expansion in profit margins coming off of the bottom of a business cycle typically is boosted by a turnaround from negative to positive output per hour. However, unless somebody wants to come out and forecast a 6 percent annual productivity growth rate, it's hard to make that projection this time around. As a consequence we've got a very tricky problem because I would venture to say that, if indeed this is the correct profit margin forecast, then clearly the implied stock market valuation in the Greenbook is just not right.

As David has argued, these numbers, especially down at these levels, are quite sensitive to very small changes in big aggregate totals like employee compensation. Consequently, if the slowdown in the rate of increase in compensation were to be a little larger than expected or the rate of price disinflation is not as onerous as is implied in the Greenbook, then we're talking about a 7 percent profit margin. And when the other aggregates involved are very large, small changes in the elements of unit labor costs, or even in corporate energy costs, can have significant effects on the profit margin.

The problem is that the Greenbook indeed may have it right, and the slowness of the economic recovery that effectively reflects this in an interactive way suggests that what remains an open question is whether final demand really is going to pick up when the inventory runoff starts to abate. This leads to an ever-increasing need, I should think, for a standard old-fashioned Keynesian multiplier effect coming from the swing of inventories spilling over into disposable income and creating a level of final demand beyond what's implicit in the Greenbook. But while this may seem like a standard recovery out of a post-World War II recession, there is an anomaly here because, as has been commented on before, GDP hasn't gone down very much. Indeed, as

of this morning's release, it went down even less than we thought. Moreover, the upside momentum from the multiplier kick, which has been one of the factors that has given us a 7 percent increase in the first four quarters of earlier recoveries, does not show up in these data. Indeed, it may not be there in reality, which would say that this is a different type of recovery.

As a consequence, the general notion of keeping the balance of risks toward weakness in fact reflects what is obviously the state of play at this time. Nonetheless, the degree of inventory liquidation that has taken place has been so large and pervasive that it will help support the economy, if only because as we've discussed previously one of the very few things we know about economic forecasting is that inventories cannot go below zero. So, if they are being liquidated at a very rapid rate and the level of inventories is moving toward zero, of necessity the rate of liquidation must slow irrespective of anybody's state of confidence, wishes, hopes, or fears. And if that does happen, unless consumption falls off very dramatically, production has to rise to meet consumption.

This is one of the very rare phenomena that one can employ with certainty in economic forecasting. There are few others that can provide the high degree of probability that this has, and the liquidation we have seen is bigger than we've ever seen it. The trouble is, what happens in the spring or summer when it's over? I would scarcely want to argue that the horizon for our balance of risks statement is really focused on a period six months from now. So in a certain sense there is an argument, to which at the moment I'm not subscribing, that we ought to go to a neutral balance of risks as well as hold the funds rate unchanged.

The difficulty is that this institution's credibility has gotten to a point where what happens in the marketplace reflects not only the market's expectation of what we are doing to the funds rate but also what the market believes our economic outlook is. Consequently, if we make

no change in the funds rate today, which is what I recommend, and on top of that we were to move to a statement that the risks are balanced, the markets would change. Long-term interest rates would rise. And I submit to you that as of tomorrow morning the markets would essentially be reflective of an environment in which the balance of risks should be negative because the rise in long-term interest rates would alter the general outlook. So in our meetings we are required to evaluate not only the balance of risks but also what our statement about the risks will do to the outlook, which feeds back on our assessment of what the balance of risks is. As a result, I would prefer to stay with the balance of risks toward weakness and leave the funds rate unchanged. And having listened to the conversation around this table, I suspect that generally is where most of us are. President Hoenig.

MR. HOENIG. Mr. Chairman, I support your recommendation.

CHAIRMAN GREENSPAN. Thank you. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, I support your recommendation. Let me just add a comment since I'm supposed to know something about markets. I think that the market reaction to our going to a balanced risk statement would be formidably dangerous. And, therefore, I believe it is especially important that we follow your recommendation.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Mr. Chairman, I support your recommendation on the funds rate. I would have preferred a move to a balanced risks statement. Let me just comment briefly about our situation looking ahead. Taking the Greenbook forecast as a baseline—and in my view it's a very reasonable baseline—I think our policy options this year are going to be relatively straightforward if the outcome approximates that baseline. We're going to keep the funds rate about where it is or nudge it up along the way. The policy decisions will be relatively

uncomplicated. A number of people have talked about the downside risks, and I attach positive probabilities to all the risks that people have mentioned. If in fact the economy comes out significantly on that negative side of the baseline, then I think our situation will be less comfortable but actually still rather straightforward. The funds rate will either stay the same, or we'll be shading it down. That's about all we can do under those circumstances.

I'd like to comment very briefly, though, on what would happen if the outcome were on the high side of the Greenbook forecast. There is a distribution around that outcome. I'd note, of course, that the economy is very, very liquid. Money growth has been very high, and I think it is not by any means beyond the realm of possibilities that we could see some quarters where real GDP growth is in the 6 to 8 percent real growth range. That's a fairly easy number to get to for a couple of quarters if consumption demand remains around 4 percent, business investment tends to level off, and we get an inventory surge. If that happens, then the issue going forward is going to be how sustained that growth is likely to be, and we're going to have a much more difficult job of managing expectations. I think what will happen under that set of circumstances is that, as soon as we start to raise the funds rate, the market is going to project more funds rate increases to come. As a consequence, it will be a tricky task to manage expectations correctly so that the market doesn't overshoot a sensible response. Thank you.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. I support your recommendation, Mr. Chairman, including the balance of risks statement, although it seems to me that most of the time at the trough or very early in an expansion that's almost stating the obvious in terms of where the risks lie. Let me make a comment on one other thing. I certainly don't know how the profits picture is going to play out. But the Greenbook does have rather modest productivity gains over the next several quarters. If

we get just a percentage point or so better than that, that may not be great for labor market conditions but it may show up in improved profit margins, other things being equal. And I can easily imagine that occurring.

CHAIRMAN GREENSPAN. You know, if we cyclically adjust it, the 3.1 percent productivity growth figure is a rather larger number than any of us would believe.

MR. STERN. Oh, cyclically adjusted that's a remarkable number. But if we look at the Greenbook numbers going forward from this point, they are still rather modest.

CHAIRMAN GREENSPAN. That's true enough. President Jordan.

MR. JORDAN. Thank you. I thought your analysis of the profit situation was very interesting, and I'd like to understand it better. So maybe in the future the staff could illustrate for us how sensitive these numbers are to changes in the assumptions about such things as productivity. I would also include an analysis of other factors, such as the repatriation of earnings under alternative assumptions in a global marketplace. As for the policy action this time, I have no problem at all with staying at the current funds rate. On the risk statement, I agree that changing it is a risky thing to do once we already have a statement in place. It is the changing that bothers me, and I want to be cautious about doing that. At the December meeting I would have been very happy to leave the funds rate target where it was, and if the consensus was to have the balance of risks on the downside, that would have been okay. But my second choice would have been to cut the rate, as was done in December, and to go to a statement saying that the risks were balanced. Had we done that, I can't see that anything we heard here today would lead people to say that now the risks on the downside are greater than they were in December. That wasn't the tone here at all. But what troubles me most about the risks statement is how it's interpreted by the markets and the public. And the truth is that I don't know. The word

“weakness” doesn’t mean weakening or declining. If it means weak as in not robust, that’s one thing. But none of us is saying that we think the downside risks are such that we could see declines in economic activity from this point on; we’re simply saying that we expect not very vigorous growth. So I think we’re stuck with the same balance of risks toward weakness, and all I can hope is that in remarks and testimony it is explained as saying that we’re expecting growth but not very vigorous growth.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Mr. Chairman, I support both parts of your recommendation.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Mr. Chairman, I support both parts also. Let me say two things. On the balance of risks, if the scenario that many of us have in mind pans out, we will have a lot of time to move to change the risk statement from weighted toward weakness to balanced. I don’t think we have to do it today. There’s going to be time. This is the way we’ve acted in the past. We’ve turned policy around slowly. So I’m very comfortable with standing pat on the rate and keeping the negative balance statement. Perhaps if we were to change an adjective or two in the statement, that might help.

Let me also go back to an issue that both Cathy and Roger raised in the earlier go-around. Looking out a bit in time, as in the Bluebook simulations, would we prefer a combination of 5 percent unemployment and 1 percent inflation or 4½ percent unemployment and 1½ percent inflation? They indicated that they might well prefer the latter choice, and I might too. But I don’t think we have to make that decision now. Even though this is not the way the simulation was framed, I think that’s a question that will confront us in the future as we face the issue of

how fast we come back to equilibrium. I think that's a good question, but it's a question for another day.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. I support both halves of your recommendation. I will say that, as I listened to Don Kohn's presentation, my earlier statement indicating that I could imagine even supporting a cut in the funds rate today was in some sense reinforced. I know Don was trying to give both sides of the argument. He did a great job. And I do think there are some credible arguments for saying that we really should keep the possibility of a reduction in the funds rate on the table. Therefore, I also was pleased to hear what Governor Gramlich had to say about this being an issue for a future day. It is just not clear to me that we are doing everything we should be doing if we are going to tolerate unemployment that appears likely to be at or near 6 percent for as long as the forecast allows us to see the future. That is above anyone's estimate of the NAIRU. Even people who recently left the Committee, I think, would not accept that the NAIRU is that high. It's not quite clear what price inflation or price stability should be, but it doesn't strike me that 1½ or 1¼ percent is totally unacceptable and means that we have failed. But for today, I will certainly support your recommendation.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Mr. Chairman, I support your recommendation. In my statement I talked about the risks on both sides. But I do think the two key risks, which we all talked about—capital spending and the consumer—are truly weighted to the downside. A lot can always go wrong on the consumer side. So I support both parts of the recommendation.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, I support your recommendation with regard to the rate, and I certainly would defer to you and Vice Chairman McDonough in terms of the market effects of changing the balance of risks statement. However, it doesn't appear to me that the risks are now primarily in the direction of generating economic weakness. To me, at least, the risks actually appear balanced.

CHAIRMAN GREENSPAN. President Santomero.

MR. SANTOMERO. I support your recommendation on both parts, Mr. Chairman. I believe a more measured approach to monetary policy is appropriate today. I think we should let the policy stimulus currently in the pipeline work through the economy, and in my view a pause would be a good idea. Moreover, the groundwork has already been laid so that the markets and the public will not be surprised if we leave rates unchanged. Indeed, I think they would be comforted by that decision, as it would reinforce their view of the recovery without making them euphoric and then getting into the feedback problem to which you alluded. And I think that's an important thing to consider. So I fully support your proposal.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. I fully support both parts of your recommendation, Mr. Chairman. I guess I was a bit attracted to Don's definition, if you will, of what constitutes economic weakness in the sense of excess capacity in the system. And I think that's what we are looking at. It's not that excess capacity will be increasing; obviously it will diminish over the next year or so. But it seems to me that, when we think about the context of risks at a particular time, we have to be looking at risks within at most a year's time frame and no more than that. Over that time frame of a year I think economic activity is going to be weaker than we would like it to be.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. I fully support both parts of your recommendation, Mr. Chairman. If I may, I'd like to make an observation about the comments of Bob and Cathy and others regarding the longer-term simulations. I hope we don't get too uncomfortable too fast with the price stability we've spent twenty years trying to achieve. [Laughter] In that context I would just point out that I have great respect for the simulations, but there's a huge confidence interval around those simulations when one is looking three or four years down the road. Also with respect to the zero bound, if we've achieved price stability, we have high credibility, and we're going to have to live with that threat of approaching the zero bound. To me, one of the things that came out of Marvin's presentation yesterday was that it made me optimistic that we can study the issue further and become more comfortable with ideas on how we can deal with it. So before we make any decisions along those lines, I think we need to study it further and talk about it further.

CHAIRMAN GREENSPAN. Governor Bies.

MS. BIES. Mr. Chairman, I support your recommendation. I, too, was struck by some of Don Kohn's comments on definitions of weakness. I hope there is some way that we can signal that we're talking about growth in the economy being significantly below what we consider to be its potential. I don't want people to infer from the risk statement that we're expecting a double-dip recession to come along. So if there's a way that we can make that clear in the wording of our statement, I would be more comfortable with it.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. I support your recommendation. I support the part on the no change in the rate enthusiastically but on the bias somewhat reluctantly. It is literally true, as you pointed out in the first half of your discussion, that the balance of risks is more toward weakness than

inflation. And that is the other side of the coin. But given the lag in the effects of the rate cuts already built in, it seems to me that some language could be put into the press release indicating that for policy purposes we think the risks, looking forward, are going to be balanced. Part two of your discussion reminded me that I don't think we're doing ourselves a service by voting on a bias at these meetings. I think we'd be better off if we just voted on the rate, did not vote on the bias, and therefore did not have a bias to announce. Pretty soon we're going to have to get into the area of game theory to figure out the dynamics—

CHAIRMAN GREENSPAN. We're already there! [Laughter]

MR. MCTEER. So I continue to hope that someday we'll be able to get off that tiger.

CHAIRMAN GREENSPAN. Governor Olson.

MR. OLSON. I support the recommendation, both parts.

CHAIRMAN GREENSPAN. A majority of the voting members appear to be in favor of holding the rate where it is and maintaining the balance of risks toward weakness. Would you read the appropriate directive language?

MR. BERNARD. This is from page 13 in the Bluebook: "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 maintaining the federal funds rate at an average of around 1¾ percent." With regard to the balance of risks, the sentence reads: "Against the background of its long-run goals of price stability and sustainable economic growth and of the information currently available, the Committee believes that the risks continue to be weighted mainly toward conditions that may generate economic weakness in the foreseeable future."

CHAIRMAN GREENSPAN. Call the roll.

MR. BERNARD.

Chairman Greenspan	Yes
Vice Chairman McDonough	Yes
Governor Bies	Yes
Governor Ferguson	Yes
Governor Gramlich	Yes
President Jordan	Yes
President McTeer	Yes
Governor Olson	Yes
President Santomero	Yes
President Stern	Yes

CHAIRMAN GREENSPAN. Would you circulate the draft statement? [Pause]

Comments? President Poole.

MR. POOLE. I would suggest that we change “business spending” to “business fixed investment” since we’ve agreed that the inventory part of spending might be dramatically in the other direction.

CHAIRMAN GREENSPAN. That’s an excellent suggestion. Can we do that? Let’s write in “business fixed investment.”

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, I don’t have any big ax to grind, but my view is that the average American thinks of “business spending” as business spending and that “business fixed investment” is more the jargon of economists and market types. I think the term “business spending” actually is better at explaining to real people what we’re talking about.

SEVERAL. How about “capital spending”?

VICE CHAIRMAN MCDONOUGH. That’s fine.

CHAIRMAN GREENSPAN. In other words, “household and business capital spending”?

MR. KOHN. Yes, something like that.

CHAIRMAN GREENSPAN. Is that acceptable to you?

VICE CHAIRMAN MCDONOUGH. Sure.

CHAIRMAN GREENSPAN. Does anybody else have any comments? If not, I'll assume that is acceptable. Now we have the final item on our agenda, and I will turn the floor over to Governor Ferguson to lead the discussion.

MR. FERGUSON. Thank you very much. This item involves another step on our journey toward greater transparency, which we started several years ago. The issues were raised in a memo that was distributed dated January 22. I'd like to put to the Committee three questions, which are interrelated. One is, Should we disclose the existence of dissents—the tally of the vote on the target federal funds rate, if you will—after each meeting? The second question is, If so, what should we disclose? On this question there are a number of options. We could disclose just the vote itself—that the vote was unanimous or was 11 for and 1 against, for example. Alternatively, we could disclose the tally of the vote and the names of dissenters, if any. The third question, which is related to the first two, is, How should we make this disclosure? That obviously goes to the question of disclosing this information shortly after the meeting. Should we include it in the statement released after each meeting, or should we have our Public Affairs staff disclose the tally and the name or names of any dissenters in response to questions from the press? Our Public Affairs people talk to the press at about 2:15 p.m. or so to release the statement.

My recommendation on this matter was a close call in some ways, and in my memo I tried to lay out the arguments on both sides. I'll just review them very briefly. A number of reasons exist in favor of disclosing the tally, and possibly the names of any dissenters, around the

same time that we release the press statement after the meeting. First, the information may be relevant to the markets in fully understanding our policy decisions. When the existence of dissents comes out currently, it is certainly noted in the press and perhaps, though it's hard to say, by certain market participants. Second, the absence of any disclosure of the vote immediately following a meeting has recently led both market participants and journalists, on occasion, to use a proxy to try to determine whether or not there were any dissents. And the proxy they seem to be using has been the number of Reserve Banks requesting a change in the discount rate. That proxy sometimes is accurate, and sometimes it is not. The third reason for disclosing the existence of dissents and the names of the dissenters is that we currently follow that practice with respect to the votes taken by the Board of Governors on discount rate actions. We do indeed disclose the vote tally, and in the past when there were dissents, the names of the dissenters. So this would be conforming the practice for FOMC votes to the practice that we currently use with respect to the votes taken by the Board on discount rate changes. Also, other central banks do disclose their votes, and as far as I can tell from talking to them, that turns out not to have been very disturbing or disorienting to markets.

Additionally, we believe that our press office would be obliged to disclose the tally and the names of any dissenters in response to a direct question from the press. To date there have been no direct questions, but there is certainly a risk that someone who is either well versed on Freedom of Information issues or new to the press scene will ask a direct question and will get this information. That would leave us in the moderately awkward position of trying to explain why we hadn't disclosed that type of information earlier. Finally, another argument in favor of making this disclosure at the same time that we release the press statement is that the Committee

clearly is willing to let the markets know about dissents because we put that information into the minutes. So it's simply a question of timing.

Now let me go to the arguments against doing this.

CHAIRMAN GREENSPAN. May I interrupt for just a second?

MR. FERGUSON. Sure.

CHAIRMAN GREENSPAN. I think you ought to point out that our General Counsel thinks our legal requirement to release this information is unambiguous.

MR. FERGUSON. Yes, he does. I'm looking to see if Virgil Mattingly is here.

SEVERAL. He's behind you.

MR. FERGUSON. Yes, that's the reason I raised the point. Virgil has told me that currently the situation is as follows: The first time someone asks for this information, the press officer could say that a FOIA request would have to be filed. But the second time anyone asks the question directly, we would be obliged to release the information. So our room for maneuver, if you will, is somewhat more constrained than one might have thought earlier.

VICE CHAIRMAN MCDONOUGH. Why is that? Why would we be obliged to release it immediately at the time of the second request?

MR. FERGUSON. Virgil, will you speak to that?

MR. MATTINGLY. There is a provision in FOIA that once an agency has disclosed a particular kind of information then that information has to be made available to the public immediately upon request.

CHAIRMAN GREENSPAN. Thereafter.

MR. MATTINGLY. Yes, thereafter. The act cannot be used to put people through the FOIA process for obtaining information when that information has already been determined to

be public. There is a specific provision that says that, once an agency has acted on a request for a particular type of information, the agency has to make it available if there is reason to believe that others would be interested in that or similar information.

CHAIRMAN GREENSPAN. Supposing we argue that it is detrimental to our policymaking processes to do this and we take this issue to court—is there any conceivable scenario that you can think of in which we would prevail?

MR. MATTINGLY. No. We had the ability to prevail until the Committee changed its practice with regard to the release of its policy decision. Once you release the decision you must release the vote.

MR. FERGUSON. My understanding is that once we decided in 1994 to announce any change in the target federal funds rate shortly after our meetings, it brought this entire FOIA mechanism into play. So, in response to a question we have to release the vote tally and how each individual voted.

MR. MATTINGLY. Correct.

MS. MINEHAN. And how timely this is done doesn't enter into the equation? We can't say that we will release the information but only at a point in time when it would tend not to be detrimental to our immediate operations?

MR. MATTINGLY. Well, I don't see how we could. We would have to show that to release it before the minutes are released is going to cause the government financial harm.

MS. MINEHAN. Financial harm is the issue?

MR. MATTINGLY. Right. The reason we didn't have to release the directive before 1994 was that we argued, and prevailed, that we couldn't release the directive before the Desk fully implemented the FOMC's decision because it would cause the government financial harm.

Whether that was right or wrong, that's what we argued, and the Court agreed to it. In 1994, when we initiated the practice of making the policy decision public, we abandoned that argument; and once the decision is public, then the vote is public. Now, we could make anyone who asks for the vote tally go through the process of filing a FOIA request; using the act that way would get us ten days maybe before we would have to release the vote. But we would be using the act in a way that it was not intended.

MR. FERGUSON. Now we have gotten this legal advice on the table. There are arguments on the other side, and I don't know if they outweigh the legal advice. Most of the arguments on the other side go in the direction of the point that Cathy just raised, which is whether immediate disclosure might somehow or other feed back onto our decisionmaking processes in a detrimental way—perhaps by making Committee members either more or less willing to dissent. Another argument one could make is that we are a very consensus-driven institution, and that has brought us a great deal of credibility and support in the markets and among the public at large. Therefore, disclosing the vote tally and the names of any dissenters at the same time that we disclose the statement regarding our policy decision would tend to undercut the consensus-driven nature of our decision. The simultaneous disclosure of the decision and the vote would put a great deal of focus on the dissenters as opposed to the majority view and thereby dilute the strength of the majority view, if you will. The other argument against immediate disclosure, and it should be very clearly on the table, is that this is a bit of a slippery slope. Once we disclose the existence of a dissent and the name of the dissenter, let's say through our press office, some excitement will arise. There will be a bit of frenzy among the press to arrange to talk to that individual and find out why he or she dissented on the vote. Following our meetings we have a two- or three-day “blackout” period during which we do not

talk to the press, and that gives us some protection. But once we are outside that period, it's going to require a great deal of discipline on the part of a dissenter who wants to respect the consensus-driven nature of the FOMC's decisionmaking process to manage what could be a fairly tough press interaction without undermining the majority view. So, there are very legitimate arguments on the other side. When I thought about this, I felt that it was an extremely close call. But we do have these legal considerations that we've talked about as well.

So, those are the issues on the table. I think in part we have a process issue, but as Virgil has indicated, we also are dealing with a somewhat broader but more focused legal issue as well. I believe the main points have been made. A number of others might emerge during the course of our discussion. At this stage, I think the best approach is to open this up for general discussion among us and get perspectives on how you think we ought to proceed now that you've been briefed on the matter.

CHAIRMAN GREENSPAN. I was sitting on the fence until I heard the legal opinion. And what struck me is that the real choices are whether we change our practice now or whether we do it essentially in response to other people's actions. If I thought that we could go on indefinitely the way we are, frankly I would think seriously about not releasing the vote tally because in fact nobody has been pressing us to do so. And it doesn't strike me as a "market necessary" issue. It's not obvious to me how much the market would benefit from this information. But I must say that given the legal opinion, which strikes me as pretty much overwhelming, I don't see how we can avoid doing what you suggest. So that's where I would come out.

MR. FERGUSON. Okay. President Jordan.

MR. JORDAN. I would have preferred to leave our practice as it was. But now I see this as a done deal because we're going to release minutes in six or seven weeks that will reflect this discussion. So now I'm going to have to decide whether I want to vote against this and have the press disclose that I'm against transparency! [Laughter] I really wish that this item had not been on the agenda.

MR. FERGUSON. Well, the Secretary always writes the minutes very carefully. And I say this quite seriously: You ought to vote for what you think is right. We can manage the fact that we had a discussion about ongoing issues regarding transparency. If you feel despite this legal opinion and other considerations that this is still not something you want to do, then please be driven by that. Don't be driven by what might happen six weeks or so from now because I feel certain that we can manage that aspect. President Santomero.

MR. SANTOMERO. I'd like to pick up on the slippery slope point that you talked about. I don't think we can consider this from the perspective of whether we do or do not want to make the vote public. I believe we want to think about the world as it will exist under the new scenario and examine that a bit to see whether or not there are mechanisms in place or that need to be put in place to deal with that alternative scenario. Specifically, I could see a world in which we in stepwise fashion announce the vote without attribution by name, as you suggest in the first part of your proposal. Then the press will try to figure out exactly who voted in what way and how it will be announced. Then there is a realization that in fact we have to release the vote with names and then the press will immediately go to the person or persons in question for a documentation of the dissenting position. In that case we would go to step three, which becomes the vote, the name or names and the point-counterpoint being part of the debate associated with the announcement. In truth we're going to land at the end of that slippery slope very quickly, as the

press tries to figure out what to make of what we have done. So it's more than a question of whether we release the vote. It's really about how we are going to change the mechanism of communication associated with this process. When we announce a formal vote that involves dissenters by name, we almost of necessity have to set up the majority view and the minority view and be prepared, if you will, for at least some documentation or discussion of those views. That takes this a lot further than the question of whether we should slip into our press statement a sentence that says in effect: "By the way the Committee approved this decision by a vote of X and Y." Given that the law says we have to disclose the vote as soon as somebody asks for it, the only issue is whether we are proceeding down the administrative path in such a manner that the disclosure is a credible way of presenting our views regarding the appropriate monetary policy. And that's a lot harder issue to assess.

MR. PARRY. Could Virgil answer the question, Is there a step 1? Weren't you saying that we'd have to release both the tally and the names of any dissenters?

MR. MATTINGLY. If we have a request under the Freedom of Information Act, yes.

MR. PARRY. Okay, so there isn't really....

MR. SANTOMERO. There is a kind of conceptual step 1, right?

MR. PARRY. Yes.

MR. SANTOMERO. That step is deciding just to disclose the vote tally. And then people will try to identify the dissenter or dissenters.

VICE CHAIRMAN MCDONOUGH. May I ask a follow-up question to counsel?

MR. FERGUSON. Sure.

VICE CHAIRMAN MCDONOUGH. Let's say I dissent, which I don't plan to do, and the press asks me why I dissented. Is there a FOIA obligation for me to explain that? Or can I explain it when I choose to explain it or when the Committee chooses to have me explain it?

MR. MATTINGLY. Under the Committee's current procedures, when the Committee releases the minutes the reason for your dissent is in the minutes.

CHAIRMAN GREENSPAN. I thought a member need not put the reason for his dissent in the minutes.

MR. MATTINGLY. He need not. But if he chooses to, of course—

CHAIRMAN GREENSPAN. But I think that's the question that's being asked, is it not?

VICE CHAIRMAN MCDONOUGH. No. He understood the question I asked. My question was, Do I have to answer inquiries about the reason for my dissent as soon as somebody from the press asks for it?

CHAIRMAN GREENSPAN. I see.

VICE CHAIRMAN MCDONOUGH. And the answer to that I gather is "no."

MR. MATTINGLY. The answer is "no."

MR. PARRY. But that's not a great deal of comfort.

MR. FERGUSON. No, it's not. May I respond to a point that President Santomero raised? We have a process now of disclosing the existence of contrary views, including the strength and nature of those views, in the minutes. I do not think anything we've talked about here would change that process. Certainly I am not putting on the table that we do anything other than disclose the majority consensus view in our official statement. Also, with regard to the slippery slope issue, as all of you who have been on the Committee for some time know, we are still struggling with the question of at what point we should release the minutes. So we

might come back to that question, though not at this meeting. But that could be a way to handle the issue of when and how we disclose minority-majority positions.

There is one other fact that I should put on the table. When we looked into this issue, one thing we reviewed was the nature of the press coverage—and as far as we could tell the market reaction—to the release of the vote and the names of dissenters on discount rate actions, which by definition means Board members. Actually, the press coverage was surprisingly muted. Those votes with dissents were primarily 5 to 1 votes, or occasionally 5 to 2 votes when there were seven Board members. The press coverage typically just reflected the fact that Governor X voted against this change in the discount rate or, for example, that Governor X has long been on record as thinking that rates should not continue to rise or decline. And there seemed to be no market reaction. So as we think about the frenzy and excitement, it may become muted over time. The first time it could be quite exciting. But after a while, if an individual has a long record of perspectives that differ somewhat from the majority view and chooses to dissent, it could be that the press coverage will be straightforward. It may simply be reported that Board member X or Reserve Bank president Y—who has long been on record as not favoring whatever the decision was—dissented. So the evidence does not suggest that there will be an ongoing frenzy and excitement with a focus on dissents. Past press coverage of dissents suggests that there will be a passing observation but not too much excitement about them. That's not a prediction of the future, but there is some reason to be optimistic that, if we manage ourselves well, the press will eventually manage itself well.

MR. MOSKOW. Roger, when was the last time that we had dissents on a discount rate action?

MR. FERGUSON. The last time I saw was 1991.

MS. MINEHAN. Yes.

MR. MOSKOW. So that was before our current practice of releasing a statement—which does get a lot of attention—that began in 1994.

MR. FERGUSON. Things certainly have changed.

MR. MOSKOW. And all the wire services pick up our decision quite promptly.

MR. FERGUSON. That's absolutely true. But the other side of the coin is that in that earlier period the discount rate was the only signal about decisions on interest rate movements that was made public. Everything else had to be gathered from trying to interpret the operations of the Desk. So there was certainly some focus on discount rate actions. The news articles were as long and as abundant as they are now. So it has played both ways. There was certainly a desire to find out what was going on, and in a sense that was the only signal that the Federal Reserve gave. So the situation was different but not totally different from today. President Parry, you're the next one on my list.

MR. PARRY. Well, I wish we had never started down this road as well. But I am uncomfortable about releasing the vote tally, including the name of a dissenter, by itself. The important information is really not found in the numerical tally but in the direction and the rationale for any dissents. Simply reporting the existence of a dissent after an FOMC meeting without revealing its motivation could add noise to markets unless it is clarified. Even if dissenters are identified, it seems untenable that further questions about the direction and rationale of their dissenting vote could be left unanswered until the release of the minutes, especially given the typical six-week lag in their release. In the interim, the pressure for disclosure would be intense, and the possibility of erroneous speculation would be counterproductive. I also would like to know a bit more about the practices of other central

banks. For example, the Bank of England doesn't release the vote tally along with the press release announcing its decision. That is made public only with the release of the minutes, which of course occurs two weeks later.

VICE CHAIRMAN MCDONOUGH. FOIA is an American law.

MR. PARRY. Exactly.

MR. FERGUSON. That's right. President Broaddus.

MR. BROADDUS. I came in here expecting to resist this for all of the reasons that Bob Parry just summarized. But what I'm hearing is that it's the law of the land, and I believe this institution needs to follow the spirit as well as the letter of the law. So I think we have to do it. But to come back to something that you said, Roger, this raises a question about the timing of the release of the minutes for the meeting. So if we do this, I think we need to address that issue at a fairly early date because that's the only way we're going to provide the full picture with a balance regarding the views on the Committee.

MR. PARRY. Al, do you mean we have to release the names or release the names and the rationale?

MR. BROADDUS. As I understood it, to abide by the spirit of the law we should release the dissenters and the names of the dissenters but not the argument, right?

CHAIRMAN GREENSPAN. That's correct.

MR. MATTINGLY. You're not required to release the argument.

MR. BROADDUS. We're not required to do that. But we are required, essentially, to do the other?

MR. MATTINGLY. Correct.

MR. BROADDUS. All I'm saying is that I think we have to recognize that and do it. But if we do that, then we need to get the full argument on the table as quickly as possible. That's because, even if the dissenters don't give their rationale for dissenting, the focus is going to be on those dissents. So at that point the picture becomes unbalanced, and in my view we need to get a fuller accounting out as soon as we can.

MR. FERGUSON. President Hoenig.

MR. HOENIG. Given this discussion, I believe as Al does that things have changed here. But I think releasing the vote and identifying who dissents without context is counterproductive. I think it is harmful. As you said, we have a consensus; we have someone who disagrees with it, and the consensus carries. That consensus is really the message of the FOMC. And to have "noise," as someone characterized it, without any explanation is not better transparency. Perhaps it does lead to more of a slippery slope, but I really don't see how we can go this way without releasing the minutes a lot sooner than we do now because that's the only way we can get dissents into the context of the whole discussion. That would be helpful, whereas just to disclose the vote and indicate that we had a dissent but not say why is counterproductive in my opinion.

MR. FERGUSON. President Gynn.

MR. GYNN. Most of the points I wanted to make have been made, so I won't repeat them. But building on what Tom just said, couldn't we make the argument that if we were to release the minutes a bit earlier, perhaps in ten days or two weeks, that that would be satisfactory? I'd suggest that we give ourselves more time to think about this question and even work more on the legal issues and then perhaps come back in another meeting or two and discuss it further. I think it could be argued that to proceed with the proposal that is on the table at the moment might harm the decisionmaking process significantly. So, if in fact we have the option

of coming back to this issue with the prospect of releasing the minutes on a more timely basis—in a week or two—would that not reasonably pass muster? Couldn't we delay the release of the vote tally for that short a period of time in order to get the decision in the right perspective and be sure that we don't harm the process?

MR. FERGUSON. Chairman Greenspan.

CHAIRMAN GREENSPAN. May I make a suggestion? In listening to this discussion, it is evident that this is a very involved situation. Therefore, I think it probably would be wise for us to have a more thorough set of options and integrate into the paper the legal imperatives, which it didn't have. One option that we do have is essentially to fend off all requests until we are legally bound to release this information, and then decide what to do. Alternatively, we could move up the release of the minutes to virtual real time if that's even remotely feasible.

MR. KOHN. Wow!

CHAIRMAN GREENSPAN. Did you faint? [Laughter]

MS. MINEHAN. Our next retirement party will be Don's! [Laughter]

CHAIRMAN GREENSPAN. But before we reach a decision—and I think it's rather obvious that this is an important decision that should not be made in haste—I think it's worthy of further thought. We don't have to make a decision today.

MR. FERGUSON. Certainly after this discussion I strongly agree with that. What I think we need to do now, having seen that this issue is in a sense more complex than anyone thought originally, is to come back with a fuller range of options. One option we can consider—and it's something I've been opposed to until now, but I may have to rethink it—is moving up the release date of the minutes. We need to see what processes we can change to try to get the minutes closer to real time, understanding with the Federal Reserve Bank of New York what it

means to be closer to real time. But I think the mindset we should have going into this is that in some sense we're stuck in a very awkward position. We don't want to be embarrassed later so we're trying to get ahead of the game here. However, I do believe that we owe the Committee between now and the next meeting an effort to develop a fuller set of options and a better understanding of what we actually can do. I don't understand—well, I do understand what the Bank of England has to do to get its minutes out within two weeks, and it's far different from what we do now. So we have to look at this more closely. I never regret having to make a tough decision, but this tough decision deserves more thought than we could give it at the present time.

CHAIRMAN GREENSPAN. You know, there is an option we haven't discussed. We have essentially two sets of disclosures with respect to every meeting. One is the minutes, and the other is the transcript. I'm not recommending this necessarily, but we could probably produce summary minutes within twenty-four hours. So we'd have three documents covering each meeting. We would then have six weeks or so to produce the full minutes.

MR. FERGUSON. There are a number of options, and we really do have to think about them. But we need to realize that we are going to be in a position where we have to disclose dissenters earlier than we currently do. The message that I'm taking from this discussion is that we would prefer to do that in such a way that it creates context, reduces the press excitement, and makes the release of information as contemporaneous to the meeting as possible and not six weeks after a meeting. But I sense strongly that this notion of just disclosing the tally has left everyone somewhat uneasy. There are a number of hands in the air. Why don't we start with Mike Moskow.

MR. MOSKOW. I agree completely that we should delay this decision and study the options further. I would like to know how quickly we could produce minutes of the same quality

that we put out now. And in addition to the criteria you were laying out, Roger, I would suggest two more. I think we also have to do this in a way that does not have a chilling effect on people's willingness to dissent at a meeting and in a way that does not detract from the consensus-driven nature of the deliberations of this body. That consensus-driven nature is something that I believe has served us very well over the years and I would certainly like to do everything we can to maintain it.

MR. FERGUSON. We absolutely don't want to destroy that. President Stern.

MR. STERN. I'll await the next round of discussion on this.

MR. FERGUSON. President Poole.

MR. POOLE. Given the legal opinion that's on the table, it seems to me that the issue is rather narrow. First of all, we need to know whether minutes in two weeks, for example, would satisfy the law. And if there's a view that it wouldn't, then we might as well take minutes in two weeks off the table because that's not going to do the job. Second, it seems to me that there are two options here—we can wait until we get a FOIA request, or we can get ahead of the game and do something before a request. I would favor the latter, getting ahead of the game. If we're going to get ahead of the game, there are two ways to do that. One is to announce in advance this change in practice. Another is to announce it at the time the first dissent comes along. I would be in favor of the former way rather than waiting until there's a dissent. Also, I think there would be an advantage if we could close this issue at our next meeting. We could then say that we discussed it along with the usual business conducted at the beginning of each year, which includes the reviews of the authorizations and directives regarding Desk operations. We can wrap this into the normal review of practices and procedures and have it look as routine as possible and try to take some of the surprise out of it.

MR. FERGUSON. As I said, I think we can manage that. Also, I believe you're probably right that if we're going to maintain credibility and trust, it's better for us to be ahead of the game as opposed to being caught in an awkward position. So this is a question of being thoughtful about how to be ahead of the game, I think.

MS. MINEHAN. Roger, could I speak to that?

MR. FERGUSON. Yes, please.

MS. MINEHAN. We all maintain a lot of data that we have found over the years are subject to a FOIA request. Having data that are "FOIA-able" in one form or another and not releasing those data in the absence of such a request is not illegal. That's not something we have to be ashamed about. We don't have to feel that just because information exists we're wrong not to release it. I think we need to look at what makes the Committee function best and justify our decisions in that context. And if we are required to disclose this vote tally, given the information we already make available to the public, we need to figure out a way to do so in a fashion that works best in terms of the Committee's effectiveness. I don't think having not released data that are subject to FOIA is a problem.

MR. FERGUSON. I agree with that. We may look at the various options and decide that none of them makes us feel comfortable and we will just take the risk of waiting. That's a decision for the Committee. Governor Bies.

MS. BIES. If the goal of this is to increase understanding and transparency, I'm a little uncomfortable saying that we would have a press officer provide this information in response to a question—even if that were to happen today—because that means that we don't control the release of the information. One of the things we might want to have our press people do—I'm volunteering them for this—is to look at some of the practices corporations employed when they

adopted fair disclosure regulations a year ago. That made a lot of companies look closely at how disclosures were made, including how the Internet is used for information purposes. One of the risks of having the wire services pick up information such as this versus putting it in a formal document is that the spin on it is controlled by the wire services.

Another thing a lot of companies do, even though a number of actions may be taken at one board meeting, is to issue separate press releases. Perhaps we could look at doing something along those lines. On the day of our meeting we could release our policy statement—and we call it that—and then at the appropriate time, as the Chairman was alluding to, we could have other releases. That may be another way to handle it. The message in the policy statement is what we want to get out. It gives people some knowledge about our decision; it represents our consensus and our main conclusions. And then the other information is released at a later point—in a day or within the next couple of days—and it's called something else. The people who want to see that can see it, but it doesn't have the strength nor get the attention that the policy statement does. At any rate, there might be some things we can learn from the way corporations handle disclosures.

CHAIRMAN GREENSPAN. President Poole does raise an interesting question. When a FOIA request is presented, there's often a significant time lag before an institution responds because there's the matter of getting the information together. Is there any reasonable standard whereby we could conceivably put out the minutes, say, two weeks later as a means of being responsive to that request?

MR. MATTINGLY. I'd have to look at that. But there is a prescribed timetable; you have ten or fifteen days in which you have to make a response to a FOIA request. So if you could get the minutes out within that time period, technically you could follow that procedure.

CHAIRMAN GREENSPAN. So that may be one option.

MR. KOHN. That's only the first time, though, isn't it?

MR. PARRY. That's the first time.

MR. MATTINGLY. No, technically—I'd have to look at this more closely—you can do it for every vote at every meeting.

CHAIRMAN GREENSPAN. That's important to know—whether we have that option—in this particular discussion.

MR. FERGUSON. Governor Olson.

MR. OLSON. When I saw the questions being presented I couldn't help think back to thirty years ago when I was working on the staff of a Republican Congressman from Minnesota. I spent a remarkable amount of time considering the issue of the Fed's independence and answering questions about whether or not Fed secrecy was in fact an indication that it was being managed by a secret one-world conspiracy. Art Rolnick and I were talking earlier about a program in which he participated roughly twenty-eight years ago, when a woman jumped up at a small business seminar and raised that question again. One of the things I'm very pleased about is that in my current role, where all of my attention is focused on the Federal Reserve, I'm not hearing those allegations anymore, and I think that there are at least two reasons for that. One is that people are generally happy with our country's economic performance, and the Fed gets a good deal of credit for that. Second, I think the increased transparency that we've achieved thus far has been helpful. We've removed some of the mystery about policy and the Federal Reserve.

In my view the ultimate issue here is preserving the role and the independence of the Fed. As a public body we balance fairly delicately what information we release and how we release it. On the basis of that balance, I probably would be inclined not to release anything on the vote

tally. However, Virgil's comment on the legal aspects fairly well forces the question as I see it. There are two parts to the question of how to proceed. One relates to the market response, and I will leave to those of you who have been around longer than I have to understand how best to manage that. But with respect to whether to lead or to follow on the issue, I'm reminded of the guidance of an old-time Minnesota politician—Gary Stern probably knows the person I mean—who said that when you're being run out of town on a rail, pick up a flag and lead the charge! [Laughter] There is some value to getting out in front—not to respond but to lead—as long as we know we're going that way.

MR. FERGUSON. Well, let me close the discussion if I might, Mr. Chairman. I think we have some marching orders here, to which Don, Virgil, and I—and perhaps we'll get some other volunteers—will respond. We'll have to try to come back to this Committee by the March meeting with a range of options. If it's all right with you, Mr. Chairman, I may reconstitute in an informal way that subgroup of presidents and Board members who looked at the last round of transparency issues and give them a chance to be an early sounding board on what we come up with.

Let me close by telling you about my thoughts when I found myself in the position of having to decide whether or not to send out a memo on this issue to the Committee. I knew it was much more complicated than it seemed, and I shared much of Jerry's perspective in that I wished I hadn't thought of this problem without having a solution to it. But I decided to proceed and put the issue to the Committee as opposed to vetoing it myself, in effect, by keeping it secret. And I think by and large that was the right decision. I think we will, as Governor Olson said, end up in the right place and do what is good for everybody. I don't regret raising this, though I know it's one of the hardest non-monetary-policy decisions we might have to make as a

Committee. But I am highly confident that, after the discussion we've had today and the one we'll have in March, we will get to a very good place. Thank you very much.

CHAIRMAN GREENSPAN. That March meeting is scheduled for March 19. This meeting is adjourned, and we will have some interesting luncheon conversations. First of all, Don Winn will do, as he puts it, "an abbreviated legislative report." Then Brian Madigan will discuss the Lombard facility. Let's go eat.

END OF MEETING