

Meeting of the Federal Open Market Committee

February 1-2, 2000

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, February 1, 2000, at 2:30 p.m. and continued on Wednesday, February 2, 2000, at 9:00 a.m.

PRESENT:

Mr. Greenspan, Chairman
Mr. McDonough, Vice Chairman
Mr. Broaddus
Mr. Ferguson
Mr. Gramlich
Mr. Gynn
Mr. Jordan
Mr. Kelley
Mr. Meyer
Mr. Parry

Mr. Hoenig, Ms. Minehan, Messrs. Moskow and Poole, Alternate Members
of the Federal Open Market Committee

Messrs. Boehne, McTeer, and Stern, Presidents of the Federal Reserve Banks of
Philadelphia, Dallas, and Minneapolis respectively

Mr. Kohn, Secretary and Economist
Mr. Bernard, Deputy Secretary
Ms. Fox, Assistant Secretary
Mr. Gillum, Assistant Secretary
Mr. Mattingly, General Counsel
Mr. Baxter, Deputy General Counsel
Ms. Johnson, Economist
Mr. Prell, Economist

Mr. Beebe, Ms. Cumming, Messrs. Eisenbeis, Goodfriend, Howard, Lindsey,
Reinhart, Simpson, Sniderman, and Stockton, Associate Economists

Mr. Fisher, Manager, System Open Market Account

Mr. Winn, 1/ Assistant to the Board, Office of Board Members,
Board of Governors

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

Messrs. Madigan and Slifman, Associate Directors, Divisions of Monetary Affairs
and Research and Statistics respectively, Board of Governors

Messrs. Oliner and Whitesell, Assistant Directors, Divisions of Research and
Statistics and Monetary Affairs respectively, Board of Governors

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

Messrs. Brayton, 2/ Morton, 3/ and Rosine, 3/ Senior Economists, Divisions of
Research and Statistics, International Finance, and Research and
Statistics respectively, Board of Governors

Ms. Garrett and Mr. Hooker, 3/ Economists, Division of Monetary
Affairs, Board of Governors

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

Ms. Browne, Messrs. Hakkio and Hunter, Ms. Krieger, Messrs. Lang, Rasche,
Rolnick, and Rosenblum, Senior Vice Presidents, Federal Reserve Banks of
Boston, Kansas City, Chicago, New York, Philadelphia, St. Louis,
Minneapolis, and Dallas respectively

1/ Attended Tuesday's session only.

2/ Attended portion of meeting relating to the staff presentation of policy alternatives.

3/ Attended portion of meeting relating to the Committee's review of the economic outlook and consideration of its money and debt ranges for 2000.

Transcript of Federal Open Market Committee Meeting of
February 1-2, 2000

February 1, 2000—Afternoon Session

CHAIRMAN GREENSPAN. Happy New Year everybody! Happy Millennium!

MS. MINEHAN. Happy post-Y2K!

CHAIRMAN GREENSPAN. With those insightful remarks, I will turn the floor over to Governor Ferguson.

MR. FERGUSON. Thank you very much. The first order of business today is to elect a Chairman who will serve until the first scheduled meeting in the year of 2001. So, let me open the floor for nominations. Are there any nominations? Governor Kelley.

MR. KELLEY. Thank you. After long and careful consideration, it is my honor to place in nomination the names of Alan Greenspan for Chairman and William McDonough for Vice Chairman.

MR. FERGUSON. Is there a second?

SPEAKER(?). Second.

MR. FERGUSON. Thank you. I'm glad someone seconded it! Are there any objections to those two nominations? Hearing no objections, I will declare the vote unanimous. Let me congratulate the two of you!

CHAIRMAN GREENSPAN. I always appreciate the democratic process! [Laughter]

VICE CHAIRMAN MCDONOUGH. And I support that view of democracy and the procedures that elected us, Mr. Chairman.

CHAIRMAN GREENSPAN. Thank you. The next item on the agenda is to elect staff officers, and I will ask Norm Bernard to read the list.

MR. BERNARD. The proposed slate of staff officers is as follows:

Secretary and Economist, Donald Kohn;
 Deputy Secretary, Normand Bernard;
 Assistant Secretaries, Lynn Fox and Gary Gillum;
 General Counsel, Virgil Mattingly;
 Deputy General Counsel, Thomas Baxter;
 Economists, Karen Johnson and Michael Prell;
 Associate Economists from the Board:
 David Howard, David Lindsey, Vincent Reinhart,
 Thomas Simpson, and David Stockton;
 Associate Economists from the Federal Reserve Banks:
 Jack Beebe, proposed by President Parry;
 Christine Cumming, proposed by President McDonough;
 Robert Eisenbeis, proposed by President Guynn;
 Marvin Goodfriend, proposed by President Broadus; and
 Mark Sniderman, proposed by President Jordan.

CHAIRMAN GREENSPAN. Are there any objections to anyone on that list? If not, would somebody like to move the slate?

VICE CHAIRMAN MCDONOUGH. I move the slate.

CHAIRMAN GREENSPAN. Is there a second?

SPEAKER(?). Second.

CHAIRMAN GREENSPAN. Without objection. Thank you very much. The next item on the agenda, as you know, is the selection of a Federal Reserve Bank to execute transactions for the System Open Market Account. Would somebody like to propose a bank?

MR. FERGUSON. I move that we select the Federal Reserve Bank of New York.

CHAIRMAN GREENSPAN. Is there a second?

MR. KELLEY. Second.

CHAIRMAN GREENSPAN. Objections? Without objection, so ordered. The next item on the agenda is the selection of a Manager of the System Open Market Account. Are there nominations?

VICE CHAIRMAN MCDONOUGH. I nominate Peter Fisher, Mr. Chairman, as Manager of the System Open Market Account.

CHAIRMAN GREENSPAN. Is there a second?

MR. FERGUSON. I second it.

CHAIRMAN GREENSPAN. Without objection, so ordered. I wish to state, however, that the directors of the Federal Reserve Bank of New York are required under our rules to confirm that choice. I trust you are sufficiently nervous! [Laughter]

MR. FISHER. Yes, sir.

CHAIRMAN GREENSPAN. We have proposed changes to the Authorization for Domestic Open Market Operations. Peter, would you review them very briefly for us?

MR. FISHER. Members of the Committee will recall, as Norm Bernard's memo spelled out, that the authority to sell options on RPs, which the Committee granted the Desk on a temporary basis last August, will expire at the end of this month. The authority to do reverse RPs and the liberalization of the "Guidelines for the Conduct of System Operations in Federal Agency Issues" put in place at the same time will run through the end of April, however. The latter two authorizations will be on the agenda for the Committee to discuss at its March meeting.

MR. BERNARD. There is also the added paragraph relating to the Chairman's latitude to make intermeeting adjustments to policy in exceptional circumstances. The suggested wording is that set forth in Governor Ferguson's memorandum of December 17, 1999, which was discussed at the December FOMC meeting.

CHAIRMAN GREENSPAN. Comments? Would somebody like to move the proposal?

VICE CHAIRMAN MCDONOUGH. Move approval.

SPEAKER(?). Second.

CHAIRMAN GREENSPAN. Without objection. The next item is the review of the foreign currency instruments, which I presume is a wholly routine item. Is that correct?

MR. FISHER. Yes.

CHAIRMAN GREENSPAN. Unless somebody has any objection, would somebody move renewal of those instruments?

VICE CHAIRMAN MCDONOUGH. So move.

CHAIRMAN GREENSPAN. Second?

MR. FERGUSON. Second.

MR. KOHN. Mr. Chairman, I think President Broaddus--

MR. BROADDUS. I am going to vote in opposition of their renewal for the same reasons I have in the past.

CHAIRMAN GREENSPAN. The Secretary will please register that President Broaddus voted in opposition. The next item on the agenda is the Program for Security of FOMC Information. Does anyone have any comment on the memorandum we received on this? If not, would somebody like to move approval?

MR. FERGUSON. I move that.

CHAIRMAN GREENSPAN. Second?

VICE CHAIRMAN MCDONOUGH. Second.

CHAIRMAN GREENSPAN. Without objection.

MR. BERNARD. Mr. Chairman, I presume that what is being approved would include the revisions that were noted in the memo that was just circulated. Perhaps all members have not seen that. Except for item number 6 in that memo, the others will be implemented.

CHAIRMAN GREENSPAN. The next item on the agenda is the approval of the proposed changes in the Federal Open Market Committee's Rules and Procedures. It is a routine matter involving the inclusion of communication by "electronic means" as an acceptable form for communication between the Secretary and the members of the Committee, and I presume that no one has any comments. If you do, speak up. If not, would somebody like to move that?

VICE CHAIRMAN MCDONOUGH. Move approval.

CHAIRMAN GREENSPAN. Second?

MR. FERGUSON. Second.

CHAIRMAN GREENSPAN. Without objection. We will now move to the regular formal meeting agenda. I ask for approval of the minutes of our December meeting.

MR. FERGUSON. So moved.

CHAIRMAN GREENSPAN. Without objection. Peter Fisher.

MR. FISHER. Thank you, Mr. Chairman. I will be referring to the package of charts with the peach Class II cover on it, beginning as usual with the chart on forward deposit rates.¹

The top panel depicts U.S. forward rates and current 3-month rates. As you can see there, forward rates backed up from the time of your December meeting through early January and then flattened out a bit, even as the current 3-month deposit rate--the black line--remained quite steady. Then, with the noticeable exception of the spike in the 6-month forward rate, the solid red line--that spike being a true data point--these rates generally moved sideways from the time of the Chairman's speech on January 13 at the Economic Club of New York through last Friday. The movements in these

¹ A copy of the charts used by Mr. Fisher is appended to this transcript. (Appendix 1)

rates seemed to reflect noise rather than any specific developments we could point to.

By the time we reached mid-January, the markets had already pretty much priced in an expectation of about 50 basis points of tightening sometime during the first quarter of this year. Now, the release of the GDP and ECI data on Friday did affect the forward rates a bit, as the 9-month forward rate shown at the very top right of the chart backed up almost 20 basis points. However, the April fed funds futures contract backed up only about 9 basis points from a rate of 5.97 to 6.06 percent. The fed funds futures isn't shown here, but to give you the flavor, I'd say that the market had pretty much built in its expectations of a first-quarter tightening by the middle of January. My point is that the data releases on Friday changed the outlook beyond the first quarter somewhat, but did not change very profoundly the sense of the Committee's likely actions during the first quarter.

In contrast a bit, while European forward rates also drifted up, as shown in the middle panel in blue, once we got to January these rates leveled out to a considerable extent and remained that way until the 27th when the euro closed below dollar parity for the first time. You can see the uptick at that time in all the rates. Particularly noticeable is how much the current 3-month deposit rate, the black line, moved in the expectation that the ECB might need to respond in some way.

In the bottom panel, you can see that Japanese rates also rose a bit from late December through early January, and then began to drift off after mid-January. There had been a fair amount of talk in Tokyo in late December and early January about the need for the Bank of Japan to develop an exit strategy from its zero interest rate policy. But around mid-January Bank of Japan officials, both in reports and in comments, began to express more anxiety regarding the fact that the self-sustaining recovery was not in sight. This seemed to be confirmed by the very weak consumption data that came out last Friday. But from the middle of January onward, as you can see, the forward rates in Japan began to fall back to their low levels.

Turning to the next page, there was rather more excitement in the Treasury bond market. In the top panel you can see 2-, 5-, 10-, and 30-year Treasury yields as they have traded since October 1st. The bottom panel depicts various spreads within the yield curve--the 2- to 5-year in green, the 5- to 10-year in blue, and the 10- to 30-year in red.

Treasury yields were rising from late November and continued to rise after your last meeting, but they too began to move sideways roughly from January 13th forward. In this case, in addition to the Chairman's speech on

that day, Secretary Summers announced the final plans for the buyback program to repurchase outstanding Treasury debt. In his remarks and the press release he suggested they would be buying as much as \$30 billion in the year 2000, most of that probably at the long end. That should be seen against the backdrop of expectations already in the market, before the buybacks came into play, that the Treasury's net paydown of securities in the first half of this year would be something on the order of \$150 to \$200 billion.

With that shift in the bond supply outlook being emphasized in the market, you can see in the bottom panel how quickly the 10- and 30-year spread began to invert after the January 13th announcement. The drama came last Friday with the release of the GDP and ECI data. Prior to that date, there really had been two contending camps in the market. One saw the inversion of the yield curve as a temporary phenomenon, expecting the curve to steepen again once this Committee began to tighten over the course of the first quarter. They were thus taking short positions in the long end. A different camp expected the inversion of the yield curve to continue. They expected it to flatten when this Committee began its widely expected tightening. They anticipated a reduction in Treasury supply at the long end but an increasing agency and corporate supply in the short end. And it was also their sense that a late cycle firming by the central bank should slow activity and foster a rally in the bond market. Thus, they took long positions in the long end of the bond market.

Last Friday, the initial reaction seemed to favor the first camp as the yield curve backed up, and some in that camp seem to have been tempted to double up their positions. But then the yield curve began to go down rather quickly again, and they were caught scrambling to cover their shorts, which caused a fair bit of see-sawing in the yield curve all day on Friday. Bid-ask spreads in the market on Friday were not as wide as the widest we saw in October 1998, but during the course of the day they were comparable to the averages of October 1998. So, bid-ask spreads widened out quite a bit.

You can see in the bottom panel the profound impact that last Friday's new data had on the 5- to 10-year and the 10- to 30-year spread. The only upward slope left in the coupon curve is in the 2- to 5-year sector. As this position adjustment washes through the market, I think we are increasingly going to see a flat Treasury curve, with conversations in the market increasingly turning to whether this is just a Treasury supply story or a fundamental story in some way.

The next page depicts some domestic yield curve comparisons. In the upper left is the Treasury yield curve from last October 5th, showing the closing rates after the Committee's October meeting and those as of yesterday.

In the upper right is the interest rate swap curve. The lower left panel has Fannie Mae yields and the lower right those on Ford Motor Company debt.

While they are all at different levels, the spreads to Treasuries are really very little changed from October. Only the 30-year swap spread is discernibly wider than in October. All other domestic spreads to Treasuries have narrowed slightly or are unchanged from October 5th. The short ends of each of these other domestic curves are noticeably steep, but they are less steep than they were in October. And they are all quite flat now from 5 to 30 years and from 10 to 30 years. My own sense is that the Treasury yield curve has a very powerful influence on these other curves, the habit of trading at certain spreads. So, while I don't want to overstate the importance of the Treasury supply story, I would not want to understate it either. However, none of these yield curves suggests to me that the rest of the domestic interest rate market is expecting a sudden outbreak of inflation. I don't think they would be trading at such a flat long-end spread even in thin markets.

A rather different picture emerges on the next page where our yield curve is compared to other national government yield curves. As you can see in the top two panels, U.S. and Canadian yield curves are really quite similar, with Canadian yields just a bit below U. S. Treasury yields, as they have been since the fall. But in the bottom two panels you can see the rather dramatic differences between our yield curve and those of the United Kingdom and Germany.

The United Kingdom is everyone's poster child for the impact on a government bond market of a firm to tightening central bank policy and a shrinking government issuance of long-term debt. Those who are wondering how long a rally we can get in our bond market have in the back of their minds this picture of the U.K. yield curve.

In contrast is the rather steep continental curve, the German yield curve; relative to last October it provides a striking contrast to the U.K. and U.S. yield curves. I don't think the difference between their yield curve and ours is a first-order cause of the weakness of the euro over the last few days, but it is certainly a contributing one, given that the differentials have continued to widen in the dollar's favor since last October.

The chart on the next page depicts from the beginning of October to date the percent change in selected currencies against the dollar. This highlights how much of an outlier the euro is. As you can see, the Brazilian real and the Canadian dollar have been firming against the dollar, the Japanese yen and the Mexican peso have been trading around zero, and the euro has weakened profoundly over the last few days.

One of the most anticipated events of January 2000, I would guess after all the hoop-la about the Y2K bug, was the expected rally in the euro. It was so widely anticipated that there was no one left to make it happen! Institutional investors have been buying euro assets and running them on an unhedged basis mostly in the currency market, hoping for the euro rally to give them a greater kick in their investments. In the last few days, as we came to the end of January, these investors ran out of patience and began hedging those exposures in rather vast amounts, rushing to hedge the unhedged. I was given some advice once by someone in the market that the history of exchange rate volatility is the history of successive new classes of actors learning how to hedge and how not to hedge.

Turning to the next page and our open market operations, you can see that the movements in the three key reserve factors since December 15th required us to add a total of \$70 billion in reserves from that point forward. You can also see how, after the turn of the year, the Treasury balance and currency in circulation began to drop off very quickly, causing the whole position of reserve factors to reverse.

On the next page is a bar graph showing how our operations at the turn of the year were structured to help us meet this buildup and then to pull back rather quickly. The dark blue portions of the bars represent the RPs that we already had in place as of the 15th of December; the green-dashed portions are those that we put on starting on the 15th. The yellow portions indicate the forward RPs we executed in our effort to put in some additional reserves around the year-end. The red negative parts are the matched sales that we conducted during the first half of January as we tried to get our position back in balance. But overall, the rather large amount of RPs that we had put on the book and rolled off rather quickly in January worked rather well.

I included the charts on the next page to show you the interest rate behavior at the short end of the money market that we saw around year-end. The top panel has comparable data for last year's turn from December 1998 to January 1999. The effective fed funds rate is the green line, the Treasury RP rate the blue line, the target fed funds rate the black line, and the morning fed funds rate at the time we operate the red line.

You can see at the bottom how we did this year. We had a much softer market several days before the year-end and then rather less volatility in January once we got through the turn of the year. What led to the rather profound softness those days before the year-end is in part a mystery, but as best we can judge we think that the scarcity of Treasury collateral was a major factor that pulled repo rates down and had some influence on the funds rate. In addition, however, there was a widespread perception in the market that we were flooding the market with liquidity. Market participants had data on our

gross operations but not our net operations. They were not able to see the information depicted in the first chart I showed you on the factors that were draining reserves.

The next page shows the behavior of the funds rate and reserves in the two maintenance periods that surrounded the year-end. In the top two panels on the funds rate, the blue line depicts the trading range, the red horizontal line is the daily effective rate, and the red vertical line represents one standard deviation. In the bottom panels on the key reserve factors, the blue bar shows the actual free reserves on the day and each black dot represents our intended level of free reserves on the day. The red bar is the borrowing that occurred on each day, both discount window and SLF borrowing.

Interesting from my perspective is how soft the funds rate became, as you can see in the top left panel, on December 24, 27, 28, and 29. That happened even though, as you can see below, we actually were leaving in rather normal, if modest--some might even say skimpy--levels of free reserves on each day. The amounts were quite typical, or if anything skimpy, for the end of a maintenance period. Nonetheless, the funds market got quite soft on those days. And, as I say, that occurred I think significantly on the perception that we were flooding the markets, since they only saw our gross operations and not the impact of our net operations.

Clearly, at the start of the next period that covered the year-end, we did flood the market for the reserves in that new maintenance period on the 30th and 31st. But as you can see, we had a negative miss on the 31st itself of more than \$2 billion. So we did not even get in as many reserves as we were shooting for. Again, though, we subsequently were able to get the funds rate to trade around the target level relatively quickly by draining reserves. We got down to an historic low operating balance in the banking system of \$8-1/2 billion on January 6th and still kept the funds rate reasonably well behaved.

Another way of viewing our operations during the fourth quarter of last year through the period until this meeting is shown on the next page. You may recall that I have used this chart before as a measure of our performance. Each dot is a day. The horizontal axis is the deviation from the target rate--that is, the effective deviation, zero being the target and plus or minus either side. The vertical axis is each day's daily standard deviation in basis point terms. As you can see, over the fourth quarter of last year and January of this year the funds rate was reasonably well contained. As indicated by the median values in the table in the upper right, the deviation of the effective rate from the target in absolute terms was only 8 basis points and the standard deviation was just 9 basis points.

The next page shows comparable data for the previous year, October 1998 to January 1999, also covering the period of market turmoil typical of the fourth quarter. As is apparent, we had a rather more volatile market in 1998 than we had this year.

The final page gives one more way of comparing volatility; it plots the same data against a norm established from the two previous years. That is, the brown box and the green box are based on data from October 1996 through January 1997 and from October 1997 to January 1998. Fifty percent of the observations in those two 4-month periods fell within the brown line and 25 percent within the green line; that provides a sort of base case. You can see that in October 1998 to January 1999 we succeeded in getting only 11 percent of the days to fall within that tight range and only 24 percent within the 50 percent range, whereas this year the comparable figures were 31 percent and 51 percent. So I guess we can say we at least lived up to our own standard for managing the funds rate for the two year-end periods prior to 1998.

I would like to thank the Committee for giving us the tools to help us to do this. It made a great deal of difference. I should note that the funds rate has been firm thus far over the last two days. Those days encompassed a month-end and a first day of the month, normally firm days in the market. But there is also a widespread expectation of a firming in rates by the Committee, and there is not much chance of getting the funds rate to behave in a "normal" way in these last couple of days.

Finally, we distributed to the Committee copies of the Desk's annual report via our secure Web site. I hope you all had access to that as well as to the other reports that we now make available there.

Mr. Chairman, we will need to ratify the Domestic Desk's operations since the last meeting. I would be happy to answer any questions.

CHAIRMAN GREENSPAN. I would just like to say that I thought the Desk handled this very turbulent period extremely well and I found your report most informative. I am glad that we were able to unwind ourselves from this period without any undue casualties--or at least none of which I am aware.

MR. FISHER. Thank you very much!

MR. BOEHNE. I would second that. I think you earned an A+ for the way you performed through this period; you and your staff deserve congratulations. I have a question,

even though you did so very well! [Laughter] Did you learn anything through this process that would lead you to want to do something differently if we had a similar episode to go through in the future?

MR. FISHER. Well, we will be bringing forward as many of those issues as we can think of to be discussed formally at the March meeting. I will say that what was very frustrating for us, and I am partly responsible, was the asymmetry of the information we provided. That is, we gave the market very detailed information about our gross operations and then they got a once-a-week snapshot of the System's balance sheet. They thought that page represented our operations--that it was our base. They saw only our gross operations. There were days when there were rumors that the Desk was flooding the market with reserves, and in fact we were leaving them barely enough to get by. So that was very frustrating. If I had to go through a period like that again--and maybe always, but certainly in similar circumstances--I think I would want to be more balanced and give out information on our net operations as well as our gross operations.

CHAIRMAN GREENSPAN. Further questions?

VICE CHAIRMAN MCDONOUGH. I would like to make a comment also to applaud the conduct of the Desk. But since I got to drop in and watch them on occasion, I want to note that one would have thought that this was the most relaxing period that any group of very young people was going through. And they are very young. Peter Fisher and Sandy Krieger are ancient compared to the average age of the staff involved! It was commendable that they behaved as if going through this firestorm was the most normal thing in the world.

MR. FISHER. If I could--I should have mentioned it in my briefing--I would like to thank the staff from all the other Reserve Districts, particularly those in the cash offices, that

provided us with a much higher level of information than usual and made some of this forecasting a lot easier. There was a tremendous effort on the part of every Bank's cash operations staff, and we may be coming back to you to find out whether we shouldn't make some permanent improvements in the flow of information in that regard. But I want to thank staff from the whole System for their efforts during this period.

CHAIRMAN GREENSPAN. Further questions for Peter? If not, I assume there is no problem ratifying the actions the Desk took during the period. Would someone like to move approval?

VICE CHAIRMAN MCDONOUGH. Move approval.

CHAIRMAN GREENSPAN. Without objection. Mike Prell, Karen Johnson, and Dave Stockton.

MR. PRELL. Thank you, Mr. Chairman. I almost hesitate to refer you to this rather tame set of charts after the abundance of color you have just seen. But this is what we have! ²

Chart 1 summarizes our forecast. But, before I get into the numbers here, I should take note of some late-breaking news. First was the upside surprise in the BEA's advance estimate of fourth-quarter GDP, published on Friday. The 5.8 percent real output increase exceeded our guess by about a half point. However, we decided not to redo the forecast and to go with the Greenbook numbers for this presentation. This wasn't simply for the sake of convenience. To be sure, BEA knew more about the fine detail of the fourth-quarter data than we did, but the key differences between their estimate and ours related mainly to assumptions about missing numbers. And we were reasonably content to stick with ours for the time being.

We would have said that if BEA's estimates proved closer to the mark, it would have tended to argue for weaker GDP growth in the near term than we forecast, with lesser contributions from defense purchases and inventory investment. This morning's release on construction put in place in December has reinforced that argument: Construction spending now

² A copy of the charts used by Mr. Prell, Ms. Johnson, and Mr. Stockton are appended to this transcript. (Appendix 2).

appears to have been stronger than either BEA or we anticipated, especially in the state and local sector, where good weather may have given a temporary boost to building.

All things considered, however, our basic assessment still would be that the economy is running strong enough that--absent a considerable further tightening of financial conditions--pressures on resources will intensify over the projection period. We've assumed, though, an increase in the fed funds rate of about a point and a quarter by this fall, and on that basis we're projecting that real GDP will grow in the vicinity of 4 percent this year and next. As you can see in the upper panels, we are anticipating that domestic spending will decelerate appreciably; however, that is largely offset by a lessening of the negative contribution to GDP growth from the trade sector.

With potential output rising at about the same pace as actual GDP, we expect that the unemployment rate--in the middle panel--will remain near the recent level, in the vicinity of 4 percent.

The tightness of the labor market and other factors suggest that inflation will generally be tending to move higher, but we're projecting that the price of crude oil will decline and damp the rise in overall consumer inflation this year and next. As you can see in the bottom panels--most easily in the table--we have PCE prices rising 2 percent, the same as in 1999, while the CPI rise slows a bit from last year's pace. I have also included in the chart, as the red line, a plot of the "current-methods" version of the CPI, for those who might wish to make historical comparisons for that series on a more consistent basis.

With that overview, let's turn to the guts of the forecast. Chart 2 explores the financial backdrop. The top left panel shows the P/E for the S&P 500, but with the index broken into two components: the top 50 by market cap in each period, and the remaining 450. This may be a dubious analytical device in some respects; however, it does illustrate that, while investors' craving for big-cap growth stocks--especially "tech" stocks--has lifted the favored few to very high P/Es, even the rest of the index has enjoyed a considerable valuation boost. The result is that, at this aggregative level, nothing looks especially cheap by historical standards--even when the P/Es are measured, as they are here, in terms of the rosy earnings forecasts of security analysts. We don't have the earnings forecasts for the full set of NASDAQ stocks, but I'm confident that, if we did, the P/E rise for them would be only a little less startling than that shown on the basis of trailing 12-month earnings in the right panel.

I won't belabor the point, but we continue to believe that the valuations are unrealistic and that this creates the risk of a large downward adjustment. However, we also recognize that it is impossible to predict when the bubble--if that's what it is--will stop expanding, let alone burst. Therefore, once again, we've taken a sort of middle position, anticipating that stock prices simply will fluctuate around their January average as the Fed tightens and earnings growth disappoints. That would leave price-earnings multiples not far below their recent peaks; by that measure, equity capital would remain relatively cheap, but it probably wouldn't be an environment in which the new issue market was quite so receptive.

In the credit markets, the alternative measures in the middle left panel both show that real 10-year Treasury yields have moved up considerably in the past year or so. And the prevailing real rate levels are not low by the standards of the past decade and a half. But, if you buy our analysis of productivity trends, you might suspect that the equilibrium real rate has risen in the latter half of the 1990s.

In our forecast, we have nominal bond yields rising--to around 7 percent for longer-term Treasuries. This implies some flattening of the yield curve, shown at the right; if, however, market participants should sense that the Fed is not in the process of reining in the emerging step-up in core inflation, such a flattening is less likely. We have, in effect, assumed that longer-term inflation expectations will ratchet up only a little during the projection period.

Looking beyond the Treasury sector, the bottom panels suggest that there has been some diminution in the froth in private credit markets since the Russian and LTCM shocks of 1998. However, with Y2K concerns removed, junk bond spreads have reversed a portion of their late-1998 widening--even as default rates have continued to rise. And banks, though not reversing all of the tightening of business lending standards they did in the wake of the 1998 turmoil, have not been firming aggressively since then; by most reports, banks and other institutions continue to be actively seeking lending opportunities. And we anticipate only a mild tightening of credit availability over coming quarters because we don't see an especially scary deterioration in business or household debt repayment performance, given the continuing high level of economic activity.

In sum, we're anticipating that financing conditions will become less accommodative of demand growth but not harshly so.

The most important element of restraint, as we see it, is the loss of impetus to consumer spending from the stock market. As shown in the top left panel of Chart 3, consumer sentiment according to the Michigan SRC

index has been trending upward since 1994. This has been a period of strong growth in employment and income, and people have become increasingly confident that the good times will continue to roll. The stock market has both reflected and reinforced that sentiment. But, as indicated at the right, our flat stock market path implies that the household wealth-income ratio will be falling. The wealth effect on consumption will gradually move from positive to negative, and as may be seen at the middle left, this (along with the dynamics of the accelerator effect for durables) is expected to push PCE growth below that of disposable income by 2001.

Soaring consumer confidence and wealth also have played a role in the housing market. As you can see at the right, perceptions of homebuying conditions, as reported in the SRC survey, have deteriorated as mortgage rates have risen since the end of 1998. And, as shown at the lower left, the combination of higher rates and rising house prices has raised the ratio of the fixed-rate mortgage payment on a new home to personal income over this time span. Some buyers have moderated the immediate cash-flow hit by opting for adjustable rate loans, but this avenue will become less attractive under our monetary policy assumption. With builders whittling down their sizable backlogs of orders, we expect that housing starts--especially singles--will be trending lower through 2001. However, with home purchase still relatively affordable and people remaining quite wealthy, we're looking for only a mild contraction in residential construction.

Chart 4 examines the outlook for business investment. We're projecting that real spending on equipment and software will continue growing rapidly, while the decline in outlays for nonresidential structures seems likely to bottom out at some point in the next two years. At the right, you can see that the net result is total BFI growth of around 10 percent, up from 1999, but in line with the trend of recent years.

As we indicated in the Greenbook, this might seem a remarkably strong forecast, given the normal pattern of accelerator effects: that is, with output growing at a pretty steady pace for several years, one might have looked for investment to weaken. However, that effect is overridden in our projection by the ongoing decline in the relative price of equipment--especially the sharp drop in computer prices shown in the middle left panel--and by the increased contribution of replacement investment. As reflected in the right panel, the increasing importance of investment in computers and other short-lived items has caused the ratio of depreciation to the size of the capital stock to rise rapidly in this decade, implying that more and more gross investment is needed each year simply to replace old equipment and software. The contribution of replacement investment to spending has risen

by several percentage points and is projected to account for more than half of the increase in gross E&S outlays this year and next.

As for inventories, in the bottom panels, we're expecting that the aggregate ratio of stocks to sales will drift lower as a consequence of improved supply-chain management--and with some inducement from high real interest rates. Nonfarm inventories are projected to grow a little more than 4 percent per year--a shade faster than GDP on average, but a bit slower than business sales.

Turning to the final segment of domestic demand, Chart 5 offers some perspectives on the outlook for the government sector. For the federal government, the question is whether any of the ex ante on-budget surplus will survive. As you can see from the lower black line in the upper left panel, we have the on-budget surplus rising to nearly \$50 billion in fiscal 2001. Our assumption--depicted at the upper right--is that discretionary spending will be held at the higher real level reached in the current fiscal year. In part, we made this assumption on the thought that Congress and the Administration would be constrained by less optimistic official surplus projections, such as that of the CBO shown at the left as the red line. But the risk is that, before a deal has been inked, the budget outlook will shift in our direction and there will be an irresistible temptation to add more spending or cut taxes. If so, the fiscal impetus, which we see as essentially zero next year on our assumption, will turn out to be positive, continuing the pattern of 1999 and 2000.

In the state and local sector, large budget surpluses also may prove a temptation for more expansive fiscal postures. We are anticipating that the aggregate surplus will be reduced somewhat by another year of cuts in state income and sales taxes, shown at the right, and by a continuation of relatively rapid growth in purchases.

Karen will now examine the influence of the external sector on the outlook for the economy.

MS. JOHNSON. Economic activity in the rest of the world continues to expand, and prospects for this year and next are favorable for most regions. Moderate to vigorous real output growth around the globe poses risks that inflationary pressures could emerge in world commodity markets, and eventually product markets more generally, and that we could be underestimating the upward momentum generated by the interaction of simultaneous expansion. A possible offset to these risks is the extent to which other countries, particularly other industrial countries, may be beginning to experience the kind of acceleration of productivity that we

have seen in the past few years in the United States. As yet, the data provide no compelling evidence that this is happening.

Your next chart presents developments in foreign exchange markets and recent short-term interest rates for selected foreign countries. In the top left panel, the decline in recent months in the value of the dollar relative to the yen (the green line) is in sharp contrast to its rise relative to the euro (the blue line). The pound (in red) has changed little against the dollar over the past year. The net effect of these divergent moves is that the index for the dollar relative to our major industrial country trading partners (the black line) has declined since your meeting last June but is up on balance from a year ago.

As can be seen in the panel on the right, three-month interest rates have moved up for each of these regions with the exception of Japan. These rate increases reflect a full retracing of the official rate reduction in 1999 by the ECB and a partial retracing by the Bank of England of declines implemented from late 1998 through mid-1999. In contrast, the Bank of Japan has maintained its zero interest rate policy since March of last year. Despite the absence of recent or prospective tightening by the Bank of Japan in the near future, the yen has appreciated strongly against the dollar and the euro.

The middle left panel shows that in terms of the dollar, the exchange rates of Thailand and Korea have stabilized on balance since the end of 1998. The Hong Kong dollar and the Chinese renminbi have sustained their rates at a constant value in terms of the dollar over the entire interval shown. In contrast to the experience of industrial countries, short-term market interest rates, reported in the panel on the right, have generally not been rising in emerging Asia over the past six months. The exception is Korea, line 1, where economic recovery has been particularly strong. Moreover, spreads of dollar rates paid by these countries over U.S. Treasury rates have been narrowing.

In the bottom left panel, the continued stability of the Argentine peso and the relative stability of the Mexican peso over the past several months contrast somewhat with the fluctuations of the Brazilian real. On balance over the past six months the real is little changed as it has regained since October some of its loss against the dollar earlier in the year. Short-term domestic interest rates have moved down in these countries, and Brady bond spreads of dollar rates compared with U.S. Treasury rates have narrowed significantly.

The next chart reports stock market developments in these countries. In most, stock market prices have risen recently, often to levels well above

those at the start of 1997, before the global financial crisis. In the industrial countries, the upper left panel, European stock prices can be seen to have risen as much or more than U.S. prices. The exception is Japan, where equity prices have risen sharply since late 1998 but are only now about back to their early 1997 level. Stock prices in Mexico and Brazil, on the right, are also up sharply, especially recently. In Argentina, where recession has been deep and prolonged, equity values have only partially recovered from their losses since their peak in mid-1997. Equity markets in Asia, bottom left, have also rebounded sharply, putting indexes in Hong Kong and Korea above pre-crisis levels. Chinese stock market prices have shot up recently. Those in Thailand are recovering, but remain below previous highs. When expressed in dollars, the performance of stock prices in these developing countries is not quite so impressive, but they are still up significantly.

The lower right panels compare equity pricing in Germany with that in the United States. The black lines are the respective real yields on 10-year bonds in the two countries, using moving weighted averages of consumer price changes to proxy for expected inflation. The red lines are measures of the earnings yield, the inverse of the price/earnings ratio, constructed from twelve-month ahead forecasts of earnings. In both countries, the real interest rate has moved up over the past year. With unchanged projected earnings and a constant equity premium, a higher real interest rate implies a larger discount factor for the earnings stream, a lower stock price, and therefore a higher earnings yield; the red and black lines would in this circumstance move together. Instead the two lines tend to move in opposite directions, with the most recent decline in the German earnings yield even larger than that for the United States. Stock prices are rising relative to near-term expected earnings despite the apparently higher discount factor. Such a development suggests that the equity risk premium that investors require has narrowed and/or that expectations of longer-term earnings growth have been revised upward.

Taken together, the financial variables on these two charts suggest a favorable climate for real economic activity around the globe. High and rising stock prices suggest significant optimism toward earnings by firms as well as a declining cost of capital for equity financing of new investment. Consumption is likely to be buoyed by the increased wealth implied by the high stock valuations. Short-term interest rates and risk spreads are generally falling in those regions most troubled during the crisis years of 1997 and 1998. Investors appear to have regained some confidence in opportunities in those countries, and the price of risk has moderated. Of course, investor optimism about earnings in one or more regions might prove to be excessive, and equity risk could be underpriced. A market correction in a major country would likely trigger similar moves elsewhere.

Mindful that there are both upside and downside risks, the staff has constructed in the Greenbook an outlook for growth abroad that is quite positive and that reflects the generally supportive global financial conditions just reviewed. The upper left panel of your next chart compares our outlook for the United States with that of an average for our foreign trading partners. The rebound of activity in several regions from earlier depressed levels resulted in average growth of more than 4 percent at an annual rate in the first half of last year. We estimate that during the second half, foreign growth moderated just a bit, and we look for it to be sustained at an average annual rate of about 3-3/4 percent through the end of the forecast period--a bit less than the Greenbook projection for U.S. growth.

By region, as you can see on the table at the right, we expect moderate to strong growth in most areas, with the notable exception of Japan, line 1. We remain somewhat pessimistic about the Japanese outlook as fiscal stimulus flags, exports are restrained by the strong yen, and domestic demand grows only slowly.

The middle panels show industrial production in industrial countries on the left and in selected developing countries on the right. Of these industrial countries, Canada has shown the greatest increase in production, but there has been a clear acceleration in the index in the euro area and in the United Kingdom in 1999. Japan has shown some signs of a recovery in production, but output has been erratic and remains below its level in early 1998. The rebound in business confidence in the major foreign industrial countries is evident in the lower left panel. This change in attitude should help to foster stronger growth in domestic demand in these countries.

Among the developing countries, the recovery in Korea (the black line in the middle right panel) has been so rapid that capturing it on the scale would mask significant growth in Mexico and recovery in Brazil. Korean industrial production has increased about 40 percent since January 1998. The need for external adjustment was a driving force in the macro policy choices made in the emerging market countries during the crisis. As can be seen in the lower right, the developing countries in Asia (line 1) were able to achieve a substantial aggregate external surplus in 1998, which diminished slightly in 1999 as growth resumed and imports recovered. We expect that continued moderate growth should lead to some further erosion of their aggregate surplus. For the Latin American countries (line 4), the pressures of financing an external deficit remain acute, and macro policies will need to take this into account. Some improvement did occur last year, and we expect a bit more this year. Nevertheless, these Latin American countries remain vulnerable, with their policy options more limited, as a result of their external position.

On balance our outlook is for buoyant activity in the rest of the world on average over the next two years. We should continue to see a reduction in economic slack in Asia, Europe, and Latin America. These prospects have implications for prices that are the subject of your next chart.

One place to look for a signal of global price pressures is in the futures markets for traded commodities, such as agricultural products and metals. The top left panel shows soybean prices and the futures quotes at the time of your last chart show and last Friday. Although global demand has recovered significantly since mid-1999, actual and futures prices for soybeans have only partially recovered from recent declines. There is some variance in how futures prices have moved for other grains, but for the most part supply conditions have kept prices for these commodities from moving rapidly. In contrast, copper prices, shown on the right, are now substantially higher than six months or one year ago. Other metals and related commodities show similar increases. Futures prices going forward continue to show a much slower rate of increase, however, than that recorded last year.

In light of these market developments, we are projecting that our index of non-oil commodity prices, shown in the middle left, which rebounded sharply at the end of 1999, will rise at about an annual rate of 4 percent this year and a bit less next year. This contrasts with the commodity price deflation that occurred from mid-1997 to mid-1999. Spot oil prices, shown on the right, spiked up in 1999 as world demand recovered and as oil producers were successful in restraining supply. As explained in the Greenbook, we anticipate that some extension of the current agreement among OPEC and other producers will be put in place at the end of March, but that over time additional increases in supply will emerge, putting downward pressure on prices. We project that the U.S. oil import price will move back down to about \$17 per barrel by the end of next year.

Some pickup in inflation abroad and the move from dollar appreciation to a constant and then slightly depreciating dollar should impart some additional upward pressure on U.S. prices from imports. Foreign prices expressed in dollars are shown in the lower left panel. The non-industrial countries, in particular, had been a source of downward pressure in 1997 and 1998. That has now reversed, and both groups of countries have been imparting upward pressure for the past year. As can be seen on the right, we expect core import prices, the red line, to rise moderately throughout the forecast period, largely as a result of the contribution of foreign prices expressed in dollars.

Your next chart summarizes the implications of the foreign outlook for the U.S. external sector. As can be seen in the top left panel, real imports, when measured in chained 1996 dollars, substantially exceed real exports.

The dots indicate the slight discrepancy between the fourth quarter numbers released by the BEA on Friday and our Greenbook projection. Going forward, we expect that annual real import growth over 2000 and 2001 will exceed that of real exports by about 1-1/2 percentage points despite the strong recovery of foreign growth and some help from the dollar.

The key relationships between relative growth rates and prices and our trade balance are centered on core exports and imports, shown on the right. Foreign GDP growth boosted core exports in 1999 (line 2) and should continue to support moderate growth this year and next. Reflecting our projected path for the dollar, relative prices (line 3) should switch from retarding exports to stimulating them. However, U.S. GDP growth is projected to provide a significantly larger boost to core imports (line 5) than the analogous line for exports, owing to the historical tendency for U.S. imports to be more sensitive to income growth than are exports. Even with some slowing imparted by relative prices (line 6), core import growth remains above that of core exports.

The middle left panel translates this projection for exports and imports into contributions to real GDP growth. The positive contribution from exports should slowly rise, on balance, through the end of 2001 while the negative contribution of imports diminishes.

The panel on the right shows the implications of these trade projections for the nominal current account balance (the black line) and its ratio to GDP (the red line). We expect that the balance will exceed \$400 billion in the first quarter of this year and will reach nearly \$500 billion by the end of next year. At about 4-1/2 percent of GDP, the deficit will significantly exceed the previous low point reached in 1987.

In order to evaluate the longer-term implications of our current estimates of the underlying trade relationships and the stronger outlook for U.S. trend growth, we used our somewhat more aggregated long-term model for the U.S. external sector to simulate the current account as a ratio of GDP out to 2015. The results are shown in the bottom panels. The baseline path (the black line) follows the Greenbook for this year and next and then assumes that U.S. and foreign real GDP return to potential levels in the medium-term and then grow at potential rates over the remainder of the simulation. To provide some scope for adjustment, we put into the baseline an ongoing 1 percent rate of depreciation of the dollar in real terms, starting in 2002.

In the baseline, the ratio of the deficit to GDP stabilizes for a time as U.S. growth is assumed to slow below potential and foreign output accelerates. Once that adjustment is complete and domestic and foreign

output grow at trend, the ratio again deteriorates, reaching 10 percent in 2011, and would continue to do so. In the left panel, we show the simulation results of a one-time 25 percent drop in the value of the dollar phased in over 2002 followed by a return to the baseline assumptions. Such a sharp drop in the exchange rate has a pronounced effect initially, and the current account deficit recovers to 3 percent of GDP. The benefit of that depreciation subsequently erodes, however, and the rate of worsening in the current account ratio returns toward the baseline outcome.

The right hand panel gives the results for a simulation of a steady depreciation of the dollar in real terms of 5 percent per year. Although such a depreciation does not eliminate the continuous worsening of the external balance, it slows it substantially. Under these assumptions, the current account deficit reaches 5-1/2 percent of GDP by 2010. These simulations suggest that quite sizable declines in the value of the dollar would be needed for that channel alone to provide external adjustment such that the current account stabilizes as a share of GDP.

Dave Stockton will now continue our presentation.

MR. STOCKTON. The upper panel of the next chart displays our inflation projection. As depicted by the black line, consumer prices, measured by the PCE chain-weight index, accelerated a percentage point last year to 2 percent--a pace we expect to hold this year and next. That relative stability masks what we anticipate will be some deterioration in the underlying inflation picture. After remaining nearly unchanged at about a 1-1/2 percent pace since 1996, core PCE inflation--the red line--is projected to drift up gradually to a bit above 2 percent over the next two years.

Food prices, the middle left panel, are not expected to exert much influence on headline inflation. Improving export demand and rising labor costs result in an increase in these prices that is just a bit faster than core. By contrast, retail energy prices--the right panel--were the principal reason for last year's acceleration of overall PCE prices and their deceleration this year and next contributes to the relative stability of overall PCE prices going forward.

The slowdown of energy prices provides an offset to a variety of influences on inflation that already have begun to turn less favorable. Core non-oil import prices--the lower left panel--moved up last year following three years of decline. And we anticipate continued--albeit modest--upward pressure on import prices over the projection period.

Prices of domestically manufactured intermediate materials--the black line in the lower right panel--also picked up last year. The rebound has been

driven by the strengthening of industrial activity that has accompanied the recovery abroad, as well as by the indirect effects of higher oil prices. This morning's reading from the purchasing managers' survey for January on prices paid--the red line--suggests that upward pressures have continued early this year.

Developments in labor markets, the subject of your next chart, also are expected to provide some impetus to inflation over the next two years. As shown in the upper left panel, employer costs for health insurance continued to accelerate last year after a period of virtual stability in the mid-1990s. Our forecast is roughly consistent with the available private surveys, which suggest these pressures have not yet diminished and may well be intensifying.

We also are anticipating the enactment of a one dollar increase in the minimum wage, split evenly between October of this year and October 2001. As shown in the panel to the right, we expect these increases to exert a relatively small effect on compensation costs over the next two years and to be an even smaller influence on prices.

The middle two panels highlight what we believe are likely to be the more fundamental influences on inflation over the next two years--the tightness of labor markets and some deterioration of inflation expectations. As indicated in the left panel, households perceive a very strong job market. The gap between households reporting that jobs are plentiful and those reporting that jobs are hard to get is now extremely large. With regard to inflation expectations, the right panel, both direct survey readings and econometric proxies for the influence of price inflation on wage setting have become less helpful over the past year. Median one-year-ahead inflation expectations in the Michigan survey--the black line--have moved up about 1/2 percentage point over the past year. And, distributed lags of past consumer prices, constructed using either PCE prices or the CPI, turned up last year and are poised to increase further in coming quarters.

The bottom line is that we are anticipating some resumption of the uptrend in labor costs. As we have noted in recent Greenbooks, there are serious flaws in both major measures of compensation change. The employment cost index--the red line--excludes many types of hiring and retention bonuses, misses the use of promotions as a means of raising wages, and excludes stock options. Given the increasing prevalence of these and other alternative forms of compensation, the ECI likely has underestimated compensation costs in recent years. The nonfarm business compensation measure--the black line--does capture "promotion creep" and includes stock options. However, it measures stock options at their value when exercised rather than the grant value when issued, and thus may

overstate the cost and distort the timing of firms' payments for labor services. Moreover, the nonfarm business measure is estimated with information on benefits that is less timely than that in the ECI.

These uncertainties have made it more difficult to interpret formal models of price determination that rely on wage data. As a consequence, we have found ourselves leaning more heavily on models that do not involve an explicit link to labor costs. One such model is shown in the upper panel of chart 13. This simple reduced-form model makes core PCE a function of its own lags; food, energy, and import prices; and the unemployment rate. The model forecasts a step-up in core PCE inflation over the next two years, reflecting both the tightness of labor markets and the upturn in import and energy prices last year. The Greenbook projection also calls for some acceleration, but not so much as projected by this model. In part, we have shaded down our forecast on the thought that, with capacity utilization rates still below historical averages, price pressures may remain more subdued than suggested by the unemployment rate.

As a reminder that science--such as it is--only gets us so far in narrowing the range of possible outcomes, I have included a 70 percent confidence interval for the forecast of this model--the blue shaded area. It's constructed from stochastic simulations that account for the uncertainty surrounding the estimates of all of the parameters of this model. As can be seen, that interval ranges between an outcome with no acceleration in core PCE to an acceleration that breaches 3 percent by 2001. And, even this exercise understates the uncertainty you face by failing to account for the uncertainty surrounding the model's basic specification of the inflation process.

The lower panels dispense with an analytical framework--save, perhaps, for a crude version of supply and demand--and simply resort to counting the frequency with which a very broad measure of prices--the GDP price index--has accelerated on a year-over-year basis in various ranges of resource utilization. For example, as shown in the middle left panel, when the unemployment rate has been in the range of 6 to 7 percent, GDP prices have accelerated 43 percent of the time. As the unemployment rate declines, the frequency of price acceleration generally increases. The bar at the far left shows that prices have accelerated every year in the sample when the unemployment rate was less than or equal to 4 percent. With our projection anticipating the unemployment rate to hover near 4 percent over the next two years, we have clearly entered a danger zone when judged by the historical performance of inflation.

But even this story is a bit murky. We're expecting capacity utilization to move up over the next two years, but to remain in the 80 to 82

percent interval. As indicated by the corresponding bar in the lower left panel, that range has been associated more often than not with a pickup in GDP prices. But the frequency of acceleration in that range--about two-thirds of the time--is not nearly so high as that suggested by our forecast of the unemployment rate. Of course, as the warning goes, past performance is no guarantee of future outcomes. Indeed, in the second half of the 1990s--at least through 1998--we beat the odds suggested by both the models and this simple summary of historical behavior.

By our reckoning, one of the key factors behind the favorable performance of recent years has been the pickup in potential output and productivity growth--the subject of your next chart. As shown on line 1 in the upper panel--we are expecting an acceleration of potential output to a 4 percent rate over 2000 and 2001, reflecting a larger contribution from capital deepening--line 4. Given our investment projection, the growth of capital services--the middle left panel--is projected to trend still higher over the projection interval. Multifactor productivity--at the right--is expected to continue to increase near the 1 percent pace observed in the past several years.

The 3 percent annual rate increase that we are now projecting for structural productivity is nearly double the pace averaged over the 1980s and early 1990s. As has been noted around this table, it is impossible to know just how far along we are in the process of implementing new technologies and, consequently, what the scope is for even faster growth of productivity. The lower panel of the exhibit plots the acceleration of productivity--that is the change in productivity growth--measured here over two-year intervals. As can be seen, productivity in the nonfarm business sector, measured from either the product or the income side, has been accelerating in recent years. In our projection, we expect actual productivity to remain close both to the 3 percent pace observed over the past couple of years and to our estimate of structural gains in productivity. But a further acceleration certainly cannot be ruled out.

Your next chart updates a simulation that we have presented previously to lay out the sensitivity of our projection to alternative trajectories for structural productivity. As shown in the upper left panel, the first scenario--the red line--considers the consequences of a further acceleration of structural productivity to 4 percent by the end of 2001. In the remaining panels, I display the economic consequences of that acceleration using a simulation of the Board staff's large-scale econometric model. For purposes of this exercise, I have assumed that the federal funds rate is held to the baseline path.

The growth of real GDP--the upper right panel--is much faster under the more optimistic productivity assumption. Firms and households boost

spending on equipment, structures, and durable goods in response to the improved future prospects. As we have noted in the past, in our model, the boost provided to aggregate demand exceeds productivity-augmented supply in the near term, and, in the simulation, the unemployment rate--the middle left panel--declines to well below 4 percent. Because wages respond sluggishly to both the tighter labor markets and the improvement in productivity, compensation inflation--at the right--is only marginally higher over the next two years than in the Greenbook. That sluggish behavior of wages in the face of accelerating productivity leads to an increase in the profit share--the lower left panel--which provides a boost to equity prices and feeds back to stronger aggregate demand. Faster productivity growth and the competitive pressures that follow fatter profit margins also help to keep a lid on price inflation--the right panel. Core PCE price inflation is projected to level out at just under 2 percent in the faster productivity scenario.

Of course, it is possible that we have gotten carried away by the stellar performance of productivity in the past few years. Any reliable separation of structural from transient increases in productivity is difficult in the midst of an ongoing expansion. The second scenario shown in the upper left panel considers a gradual deceleration in structural productivity to about 2 percent by the end of the forecast interval, well below the pace we believe has prevailed in recent years but still more rapid than the 1974 to 1995 average. Obviously, the economic outcome would be considerably less favorable than in the Greenbook. There would be a pronounced slowing in the growth of real GDP and a clear upturn in the unemployment rate. With productivity slowing more rapidly than wage inflation, the profit share would drop. Firms would raise prices more quickly in order to restore profit margins that are squeezed by rising unit labor costs, and core PCE inflation would move up toward 2-1/2 percent.

Mike will now complete our presentation.

MR. PRELL. Just to wrap up quickly, the final chart summarizes the forecasts you submitted. The central tendency for real GDP growth is 3-1/2 to 3-3/4 percent, somewhat below the Greenbook number, and you see no significant change in the unemployment rate over the course of the year, as is the case in our forecast. Your PCE price inflation forecast is a tad lower than ours, with a central tendency of 1-3/4 to 2 percent. We don't yet have the Administration's forecast, to which we customarily compare yours in the Humphrey-Hawkins report. My suspicion, however, is that the Administration will be predicting less growth of GDP, with a weaker productivity performance.

That concludes our prepared remarks, Mr. Chairman.

CHAIRMAN GREENSPAN. That was very well done and I think quite informative. Questions for our colleagues? President Minehan.

MS. MINEHAN. Mike, you highlighted at the end of your remarks that you thought the Administration's forecast was likely to be different from yours on the growth side, possibly because of different assumptions about productivity. It would seem that most forecasts are different from yours on the growth side. Whether one looks at the DRI or Blue Chip forecasts or others, almost everybody is closer to the central tendency of the Reserve Banks by this rendering of it than to the rather optimistic growth picture that you are showing in the Greenbook. I would be interested in any thoughts or comments you have on that.

MR. PRELL. It may just be that we are wild and crazy guys here! [Laughter]

MS. MINEHAN. I love it when you say that!

MR. PRELL. However, we tried to temper our wildness and do a little homework, and I think Dave Stockton laid out the crux of our analysis. We've looked in particular at what has been--and we expect will continue to be--rapid growth in the capital stock and the flow of capital services. That growth does seem to have been paying off. We expect a sizable contribution from capital deepening. We have assumed what would seem to be rather moderate improvements in multifactor productivity, given recent performance. But there is a great deal of uncertainty. And many forecasters are wrestling, as we are, with the question of how much of the improvement in productivity is solid and permanent and how much reflects a transient element, with businesses surprised by the strength of demand and thus pressing their available resources very hard in the short run. If the improvement is more permanent than transient, they are going to attempt to bring their work forces up into what might be considered a more normal

alignment with their production levels. And they may have difficulty doing that in this labor market. But our assessment, as we look at the steadiness of the productivity gains in the last few years and the ongoing acceleration, is that one should not attribute as much to the cyclical elements of productivity performance as I think perhaps the average private forecaster has.

MS. MINEHAN. It is also rather interesting, though, that most of those forecasts have assumed much less tightening than you do. The average tightening in all of the forecasts is somewhere between 25 and 50 basis points with something on the order of 75 to 100 basis points less in terms of growth.

MR. PRELL. I don't have enough information on all of the individual forecasts to be able to analyze these differences. I think the productivity assumption difference is part of the story. It is propelling permanent income growth higher. It is affecting the stock market. Some of the forecasts--Macro Advisors, for example, for which we have the explicit pieces--are still anticipating a decline in stock prices, which we are not. In some instances I think these forecasts do not have the same analysis of investments that we have, taking into account this large component of replacement investment. Our investment forecast, I believe, is above the consensus. And on housing we're stronger than the consensus. Again, we've been above the consensus for a while, partly on our analysis that there was a good backlog of orders and that wealth effects might be significant. We think those conditions are still in place. So, on all elements of private final demand we have a little stronger picture and a somewhat stronger view of the underlying fundamentals in many instances. Now, some other folks have rising stock prices and still have weaker demand. So it's very hard to--

CHAIRMAN GREENSPAN. That's just inconsistent.

MR. PRELL. One can have different coefficients or a different view of the wealth effects and so on. One can attribute less of the strength in consumption demand to normal wealth effects and more to the spate of mortgage refinancing last year or to just erratic elements. We recognize that we are above the crowd but we are hard pressed, given our analysis, to come to the conclusion that we should be materially lower at this point.

MR. MEYER. Could I just give an interpretation of why the staff has a somewhat different perspective from most of the private forecasts? I think the main difference is that the staff here has a very strong view of the interaction of supply and demand. This common force of productivity is affecting both demand and supply. I think they have been proven very accurate in that. One doesn't see that perspective in most of the private forecasts. So, when those forecasters revise up their productivity growth estimates, they do not get the same demand impact, and that changes the whole dynamic.

CHAIRMAN GREENSPAN. I think that is exactly right. In fact, the risks to the staff forecast may very well be on the up side. The probability that their forecast is too low is by no means negligible.

MR. PRELL. I might just say, in terms of signs of strong demand, that we have received a preliminary reading on January auto sales. And they seem to have come in at almost 18 million units--17.9 million--for light vehicles, which is well above the rate we are anticipating for the first quarter. So that in combination with the construction data this morning means that we've had two pieces of much stronger spending data than we had built into the Greenbook forecast.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you. I have a few questions on the international side and then, if I may, a question on Dave Stockton's presentation and the simulations on Chart 15.

But first, Karen, on Chart 10: I think these kinds of simulations are interesting, but I want to get you to say a bit more about a scenario that might at least be consistent with the exercise that you went through here. We see a lot of references to the idea that the United States has become a debtor nation now and that our external liabilities are growing. I've probably even talked that way myself on occasion. But we know that a lot of the holdings by foreigners, the source of the capital inflows--the counterpart to this large and maybe growing current account deficit--consists of assets that from the perspective of these foreign investors are denominated in dollars. We may think of some of it as debt, but to them it is an asset. And some of their holdings are literally dollars. I would assume, the way the accounting is done, that if last year foreigners increased their holdings of U.S. currency by \$30 billion--or whatever the number was--that it is counted as part of our debt. So, that would be part of the financing that has been going on.

MS. JOHNSON. In the balance of payment statistics it is logged that way. It is not a huge number but, yes, it is counted as debt.

MR. JORDAN. It is getting pretty big! Depending on what the rest of the world does with regard to so-called dollarization, it could get quite large. I don't know how much the Russians alone acquired last year. The other dollar-denominated assets that foreigners hold--whether CDs or other types of deposits in our banks, mutual funds, debt securities, equities, or other kinds of investment vehicles--are counted as part of our debt. The part that in a sense really is our debt is what they buy of Uncle Sam's debt or debt instruments of other governments or corporations in the United States. That is debt, whether held by domestic or foreign investors,

and appropriately so. And to some extent we are on the receiving end of what on the basis of anecdotal reports is an increasing volume of direct foreign investments of all kinds--acquisitions of our companies including, for example, supermarket chains and banking chains, which may increase too. Suppose we superimpose on your simulations two extremes: (1) that all of the increase in foreign holdings of dollar-denominated assets really is Uncle Sam's debt, or (2) the other extreme, that it is all equity investments, portfolio investments, or direct investments of any kind. Would we draw different conclusions about the implications for the exchange rate of the dollar?

MS. JOHNSON. You are reading in here a step that is not truly on a piece of paper.

MR. JORDAN. I know.

MS. JOHNSON. That step is the notion that as this number gets very, very large it would inevitably have some consequences on people's willingness to hold dollars and would produce a 25 percent devaluation or a 5 percent devaluation or whatever. The analysis that I have here, the model that I am able to rely on, only works from one side of this process. And it says: If the dollar does X, Y would be the implication for the current account balance. To answer your question--not having any simulation to draw on but just reacting to where I think you are going--I would say that it is true that the capital account is an important piece of the story. The desire of foreigners to invest in the United States and to participate in the gains from the productivity developments that have occurred in the United States does, I think, lie behind some of the developments we are seeing here. That is most evident in the fact that through much of the time the deficit has been widening--over the past three years, let's say--the dollar has been rising. That means the capital account is going in this direction at the same time that the current account is going the other way. That might lead one to take comfort in the notion that people

find attractive the instruments they are buying in the United States. If we believe that the asset valuations in U.S. financial markets are sound, there is no reason to think that is going to change in any hurry. It will over time, taken at face value, open up a gap between GDP and GNP. That in and of itself is no big deal, although I can imagine some politicians will make a lot of noise about it. But in principle there is nothing about the economics of having a gap between GDP and GNP that would be troublesome. We could well imagine that the world is making a rational and appropriate allocation of global savings into a major economy where productivity is higher than it is elsewhere and where capital ought to be accumulating. Some of that capital is owned by foreigners and some of it is owned by the residents of the United States, and there is no problem. And that could continue for some time. But I don't think there is anything about the form that foreign investment takes--whether it is in portfolios or in direct investments--that necessarily assures that it will continue. That's because if foreigners were for any reason--political, economic, rational, or irrational--to decide that they were unhappy with their exposure to the U.S. economy, they would avail themselves of financial instruments either to decrease that exposure or to hedge it. One can readily hedge foreign direct investment by selling financial assets short and view that as having protected oneself against certain kinds of exchange rate developments or certain kinds of economic developments. It is not the case that the form in which the capital enters the United States necessarily implies anything about future behavior.

So, while I put this forward as a warning flag--I don't deny that--I do not think it necessarily implies that the dollar will come under pressure tomorrow or the next day or next year. But I would also say that there is nothing automatic about how the forms of capital inflows will work out in the future should there be a change in investor sentiment toward holding claims on the United States.

MR. JORDAN. Okay, I accept that--and there is nothing in this simulation that suggests a change is imminent. Let me come at my question in a slightly different way, because I'm trying to understand this better. Let's start from the panel in the lower left where the exercise involves an assumption that the dollar is devalued by 25 percent. My first reaction was to say to myself, "Okay, that's a useful exercise to go through." Then I started thinking about the fact that if the dollar were declining by 25 percent in value over some time period, other currencies would be rising by 25 percent against the dollar. And I can't imagine any currency for which that might actually happen.

MS. JOHNSON. I'll submit the euro, but I guess I'll throw that out. [Laughter]

MR. JORDAN. You'll never convince me.

CHAIRMAN GREENSPAN. The Cuban peso! [Laughter]

MS. JOHNSON. Think about the problem that the Japanese economy is confronting. I'm personally quite pessimistic about Japan, so I don't think anything positive is going to happen there any time soon. But all those people who are buying Japanese equities clearly feel differently and have felt so for a while. And the people putting upward pressure on the yen feel differently. The Japanese economy might appear to be restructuring and recovering and might appear to offer returns down the road that will be quite attractive. Nonetheless, the Japanese current account surplus means that exchange rates and interest rates have to be such that Japanese investors are persuaded to acquire net claims on the rest of the world each and every month--no matter what--going forward. That, too, is a daunting thought. One might well believe that that is going to be hard to do after a while, if the Japanese economy begins to recover.

MR. JORDAN. Maybe the Japanese are all Ricardians! Let me ask Dave Stockton a question about Chart 15, if I may. These are interesting scenarios. This gets back, I think, to

Governor Meyer's comment on the simulation differences between other forecast models and the staff's model. Under your scenario 1 in the staff's model, wouldn't it be the case, at least with partial analysis, that given the acceleration in productivity and the corresponding increase in real GDP growth you would have a deceleration from the inherited rate of inflation corresponding to that? To the extent that does not occur, then you would have to have--and I guess the model requires this--an acceleration in nominal spending. That says that you don't get all of the productivity gains in a lower price level over time--a lower rate of inflation on an ongoing basis--but rather some of it produces an increase in final demand. And that increase in demand has to be financed. So, is it implicit in this that there is an accommodative policy on our part? Either money growth accelerates and all the credit comes along to finance the greater spending or velocity must change. What happens to make these things come together?

MR. STOCKTON. In fact the underlying assumption here is that monetary policy accommodates this step-up in nominal GDP. There would be an increase in money growth to go along with that. Obviously, this is a short-run scenario. I think the simulations that are presented in the Bluebook tried to give a flavor of the case where we are in the midst of an acceleration in productivity and the equilibrium real funds rate has to go up along with that. This in effect says that you could hold on for another two years and experience a period where the unemployment rate declines even further and the inflation rate basically stays where it has been. Now, at the end of that two years, you are not where you need to be ultimately. In some sense the funds rate and the entire structure of interest rates will have to move higher over the longer term in order to sustain that low inflation.

MR. JORDAN. Okay. But--and I think this is a very important point--the simulation does not allow the real interest rate to move up to the equilibrium level because you don't let the

inflation rate come down. That is the way the model works. We don't get that automatic increase in the real rate that would come along with the deceleration of inflation, and therefore the real rate has to rise out in the future to get things back into balance.

MR. STOCKTON. In the constant federal funds rate scenario, there is a very small increase in the real federal funds rate just because of the slightly lower inflation rate. But your point is exactly correct.

MR. JORDAN. Okay, thank you.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Karen, I have a question about Japan. Recently the Finance Ministry indicated that it might be borrowing at 2.1 percent as opposed to issuing 10-year bonds that would cost 1.6 percent. I have a few questions on this and I will try to sound objective in asking them. First, is this an astute financial strategy or is it a _____, given all of the financing that they have to do? Second, is this chapter 2, so to speak, of capital injection into the banking system, which would suggest that perhaps banks really have not turned the corner in Japan? I must admit that it seems really--to use a neutral term--"interesting" at a time when long-term postal savings deposits are coming due and are being renewed at .25 percent, that the Finance Ministry is going to borrow from banks, which is a narrow private group, at 2.1 percent. It seems to me that that would cause tremendous political problems.

MS. JOHNSON. The only information I have on this is from the New York Times article that I read. We have talked about this among the staff and have tried to figure it out. There are various hypotheses about how to understand what is going on, though I can't distinguish among them. And I put into this particular stew the fact that the Bank of Japan has announced that it will be busy selling bills into the market over the short run to absorb excess

liquidity. The Ministry of Finance says that they are trying to mobilize funds that they view as sitting around in the banking system doing nothing. They haven't admitted that this is some sort of approach to a credit crunch situation. They see these funds sitting there and they are going to utilize the resources. So they propose to borrow to provide to local governments funds that they are obligated to provide under budget provisions that already exist. In essence they are borrowing from the banking system to finance this. The right alternative, presumably, would have been to issue more Japanese Government Bonds (JGBs). And one might imagine that the banks would have taken these idle funds that are being provided for them and bought JGBs at 4 basis points.

MR. PARRY. Right.

MS. JOHNSON. So, one possibility is that this is a way to give the banks a bit more income. One might ask, as I have, whether the Ministry of Finance thinks that because this is a relatively more attractive instrument banks will provide more financing than they would have through the direct JGB route. If so, when all is said and done, in some sense the Ministry of Finance is going to be able to expand the amount of financing it can do because it is not just a one-for-one swap that will appear on the books but in effect has no policy implication. The Ministry of Finance might actually have to do less financing in the open market as a consequence of having issued an instrument that is particularly attractive to banks, thereby increasing the willingness of banks to hold claims on the Japanese government. If that were the case, the Ministry could say that, yes, it paid a bit more but actually sold more into the market. If it did more in the JGB market than it would have otherwise--if it just has to sell as much as it has to sell with nothing else going on--this is not a crazy scheme from the point of view of the Ministry of Finance, I guess.

A couple of things about it worry me. One is that it seems to be at odds with what the Bank of Japan is doing.

Another concern is that all those JGBs sitting out there are going to sell for enormous capital losses when Japanese long-term rates really move. So they end up with a banking system into which they have put a large amount of capital and barely gotten any effect. The banking system is not fixed by any means. If the economy were to recover, as they deal with the cycle of debt they are creating, this undercuts that process by putting more capital losses on the books of Japanese banks. These instruments presumably won't be trading in the market; they won't be marked to market and won't show capital losses. At least they won't show them any time soon because they are going to be selling at rates that are above market for a while anyway. This may be a way of trying to improve bank balance sheets--a way of giving them returns of 2 percent instead of 2 basis points--because they are going to need it.

MR. PARRY. Thank you.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you. I have a question about the simulations as well, Mike. The Greenbook shows a baseline simulation and a flat funds rate simulation. As I look at the analysis, it seems to imply a sacrifice ratio of about one. In the Bluebook the sacrifice ratio is much worse. I am trying to understand what causes the difference. Is it different assumptions about credibility or about how expectations are formed? I don't know what it is.

MR. KOHN. It is a different time period. Our sacrifice ratio in the Bluebook is calculated over a full ten years when all the lags work out. It might be very different in the short run than over the long run.

MR. STERN. Really? But it involves a difference of .8 percentage point -- a .1 difference in the unemployment rate and a .7 difference in the PCE price number.

MR. PRELL. In the short run the exchange rate dynamics exaggerate this response. That's probably an important element in getting an effect this big.

MR. STERN. All right. Then let me ask about the Bluebook sacrifice ratio. I don't know what your credibility assumption is, but it seems really high.

MR. KOHN. It is a little higher than we've had in the past, but not much. It is consistent with the model looking out over the longer run. It is a fairly high sacrifice ratio, I think, compared to some other models, but it is not out of the bounds. The baseline simulation over the next two years has a 1 percent plus NAIRU gap and only a very small upward creep in inflation. That implies a pretty high sacrifice ratio. That's great when the unemployment rate is below NAIRU because it doesn't result in much upward creep in inflation. Obviously, if you want to lower inflation, you have to be a lot above NAIRU for a long time to get inflation to

come down. So, this sacrifice ratio was intended to be consistent with the basic story in the Greenbook in terms of how fast inflation would accelerate over the next few years given the assumed output gap. It's important to recognize that there are a lot of things going on in the Greenbook scenario that have to do with price shocks, oil prices moving, and so forth. But this analysis tries to abstract from that and get at the underlying slope of the Phillips curve.

MR. PRELL. One of the things we have pointed out before repeatedly in these model simulations is that the same output path generated through a different stock market assumption versus a different monetary policy assumption will have much larger expectational effects in the monetary policy case. It is quite plausible that if the Fed were perceived to be doing nothing in the face of this decline in the unemployment rate and the acceleration in prices, people's inflation expectations would be marked up considerably. So, that change in expectations would exaggerate the effects in this kind of scenario. But this does generate a significant decline in the dollar on exchange markets and that exacerbates the inflationary effect.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. I want to go back to Chart 10. Karen, it looks as though you have an assumed exogenous change in an endogenous variable. That's something I have spent 30 years trying to tell my students not to do!

MS. JOHNSON. But I used a partial equilibrium model, so it's okay! [Laughter]

MR. POOLE. I'm speechless! [Laughter]

MS. JOHNSON. There is nothing about these simulations that is intended to suggest how the dollar would react or to cause changes in the dollar. This is simply a statement that says: If both foreign growth and U.S. growth were at potential, as best we know it, and if the

dollar were to follow this path, this would be the outcome of the current recovery. Nothing here is meant to be predictive of what drives the dollar.

MR. POOLE. I guess the question is: What can one learn from such an experiment when by its very nature, if it's partial equilibrium, it involves a whole lot of things that don't add up? The model that you have is now internally inconsistent.

MS. JOHNSON. What I think one can learn from this analysis is that those who believe a return to stronger, more vigorous growth abroad will solve the external balance problem of the United States are mistaken. Unless the parameters that relate trade to its near-term determinants change a lot and change soon, it is not the case that a resumption of foreign growth will have the effect of closing the U.S. external gap.

MR. PRELL. This contradicts to some degree what I was saying earlier in my comparison of various forecasts. But, if you look at outside forecasts, many of them have the net export balance reaching a nadir sometime this year--either flattening out or turning. And they have had this kind of pattern for a while. We have not been able to understand why, given our analysis of the elasticities involved. Yet people still do seem to have this notion in their minds that strength in these foreign economies will have this result or that our import elasticity isn't as strong as it seems to be.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Mike and Dave, with respect to your simulations, let me ask something that I think has been hinted at around the edges in two or three previous questions. In the Greenbook prepared last time for our December meeting, you had an assumed increase of 75 basis points in the funds rate in the works. In this Greenbook you have an increase of 125 basis points. If one looks at these simulations, the analysis suggests that we are behind the curve

unless scenario 1 occurs. So let me ask what you think the odds are of scenario 1 materializing. Everything else suggests that we are behind the curve.

MR. STOCKTON. I am not sure I would characterize scenario 1 in quite the same way you have characterized it. In fact, one could argue--and I think this may be what President Jordan was arguing--that in scenario 1 you fall further behind the curve in the sense that even though inflation is not picking up, the unemployment rate is falling even further below its equilibrium. Indeed, the real federal funds rate is falling even further below its long-run equilibrium. In that scenario we are enjoying another period of sustained, strong economic growth and low inflation. But there is still a fair amount of work to be done in scenario 1 in terms of adjusting policy at some point down the road in order to bring the funds rate back into equilibrium. Now, you will inherit a lower rate of inflation after going through that process, which is certainly something that benefits you. But while it is good news for this two-year period, there is still policy tightening to be done further down the road. That, in fact, is what some of the longer-run Bluebook simulations are showing.

Now, in terms of the probabilities, if one were to judge the probability of scenario 1 by the staff forecast errors of recent years, one might say that it is not entirely implausible.

[Laughter] Obviously, we think we have a relatively balanced set of risks in our forecast. But as seen in Chart 14, the most recent observation shows that productivity is still accelerating. So, it is not entirely clear that the probabilities are split right down the middle between scenario 1 and scenario 2.

MR. HOENIG. That's interesting. Thank you.

MR. MEYER. Could I just follow up on that? In judging that probability you might want to indicate what the path of investment would have to be in the model to produce the capital

deepening required to achieve that scenario, given that the capital deepening is what has been generating most of the uptick in trend productivity.

MR. STOCKTON. That is true. But in this particular scenario, that faster productivity growth is generated in part through the more rapid multifactor productivity growth that we've had. And there's some addition to that from the capital deepening. So both of those factors are working here.

MR. PRELL. To underscore that point, I hope all of you saw the pre-FOMC briefing from yesterday. Our multifactor productivity trend here pales by comparison to what has been experienced in some long periods of this country's economic history. So that could well be a component of a better productivity performance.

MR. MEYER. Yes, but that's almost pulling something out of the hat in a way. It seems to me that the big story here is the increase in capital deepening. If you want to play the story out, I think you need to trace through what would be needed to get so much more capital deepening to produce that acceleration in productivity.

MR. PRELL. But if one thought that this investment was merely the prelude to putting in place more efficient operations and so on, one might say the payoff in multifactor productivity still lies ahead. If one wants to be a new wave optimist here, it is certainly possible to come up with stories in which the assumptions are more generous. We feel that we have a reasonably balanced scenario in our baseline forecast, obviously. We are far more optimistic than other forecasters by and large, and yet we think this is a sensible look at the prospects.

CHAIRMAN GREENSPAN. There is an interesting interplay between what Karen was saying and what Larry has just said. The strength of the dollar in the face of this widening current account deficit is apparently the consequence of the increasing rate of return on facilities,

which is related to capital deepening. That relationship has been fairly strong, at least up until the immediate forecast, so that there is a tie among all of these simultaneous simulations in which lots of things are occurring. If you pull one string, the whole thing unravels.

MR. PRELL. Just to grab onto one more string, though, it is possible that the buoyancy of the dollar has had something to do with what some might argue was a bubble situation in the equity market. So people may have exaggerated ideas of the prospective returns from these investments.

CHAIRMAN GREENSPAN. Foreigners?

MR. PRELL. Domestic and foreign investors. But foreigners are playing a role in this, investing in what they perceive to be very, very profitable U.S. ventures.

CHAIRMAN GREENSPAN. Shall we break for coffee before it gets frozen?

VICE CHAIRMAN MCDONOUGH. May I add one comment related to this? Going back to Karen's Chart 10, we have been doing a great deal of work on the current account deficit as a percentage of GDP. In a way the work we've done was driven by the notion that given almost any reasonable pattern one assumes for the world economy, the current account deficit as a percentage of GDP continues to worsen. As one goes from deep concern to sheer terror about that prospect, the question arises as to what can possibly be done about it. So one comes out with questions like "what happens if there is a 25 percent devaluation?" Just about all the analysis we have done indicates that a continuing worsening of the current account deficit is inevitable until and if--rationally or irrationally, as Karen suggested--foreigners decide that they don't want to hold these assets any more. Go back to Peter Fisher's presentation and look at what has happened to the euro. Everybody who thought it was wonderful to invest unhedged in euro assets all of a sudden decided that that wasn't such a very good idea. So over a period of a

couple of days the hedges went up. Nobody had to sell any of their underlying assets; they just hedged them. That drives home the validity of the point that Karen was making. There is very little distinction between foreign direct investment in bonds and bank deposits and anything else. Once a foreigner decides that he doesn't like dollar assets, the derivatives market gets a very deep and immediate opportunity to do something about it. Now, there is no way in the world that we can predict when it might happen. But it certainly seems to me to be a very clear and present danger. We just don't know whether it will happen eight years from now, eight days from now, tomorrow morning, or never. The least likely prospect of all is that it will never happen. It seems to me something that clearly has to be taken into serious consideration.

CHAIRMAN GREENSPAN. As Herb Stein said, "If things can't continue, they won't."

VICE CHAIRMAN MCDONOUGH. Right, they won't.

CHAIRMAN GREENSPAN. Let's have coffee.

[Coffee break]

CHAIRMAN GREENSPAN. If there are no further questions for our colleagues, would somebody like to start the Committee's discussion? President Jordan, do you have a question or--

MR. JORDAN. I'm just volunteering to start the discussion.

Banks in the District have reported that both commercial and consumer loan demand remained strong in nearly all the early weeks of the new year. In the mortgage area, while refinancing activity has dried up completely, mortgage loan applications jumped sharply in the past two weeks, we are told. One banker said he thinks mortgage loan demand is being stimulated by people's belief that interest rates will be higher later. We have heard quite a few

reports that deposit growth evaporated completely in the first few weeks of the year and, with the cost of funds rising, that interest margins are under pressure. One large regional bank reported that they are already in the process of putting through a round of loan repricings during this quarter to offset partially the squeeze they are feeling on their interest margins.

A banker with a fairly good sized institution told us that bank stock mutual funds are experiencing very substantial runoffs, which is forcing the sale of bank stocks out of these funds. He said there are several large blocks of bank stock currently being priced for sale on the market. He noted, based on his own experience, that foreign interest in buying U.S. banks is increasing. From the perspective of foreign investors it is bottom-fishing time.

In motor vehicles, though we don't have any solid numbers for January, we were told that auto sales were very strong during the month, along the lines of what Mike Prell reported. Steel is looking quite good and the mood of people in that industry is the best we've seen in at least a couple of years. Both domestic steel consumption and production are increasing. Import volume declined last year and appears to be continuing to fall, so orders for domestic production have been rising. Some steel price increases have already been implemented and further increases have been announced to go into effect April 1. So, we will have to see whether the market can withstand those increases or not.

Let me make a couple of comments about the national economy and the global economy in terms of the context in which we're making policy decisions. I thought--and I'm sure everyone will agree--that the Chairman's speech on January 13th was an outstanding framework for thinking about the environment in which we find ourselves. It provides a basis for a dialogue inside the System as well as outside the System about the broader implications of

the challenge of monetary stability. That overall concept includes what we call price stability but encompasses much more than that. The challenge is to try to maintain some sort of equilibrium.

The message for the rest of the world is a hopeful one. Other nations may be at best in the very early stages of experiencing the kind of productivity gains we have had over the past several years. And if other places around the world get into the type of reinforcing virtuous cycle that we have had, that may help them work out of some of their very deep and long-lasting problems. But the message for us is that when the acceleration of productivity occurred, we did not get the full effects passed through into a sustained drop in the price level. So we did not get the automatic increase in the real interest rate that might otherwise have happened. We relied on these other safety valves, as the speech I thought described very well. Our reliance on those other safety valves is problematic because those things can change--whether on the fiscal side, the labor market side, or the immigration side. And we have to be very aware that our own policy response may be influenced heavily by the actions of others in these areas, especially on the fiscal side.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, economic activity in the Twelfth District picked up at the end of last year, widening the gap in employment growth relative to the rest of the country. The underlying momentum is broadly based, but most notable is the strength in business services and construction. Business services added jobs at a rapid pace both in the fourth quarter and in the year as a whole. The fastest growing component in this sector was high-tech services. In the state of Washington, the robust high-tech software industry registered an 11 percent increase in jobs in 1999. In California, the high wage Internet and software service firms continue to grow rapidly. Unpublished data indicate that in the narrow Internet service sector, average salaries are

approaching \$100,000 a year. The intensity in the “dot-com” sector is affecting key commercial real estate markets in the District, driving office vacancy rates down and lease rates up. In San Jose, San Francisco, and Seattle vacancy rates are in the 3 to 5 percent range. In San Francisco, lease rates on Class A office space increased by about 25 percent last year. The only major markets with substantial overhang of commercial office space are in Southern California.

The District's manufacturing sector reported a small increase in jobs in the fourth quarter despite downsizing in aerospace and weakness in high-tech employment. Within high-tech manufacturing, however, there are signs of improvement, mainly in semiconductors and other electronic equipment. In Oregon, for example, semiconductor firms are adding jobs and Intel plans to reopen a chip plant. These developments coincide with increases in exports of electronics from such states as Oregon and California, with much of the increase in shipments going to East Asia.

Turning to the national economy, last Friday's GDP and inflation data certainly raised a red flag. While it is too soon to tell if the fourth-quarter surge in GDP-based inflation measures will persist, Friday's numbers are a serious concern. Our forecast assumes a 50 basis point rise in the funds rate together with a flattening of stock market values and it shows real GDP growth of 4 percent this year and 3-1/2 percent in 2001. Given that labor markets already appear to be very tight, the obvious question for policy is whether that real GDP growth can occur without a sustained rise in inflation. Rising productivity growth has been able to offset any tendency for inflation to pick up steam, at least until last quarter. However, productivity growth rates will need to rise even higher or their beneficial effects will begin to fade before too long. While it is entirely possible that the economy has achieved a new, higher trend in productivity growth, it is not clear how long productivity can continue to accelerate. Assuming

that productivity growth continues at the rapid pace of last year, our staff forecast shows an upward trend in core CPI from just under 2 percent last year to 2-1/4 percent this year and 2-1/2 percent next year. Such a rise in inflation would be especially troublesome to me because I would like to see it decline further below the 2 percent rate registered last year. Thank you.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Thank you, Mr. Chairman. As we look back on 1999 in New England, we see an economy that has recovered from the shock of the Asian crisis to its manufacturing base. We see an economy whose construction, retail, and business and financial services sectors have experienced healthy employment increases. And we see an economy that seems poised for a continuation of quite solid growth.

There are some darkening clouds in the picture, however. The supply of available labor, and not just skilled labor, seems lower than ever as evidenced by anecdotes from contacts and by the long lines at most retail outlets even after the Christmas rush. Indeed, from 1990 to 1998 New England's labor force registered an average annual increase of zero in contrast to the nation's growth of 1.2 percent per year over the same period. These data mask some temporal variations, as the area experienced out-migration of labor early in the period and growth more recently, and variations among the states as well, with the labor force growing more rapidly in northern New England than in the southern region. But the data do highlight a picture of very tight labor supply. Indeed, this shortage of labor is widely considered to be a key factor in restraining regional growth. Clearly, this would seem to be a time for wages to accelerate, and maybe they will. But for now contacts report that planned wage increases are not much higher than in other recent years--in the range of 3 to 5 percent--though bonuses may well be substantially more than last year. It appears that businesses have continued to cope with tight

labor conditions by restructuring processes, improving efficiency, training existing workers, and investing in new technology. Indeed, at a recent meeting of the Bank's small business New England Advisory Council, one member stated that he had no choice but to continue investing in technology as it was the only feasible answer to continuing labor shortages. These small firms all reported an upswing in business over the Internet, a development they view as having potential cost-saving or revenue-enhancing benefits. However, all viewed the problem of getting goods to Internet buyers--so-called "fulfillment"--as a difficult challenge.

The other major cloud on the New England horizon, and the nation's as well, involves health care. The region's largest and one of the nation's most well-regarded HMOs was put into receivership in January with losses that ranged from \$150 million to \$300 million, depending on which news account one reads. Two states, Vermont and Rhode Island, no longer have any local HMO coverage. Providers of services to HMOs--the hospitals in particular--are reeling from cutbacks in Medicare due to provisions of the Balanced Budget Act, and there is real concern that if the HMO in receivership ends up being folded, it may take a hospital or two with it. Boston's medical care costs were growing at a pace above that of the nation prior to this development. That trend is likely to continue if not worsen. In part this may be a regional phenomenon, given the number of teaching hospitals in the region, all of which seem to be particularly affected by changes in federal funding. In addition, the large HMO in question appears to have been poorly managed, especially in the information technology area. However, the underlying pattern of HMOs offering lowball premiums to customers in order to expand market share, and somehow expecting to make it up on volume in an environment of rising drug and other costs, is not unique to New England. In that regard, I would expect the increase in benefits costs in the most recent ECI data not to be the last.

Aside from these worries, much about the New England economy is very upbeat. As I noted, manufacturers have recovered from the Asian crisis, and many companies--especially fast growth, high-tech firms--are especially upbeat. There are pressures on input prices, especially on materials that have a petroleum base. Some attribute these pressures not only to rising oil costs but also to greater strength in Asia. In particular, subcontractors in the Far East are charging more or have stopped offering quantity discounts because their capacity utilization is now quite high. But here again there is a determination to hold the line. Most of our contacts said input prices would be rising even faster if their firms were not making a considerable effort to seek out lower prices through strategic sourcing, global procurement negotiations, or longer contracts. Contacts continue to believe that they cannot raise prices, particularly for commodity-type products or for goods they are selling to large buyers like the Big Three auto manufacturers or Wal-Mart.

Finally, real estate markets remain varied by city but are extremely tight in Boston. Rents for Class A office space in Boston remain very high, with new supply coming on line very slowly. On the residential side, sales volume in 1999 was about the same as in 1998, but prices rose strongly in most markets. Limited inventories of properties for sale are the likely reason for both the volume and the price data observed. New housing construction slowed, with permits and construction contracts in the fourth quarter below year-earlier levels. But that may be as much a function of constraints in the supply of construction workers and building materials as it is a reflection of any easing of demand.

On the national scene, there clearly is no easing of demand. For some time now our own forecasts in Boston and those of the Greenbook as well have assumed that the current expansion would slow somewhat on its own. Sooner or later consumers would decide that they

didn't need or want another house or car and that they did need to increase their savings for the future. Consumption would slow, moderating corporate profits and slowing the rise in the trade deficit, and the stock market might even level off nicely in an atmosphere of a little less euphoria. In short, we thought reality might just bite a little. We have been expecting something like this for three years or so but it hasn't happened, and there aren't any signs that it will happen. Instead, consumption is booming, confidence is high, the saving rate is even lower, the trade deficit is higher, and consumers are borrowing more and more. And nonfarm, nonfinancial corporate debt, while certainly still affordable, is growing rapidly and hitting rather high levels--at least relative to GDP. So I'm glad to see that in both our own forecast and that of the Greenbook the idea that the economy will slow on its own appears to have been abandoned. The Greenbook projects, as do we, that substantial policy tightening is necessary to bring the economy back to a reasonable balance between demand and supply.

Various aspects of supply remain in question, however, at least in our view. The longer-term alternatives in the Greenbook and the Bluebook have the rate of growth for potential output at around 4 percent in the near term--the next two to five years--and a NAIRU of somewhere around 5-1/4 percent. I must admit, though, that the Bluebook does confess to a fair amount of uncertainty about the latter. However, as the Bluebook's alternatives so clearly illustrate, other assumptions about potential and labor market capacity constraints are possible and perhaps reasonable. For our part, we remain somewhat agnostic about whether productivity will continue to grow over the next five years at the pace of the last two or three years. But we think, at least for the near term, that the NAIRU might be lower than the Board staff's estimate. So with about the same amount of tightening in 2000, we have growth slowing to about our

estimate of potential, 3-1/2 percent or so--slower than in the Greenbook forecast--but with nearly the same results in terms of prices and unemployment.

Of course, other assumptions are possible as well. One can take a more optimistic view about both the growth in potential and the NAIRU and make a case that very little, if any, tightening is needed to bring demand and supply into balance. But to take such a view would, I believe, run an increasing risk of further imbalances. As I look at both household and corporate balance sheets, I see growing liabilities and debt service burdens that are reasonable only when one factors in growing market values of assets and relatively low debt service costs. It goes without saying that this is an economy that is increasingly vulnerable to changes in market perceptions, market prices, and interest rates. And it appears that this is an economy that increasingly buys into the idea that things go only in one direction.

That takes me to the major risk we face when thinking about economic forecasts, which is the risk that policy actions taken to tighten credit conditions may cause large market reactions that not only affect U.S. balance sheets but cause foreign inflows to our markets to decline as well. The Greenbook forecast has moved away from an assumption that policy tightening will cause market values to decline. The stock market flattens out but does not turn down. Personally, I think that is a reasonable assumption based on the experiences of the late 1980s and 1990s, and it figures into our own forecast as well. But in many ways, that would be the ideal outcome. So, I think it would be wise to be a bit agnostic in that regard as well. Thank you.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. Economic growth in the Eleventh District has been strengthening over the last few months. It turns out, after some revisions in the data, that employment growth

was very, very slow in the first half of last year but picked up nicely in the second half. That pickup is expected to continue as Texas feels the lagged effect of higher oil prices. The energy industry is showing definite signs of rebounding. Producers are more confident, thanks to strength in Asian economies and increasing confidence in OPEC's solidarity. Most of the gain in drilling activity has been for gas so far, but recently we are seeing some shift in emphasis toward oil drilling. In the high-tech area, semiconductor manufacturers have been revising up their forecasts for 2000, consistent with what Bob Parry just said.

Demand has been especially heavy for telecommunications chips. One of our directors noted at our board meeting a couple of weeks ago that the pickup in chip demand from Asia has been especially strong, underscoring other evidence of a rebound in Asian economies. Both home building and commercial construction activity have been showing signs of cooling, probably due as much to overbuilding as to higher interest rates. It seems that construction activity has become more sensitive to growing inventories and supply/demand imbalances in recent years. The benefits of information technology for inventory control are becoming more pervasive in the economy. In spite of the Texas unemployment rate being near its 20-year low at 4.4 percent in November, wage gains have been moderating across a wide range of sectors. Overall, there seems to be an absence of inflationary pressures in the Eleventh District other than for goods whose prices are tied to oil. We've seen some easing in price pressures for sheet rock and cement, but one of our directors noted upward pressure on the price of asphalt, reflecting the strength in non-building construction--that is, road construction.

Turning to the national economy, my forecast is pretty close to the staff's; the main exception is that I see somewhat less inflation than they do. In fact, I turned in a 4 percent

number for real GDP growth this year, just a bit less than the staff's 4.1 percent. That means I'm going to be increasing my forecast and I imagine Mike Prell may be reducing his as well!

I have one piece of anecdotal information that supports the view that the economy is very exuberant on a national basis. I took my annual trip to Vanderbilt University in Nashville last week to speak to former Governor Daane's class. As usual, he had me meet with a group of Nashville businesspeople beforehand. The main conversation at lunch was whether they were going to have to pay closer to \$2500 or \$3500 for scalped tickets to the Super Bowl. Those Nashville business titans were taking their football very seriously. The Dallas business community, incidentally, feels that some parts of the country take football too seriously!

[Laughter]

MR. POOLE. St. Louis isn't one of them!

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. The Seventh District economy entered the New Year with considerable momentum. To date, higher interest rates have had only a marginal impact on the traditionally interest-sensitive sectors like autos and housing. Auto producers expect 2000 to be the second best year ever for sales of light vehicles, following last year's record-setting pace. Thus far, the automakers see few signs of slowing. And reports from our District directors indicate that sales at District auto dealers generally were brisk in January. The numbers we heard this morning seem to bear that out. attended the National Automobile Dealers Association meeting in Orlando in January and reported that the auto dealers were very upbeat and bullish about the outlook for this year.

The housing sector in the Midwest continues to outperform the nation for reasons I don't fully understand. The head of a distribution company that sells building materials to

Chicago-area construction firms told me that his customers who are residential contractors have seen no slowing thus far and are booked for at least the next six months in the Chicago metropolitan area.

Retailers' sales of appliances and home furnishings are still quite strong. More generally, the holiday shopping season was exceptionally good for most District retailers. Inventory levels at the beginning of the year were described as rational, not excessive, thus requiring little aggressive promotional activity in January. Also, the steel industry in particular is benefiting from strength in autos, appliances, and other consumer durables, with steel order books said to be solid and showing little tapering off of demand in January, similar to what Jerry Jordan said earlier.

It is difficult, if not impossible, to find any signs of easing in our very tight labor markets. In fact, very preliminary results from Manpower's latest survey of hiring intentions show net hiring strength near a 22-year high, and that's both before and after the seasonal adjustments that they do. These results should be treated confidentially since they won't be released until February 28th. Wage gains in the temporary help industry remain in the 3 to 5 percent range of the past few years but recently seem to be concentrated in the higher end of that range. Our directors report significant or record shortages of nurses for retirement homes, truckers, and construction workers. And in some cases these shortages are constraining activity. For example, a major heavy-duty truck manufacturer cited the shortage of truck drivers as a major reason for the recent softness in orders for heavy trucks at his firm.

Manufacturers generally continue to face higher prices for some of their inputs such as energy, steel, copper, and aluminum, but they still say they cannot pass these higher costs on to their customers. Increasingly, we are hearing that the Internet is helping to hold prices down.

For example, the head of a major auto company told me that they estimate that 55 percent of car buyers now use the Internet to get information on pricing before they even enter the showroom.

Turning to the nation, despite the surprisingly strong fourth quarter, our outlook for growth in 2000 is at nearly 4 percent. Unfortunately, like the Greenbook we see core CPI inflation rising this year to about 2-1/2 percent and core PCE inflation to about 2 percent. There appear to be few weak sectors in the outlook at this moment. Employment growth continues to be strong and inventory accumulations seem reasonably balanced on the whole. Consumer spending in 2000 seems headed for at least moderately strong growth in spite of the restraining course of higher interest rates that we expect over the period. The high levels of the stock market continue to propel consumers forward, and this continues to be a risk for the outlook.

Last week we convened a meeting of our Academic Advisory Council. A major topic of discussion was growth in potential GDP. Most participants were skeptical that the growth in potential output was as high as our estimate of 3-1/2 percent and, of course, questioned whether the faster productivity increases were sustainable.

Our inflation outlook for 2000 envisions a 1/2 percentage point pickup in core inflation with a further rise in 2001. So, regardless of which core inflation measure one uses, it's difficult to accept that the degree of acceleration forecast for core inflation is consistent with price stability. And that, of course, is an area of major concern.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Thank you, Mr. Chairman. Our Southeast region is healthy and the balanced expansion continues. The final data and the conversations that we have had with retailers tell us that the holiday selling season was a blockbuster one that clearly exceeded expectations and even the early estimates that we had. Tourism often gives us a good reading on

discretionary spending. As reported in the popular press, there was a measurable slowdown in tourism over the special year-end period, but advanced bookings for the spring are quite strong, suggesting that the strength we had been reporting in that sector will resume. We hear mixed views from people we talk with about just how much of a slowdown we have been seeing in housing. Certainly, our tightening moves and the rise in mortgage rates have had some effect, but in most of our markets housing construction remains at high levels and the inventory of unsold units is quite low. Nonresidential construction has actually increased somewhat. Overall manufacturing activity in our region has shown some pickup in both production and new orders, but that strength is attributed to domestic demand rather than to a significant pickup in exports. Despite the recovery of many economies around the world, we are still hearing about sharp trade imbalances as we talk to people who run our ports. They are saying the lopsided cargo trade has caused operational problems and surcharge fees on outbound containers that are being sent back to the U.S. empty.

Our regional payroll rose to 2-1/2 percent year over year, which reflects even more strength than the national numbers, and labor markets feel tighter and tighter. Just last week a new restaurant owner was telling me he had been operating at half capacity for several weeks because of his inability to hire enough cooks and servers. And the general manager of our
told me he was now very concerned about being able to maintain their high quality of service and their top rating because of the marginal staff he has had to hire. At the same time, we are still being told that most employers are stubbornly trying to hold the line on broad-based wage increases.

Over the period since our last meeting, one gets the sense that more prices have been edging up: Prices of construction materials are up to 2 to 5 percent; copper prices are up 10

percent; and red meat prices are up 7 or 8 percent because of herd liquidations over the last two winters. And those kinds of price increases are on top of the more talked about double-digit increases in energy, health care, and pharmaceuticals that are getting people's attention and are now working their way through the indexes. The regional economy is strong and resource and price pressures seem to be building.

Nationally I see much the same picture. Late last year it was clear to me that the national economy had great momentum. But the latest data, once again, have been even stronger than I expected. I don't see much evidence yet that our earlier policy tightening moves have more than dented the very strong consumer demand in the economy. And as most of us have noted, the now relatively strong growth elsewhere in the world seems sure to put more pressure on domestic producers. In addition, the Congressional temptation to spend pushes in the same direction.

I don't like the direction of price movements reflected in the Greenbook's baseline forecast. Our own VAR forecast paints a similar picture. Our forecast suggests that CPI inflation will approach 3 percent this year with virtually no probability that it will be below 2 percent. And both forecasts suggest that even several more tightening moves won't damp the upward drift in inflation to any great degree. I believe and would even argue that we are beginning to see the whites of inflation's eyes, and I think a further tightening is called for. It has clearly been priced into the markets. And while validating market expectations is not our task, this is one of those instances where not doing so would undermine our credibility. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. President Boehne.

MR. BOEHNE. Thank you, Mr. Chairman. The regional economy in the Philadelphia District is strong. Retailing, manufacturing, and construction all are operating at high levels. Labor markets remain tight with the amount of overtime starting to become a political issue. The Labor Relations Committee of the Pennsylvania House of Representatives, for example, recently held hearings on the issue of overtime for construction workers and concluded that significant overtime reduces productivity and raises safety concerns. I believe we will hear more about people becoming too stretched for too long in the workplace. And I think that is going to be the next quality-of-life issue that will probably work itself into the political campaign of 2000. Although wage increases remain generally moderate, one does hear more stories of higher salaries being used to entice people to switch jobs.

The national economy continues to grow robustly and consumer spending in particular is growing rapidly. Although productivity also is rising smartly, my sense is that demand is pressing too much on supply and that unless the growth of demand moderates in coming months the expansion will be at risk. With concern about Y2K largely behind us, we need to return to our main task of prolonging the sustainability of this remarkable expansion. Sometimes prolonging an expansion requires lowering interest rates, sometimes it requires holding them steady, and sometimes, as in the current situation, it requires raising them. And our task in coming months is to raise rates in a manner that will contribute to stability while avoiding initiating instability.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. The situation in our District is very similar to the one Jack Guynn and others described for the rest of the Southeast. By all accounts economic activity has expanded very strongly since our meeting here in December. Consumer spending was especially

strong in the holiday season and remained robust in January. We have had information on strong car sales, which is consistent with the number Mike Prell mentioned earlier. Manufacturing activity also remains robust apart from textiles. We had seen some moderation--I guess that's the way I would put it--in both residential and commercial construction and sales before the bad weather. We got a whale of a moderation with the snowstorm last week! But overall, I think the slowing has been fairly modest to this point. Some of it reflects supply constraints--shortages of workers and construction materials. And there have been delays in some planned new construction, including the putting in place of infrastructure, also ultimately reflecting supply constraints.

The regional information that has struck me the most in recent weeks has to do with labor markets and prices. I don't want to belabor the tight labor market theme any further, but the increasing difficulty of finding qualified workers across a broad range of service and manufacturing industries is really the key preoccupation of all our business contacts. In addition to construction workers, nurses and teachers are in especially tight supply at the moment. And in this environment, as Ed Boehne just mentioned for his District, we are hearing more reports of significant wage and salary increases. In our regular monthly survey of manufacturers, most respondents now report that they expect a much broader acceleration of wages over the next several months than they did two or three months ago.

Regarding prices, for years now we have received innumerable reports--complaints actually--about a lack of pricing power. Perhaps a bit different from what Cathy Minehan was saying about New England, I have a sense that this may be eroding somewhat in our region. A few businesspeople, and maybe more than a few, are telling us openly now that they feel they have more pricing flexibility than they had, say, a year or so ago. I don't want to exaggerate this

point. Sizable price increases are still not widespread in our area, but the pricing atmosphere, if I can put it that way, seems to be changing a bit.

As far as the national picture is concerned, our forecast is very close to the Greenbook forecast except on inflation. On the prediction for the core PCE inflation rate, unlike Bob McTeer, we were a little higher rather than lower. It's a strong forecast but I still think the risks are primarily on the up side. And that's a point that seems to me to have been underscored by the data we received on Friday and by the data released today that Mike Prell mentioned earlier.

I always have a hard time separating discussions of the economic outlook from discussions of policy, which is a problem related to the way our meetings are organized. I find that to be the case especially at this meeting. But in that context, I found the various simulations in the Greenbook and the Bluebook very helpful and interesting in trying to disentangle things. I want to make a few comments about that, but I'll wait until tomorrow after Don Kohn gives his briefing on the Bluebook and policy alternatives. Thank you.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. The Tenth District economy has not changed appreciably since our last meeting and on balance remains very healthy overall. Labor markets do remain tight but wage pressures, though increasing, are not increasing dramatically that we can tell. Our agricultural sector continues pretty much as it has been, with low prices and high subsidies making the outlook for that sector appear fairly stable. One thing I might mention about this expansion is that rural America really has shared in some of the good times. Job growth in our region has been nearly as high as that for the nation on average and, of course, in our scenic and recreational areas it has been substantially stronger. So, we've had good uniform growth in jobs across the rural areas as well.

Let me talk a little bit about the oil sector. Even with the sizable increases in oil prices, the effects on levels of activities in our region have been relatively modest so far. In talking with our director in that industry, he said that the industry right now is still budgeting in their capital budgets at around \$18 per barrel for oil. They feel that if OPEC can manage to do so it will maintain the price at between \$20 and \$30--not wanting it to go over \$30 because that will spark interest among other oil producers. So that seems to be forestalling the price. They are watching developments, in terms of adjusting their capital budgets around those numbers and those price levels. Unless we see an accelerating price level, his judgment is that exploration budgets won't increase dramatically.

Let me mention another local anecdote. The Kansas City Southern Railway runs a railroad through Texas, Monterey, and all the way to Mexico City. I was visiting with the head of that company last week and he told me that the volume of traffic on the railroad over the last 18 to 24 months has increased by a good 50 percent in both directions. He said it was striking how much business capital investment was being made all along that railroad. He said that the state of technology at the manufacturing plants was as good as it gets and that the quality of the products coming from there was as good as it gets. Interestingly, though, he also noted that shipments of finished goods, not just intermediate goods, are also expanding dramatically along that route as people's incomes and prospects improve. That may be a sign of more positive things to come.

Let me turn to the national economy. Basically, I'm convinced that the U.S. economy is experiencing the effects of excess demand and that, based on the evidence, pressures probably are building. While my projections are not as strong as those of the Board staff, it's a matter of degree and not direction. I see a greater likelihood that this demand will increase and continue to

outpace supply, even though the signs on the supply side are good. In my view this does put increasing pressure on prices. And the situation is complicated a bit further by what we refer to as “imbalances” that are also persisting, with levels of debt rising and the current account deficit increasing as well. All this to me suggests that there is perhaps room for us to think about increasing rates modestly as a minimum response. I’ll stop there. Thank you.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you, Mr. Chairman. The District economy remains very strong and I won’t go into the details except to comment on a few things that have changed or are in the process of changing in the District. There are five things that I want to mention briefly.

First, on the banking side, bankers report that they are continuing to compete aggressively for loans but--and the “but” is that they are tightening credit standards. And they report that they are encountering examiners who are encouraging them to tighten credit standards. Second, a glut of office space is coming. It may be a year or two or three off but, at least in our District, I think it’s pretty well baked in the cake right now. Third, labor markets, of course, remain tight but we are starting to see some upcreep in the rate of increase in wages and the frequency with which wages are going up. Fourth, as far as inflation is concerned, we run a survey annually and this year’s results versus last year’s results show a deterioration in the inflation outlook. More respondents expect inflation of 3 percent or more this year than was formerly the case and more firms report that they are planning to raise prices than was the case last year. Whether those pricing plans reflect wishful thinking or whether these firms will make their price increases stick, of course, remains to be seen. Finally--and this is the first time I’ve heard this comment--developers, especially residential real estate developers, are expressing

concerns about interest rate levels and are starting to believe that the higher rates will affect their business both this year and beyond.

At the national level, my views really haven't changed for quite some time. I think we are well positioned for further significant growth in the real economy. Whether it will turn out to be 3-1/2 percent or 4 percent or even more, I don't know. But growth in that range looks to me to be a pretty good bet. I'm much less confident about the outlook for inflation. We may see a meaningful acceleration of inflation but I have to say, as I've said before, that I'm not entirely persuaded that labor market indicators are good precursors of likely developments on the inflation scene. And, of course, one of the reasons for that, though not the only reason, is that we really can't say very much about the outlook for productivity.

CHAIRMAN GREENSPAN. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, the Second District's economy began the new year with strong upward momentum. Despite ongoing cost increases in housing and manufacturing, consumer price inflation has actually decelerated slightly. Unemployment rates in New Jersey, New York State, and New York City fell to 10-year lows at year-end, while private sector job growth accelerated to a 3.6 percent annual rate in December, up from 2.4 percent in the prior two months and 2 percent in the third quarter. Retailers indicate that sales in January were fairly strong, with minimal effects from either New York State's tax-free week or from the recent snowstorm.

The general view expressed by our contacts around the District and by business leaders who have a national and international reach is that certainly in the United States firms do not feel that they have pricing power. So, businesses big and small have to run themselves better

and take advantage of information technology to be able to preserve their profit margins without the benefit of price increases.

We had a particularly interesting meeting of our Small Business and Agricultural Advisory Committee last week. Manufacturers, in particular one who produces

and one who produces highly sophisticated

reported that they were being hurt on the cost side largely because of increased costs of health benefits. But they said that they simply had to use better information technology because they couldn't pass these additional costs along in their prices. In a business that is about as traditional as one can think of--dairy farming--the use of technology is astounding.

now has a piece of equipment on each of his 950+ cows that establishes how much the cow is walking, how much the cow is eating, and how much the cow is producing. It also gives 30 hours additional advance warning on whether the cow is developing a respiratory problem so that medication can be administered earlier and, therefore, there isn't a loss in milk production. The fellow who runs several has an information system that is so incredible that he actually knew when one of his restaurants was missing 20 orders of

. The next morning he confronted the restaurant manager to ask him why he wasn't doing a better job. These small anecdotes would lead one to believe that the upside potential on productivity gains may be real. Unfortunately, because it has both a supply and a demand side effect, it doesn't make our jobs any easier. What I view as a matter of great concern, as indicated in the remark I made before the coffee break, is that I think we face a very clear danger from the growing current account deficit as a percentage of GDP. If there is anything that tells us in the Committee that we have to carry out our responsibilities wisely, steadily, and well, it is that.

CHAIRMAN GREENSPAN. It strikes me that the cows need a privacy act!

[Laughter] Governor Ferguson.

MR. FERGUSON. It's hard to follow that, though I might say that as Administrative Governor I want to find out about these machines! [Laughter] The staff and I will discuss that later.

In a more serious vein, at the end of the last meeting we stated that we would review the incoming data very closely for signs of imbalances. The data we've received to date suggest that the economy is continuing to expand at a faster pace than its potential, even if that potential has gone up. Mike brought in the most recent data on automobile sales, which are strong. And the recent ECI data, even though the measurements are flawed as I understand it, suggest that vigilance is important. Similarly, the latest information regarding personal income and outlays suggests that consumers continue to be very willing to spend beyond their incomes, giving credibility to both the optimistic survey numbers and also to the worries that we have regarding some imbalances. With respect to the recent GDP numbers, I think I have been well educated by the staff and have done some independent analysis and have discovered that in fact we should be relatively agnostic about those numbers. But they are not the only ones that suggest some strengthening of the economy.

We had an earlier discussion regarding the forecast, and in that regard I'd just like to make two observations. One is that the staff does expect both a shortfall in earnings and a widening in the corporate financing gap, and implicitly some high volatility in equity markets, as well as noticeably higher interest rates. All that suggests to me that it is not inconceivable that expected returns on investment might weaken and, in conjunction with that, that the amount of

investment itself might weaken. That leads to one small internal inconsistency perhaps in the Greenbook, though I understand how they got out of it.

Similarly, the Greenbook suggested that there should be a significant increase in short-term interest rates. But it also suggested, in spite of that, that equity markets will tread water in the sense of ending the year pretty much at the same level as they started the year. I have a growing concern that a placid surface may disguise some underlying turmoil. I think the dispersion that we saw among various indices at the very beginning of the year may suggest that this market is subject to some volatility, including significant downside corrections.

All of these considerations are not meant in any way to counter the various recitations of strength in the economy that we have heard discussed today and will probably hear more of during the course of the day. I, along with others, certainly do think that the risks to good economic performance are primarily on the up side and that the equilibrium interest rates are probably higher than the current market rates. However, as a few others have suggested, I think we should be prepared to move policy incrementally and to use all of our tools carefully. To my mind, President Boehne put it correctly: Our goal here is to attempt to maintain maximum sustainable growth as well as to try to focus on price stability. I believe we are entering a particularly challenging year, with an economy that may prove to be “interesting” in the sense of the Chinese proverb. Thank you.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Thank you, Mr. Chairman. Our staff always serves us well and I believe they have done so particularly this time. I appreciate the inflation-targeting exercise done in the Bluebook, and I think there's a lot we can learn from it. As you all know, I have recently become interested in this approach to monetary policy as a possible means of dealing

with policy in an age of productivity shocks. I tried to put some of my thinking into words in a speech that I gave earlier this month. Reactions from around the building were interesting. Some like inflation targeting; some do not. Some say, what's the big deal, we already do it. Others say there is no way we can ever do it. I am fortified by this consensus, [Laughter] and unlike Al Broaddus, I cannot wait until tomorrow to talk about the Bluebook! [Laughter] I find it so exciting that I'm going to try to draw three lessons from that exercise.

The first lesson, I think, is a fairly obvious one. Since the unemployment rate is now well below the structural estimate of NAIRU, incipient inflationary pressures are out there, pressures that should be counteracted by a fairly sharp, early rise in the funds rate. This is something I think we've all more or less suspected for a while now, but the staff exercise is still valuable in showing just how high a funds rate is required to stabilize inflation--something like 7 percent. Of course, this assumes that the models are literally correct and we may not want to assume that. But I think we should take note of the general point.

The second lesson is that preemption is good. Again, we have all suspected that, but the staff exercise shows that the inflation-targeting funds rate has to rise another full percentage point or so if we wait to see actual acceleration, and hence get behind the curve. Waiting will lead to larger variations in the funds rate. An ounce of prevention is worth a pound of cure.

The third point is that in the present circumstances reversals seem to be, at least to me, relatively unlikely. The staff did an exercise assuming that NAIRU is 4 percent. None of the professional forecasters that Larry Meyer recently surveyed in a paper is prepared to go that low, though 4 percent is within the normal statistical distribution of these estimates and it is the estimate from the recent paper by Brainard and Parry. For the sake of argument, the staff assumes that 4 percent is the right number and then works back to the optimal monetary policy.

They still get a funds rate rising to 6 percent in the near future. Hence, even if we make some early tightening moves because we have an old-fashioned, out of date view of NAIRU, the probability seems to be relatively slight that we will have to eat crow and reverse those moves.

One could also do inflation targeting from what I'll call the pipeline method, looking for prices that lead final goods prices. The PPI is one such measure. It rose rapidly in the third quarter but has been pretty stable since then, and was actually decelerating in late 1999 if the impact of oil is removed. Much the same is true for import prices. We think they are bound to rise at some point, but at this time they seem to be relatively stable. Commodity prices have by now reversed their downward movements and are beginning to trend up even apart from oil, and commodity futures are up.

The Chairman has often told us that the single most important number to him is unit labor costs based on the combination of wage costs and productivity. Here the evidence is still very reassuring. The recent ECI number suggests that non-wage labor costs may be trending up but still less so than the increase in labor productivity. At this point unit labor costs are rising less rapidly than before and, in fact, they are nearly stable. Not only is this the Chairman's most important number, I think it's also the most reassuring number in all the pile of data that we have gotten in the intermeeting period. In an out-and-out inflationary spiral, the rabbit of wage increases beats the turtle of productivity increases every time, but so far the turtle is ahead.

Next, let's look at what other forecasters are saying. The Blue Chip forecasters are actually pretty mellow individuals. On average they are not predicting a rise in inflation either for final goods or for producer goods. They are predicting some increases in interest rates, so it seems that their inflation prediction is based on an assumed policy tightening. Presumably without the tightening they would be predicting some acceleration. In both the Michigan and the

Philadelphia Fed surveys forecasts for prices are also rising slightly. In this case it's impossible to tell what monetary policy their forecasts are based on and it's hard to read the evidence.

Then let's look at the bond markets. There the evidence could, I think, be worthy of attention. For example, the interest rates on 10-year bonds, nominal and real, recently have changed noticeably. Just about a year ago the TIP real yield was slightly below 4 percent and the nominal yield was about 4-1/2 percent. The noticeably skittish bond market was at that time building in very little inflation premium. Now the real yield has gone up to about 4.3 percent, and even with its latest drop, the nominal yield is all the way up to 6.6 percent on 10-year bonds. The bond market is now building in a pretty hefty inflation premium, presumably due to current inflation of 2.3 percent or so--a major change from last year. The potential undoing of the flight to quality around the turn of the year may partially complicate this analysis, as would the Treasury buyback program. But rising expectations of inflation must be a prominent factor. The obvious implication is that inflation may be returning as a key economic phenomenon motivating bond markets, something that I think none of us would like to have happen on our watch.

From an inflation-targeting perspective then, both the model and the bond market seem to me to be a vote for tightening. The other forecasters are hard to read and I think the pipeline method signals an abstention.

Finally, I would like to look at conditions from what I'll call an equilibrium perspective. In a stable growth economy with inflation rates settled in at the staff's target of about 2 percent, the term premium on bonds should be close to zero. The real rate on TIP bonds just alluded to above is about 4.3 percent. Most financial people think there is roughly a 40 basis point liquidity premium for TIP bonds, given their thin market as compared to comparable nominal bonds. Hence, the adjusted real interest rate might be 3.9 percent or so. Even with

stable expectations of 2 percent inflation--an inflation rate that we would be lucky to achieve according to the staff--the equilibrium level of nominal short-term rates should then be on the order of 5.9 percent for a stable growth/stable inflation economy. Present rates are a bit south of that and I think most of us, in view of our feeling about the balance of risks, would like that balance to be realigned. The key question I think, as Ed Boehne mentioned, is how quickly we realign and how gracefully we realign. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Mr. Chairman, I'll be very brief. I don't have anything to report in the St. Louis District that adds to what we already have heard around the table. My contacts at FedEx and UPS confirm very, very vigorous economies in Asia. Air cargo is at capacity coming from Asia to the United States and both FedEx and UPS are talking about adding more capacity. In the United States, both firms find that the fourth quarter was better than they anticipated. A survey of customers and potential new customers at FedEx indicates a more vigorous spring than had been anticipated a short time ago. So the outlook in the immediate future is very strong. Both also report, though, that the labor situation is well under control. They see no problems with either staffing or labor costs, no undue pressures there.

On the national picture, I would simply like to emphasize my sense that it's a lot easier to imagine that inflation will be a half point higher than the staff forecast than a half point lower.

CHAIRMAN GREENSPAN. Governor Meyer.

MR. MEYER. I want to share with you some observations about the outlook that shape my views about the appropriate policy action tomorrow and the strategy that could guide us going forward. Given the uncertainty that we face about trend growth, NAIRU, and inflation dynamics, we've had to balance the risk that we might fail to take full advantage of the higher

trend growth and the lower NAIRU against the risk of overheating, higher inflation, and increased economic instability. As we have probed the limits of the new possibilities, the risk of overheating has increased.

My first observation is that the risks have now become significantly tilted toward higher inflation. That judgment is based on the still more robust growth at the already very high labor utilization rate, by the dissipation or reversal of the favorable relative price shocks that have been restraining inflation, and by some signs of incipient pressure on nominal compensation and inflation. While there have been consistent upward revisions to trend growth and a growing appreciation of the importance of higher productivity growth in explaining recent macroeconomic experience, the key challenge for monetary policy today derives from the persistent imbalance between the growth in supply and demand. From the perspective of monetary policy, the absolute value of trend growth in GDP--whether it's now 3-1/2, or 3-3/4, or 4 percent, or whatever--is less important than the relative growth rates of demand and supply. The higher trend productivity growth appears to have had simultaneous effects on demand as well as supply via the investment boom to take advantage of profitable opportunities and via the consumption boom driven by the surge in equity values and perhaps expectations of higher permanent income. I want to read a sentence from the staff memo on the FRB/US model forecast prepared for this meeting because I think it is very telling: "With trend productivity growth assumed to be 3.0 percent rather than 2.8 percent, real GDP growth is boosted by nearly 0.5 percentage point in 2000 and by 0.4 percentage point in 2001, holding the nominal funds rate and the nominal exchange rate at their assumed values." So, 0.2 percent higher productivity growth results in 1/2 percentage point faster growth in basic demand. That's the problem I think we are facing.

My second observation is that we should focus more on relative growth rates than on absolute ones, notwithstanding uncertainties in the comparison. This points to the need to tighten despite optimism about trend productivity growth. Inflation prospects ultimately relate to the balance between the levels of actual output and potential output, not to their relative growth rates. I continue to believe that output has moved beyond potential and that the inflationary consequences of this imbalance have been restrained by temporary effects associated with supply developments, including earlier relative price shocks and, more importantly, the higher productivity growth itself. This has allowed the economy to enjoy faster growth and a higher level of output than is sustainable in the longer term. The policy implication is that we have to recognize the serious possibility--in my view the likelihood--that we will need to encourage a transition back to more sustainable macro conditions, not only in terms of relative growth rates but ultimately in terms of relative levels.

My next observation is that the rise in interest rates necessary to balance supply and demand and contain inflation risks may initially be smaller than usual but ultimately may be larger in a boom featuring an increase in trend productivity growth. The temporary disinflationary effect of the supply shock may at first limit the increase in interest rates, but given that the productivity upturn carries with it an increase in the equilibrium real rate, the cyclical rise in rates required to contain inflation may ultimately be larger than otherwise. Wicksell's framework of natural versus market rates provides a useful perspective on this development. The recent productivity upturn implies an increase in the economy's natural rate. At unchanged market rates the gap between natural and market rates has widened, and monetary policy has in effect become more stimulative. Only when monetary policy moves market rates enough to close this gap will the expansion begin to slow.

My final observation is that I believe we still have an opportunity for a relatively benign transition to a soft landing--if we begin the journey immediately, are prepared to implement a series of tightening moves and, most importantly, are willing to tolerate a period of inflation above our preferred rate.

If we are already operating beyond potential and with growth above trend, some rise in inflation is probably inevitable as the economy makes a transition to a more sustainable set of macro conditions. What is called for is a policy path that endeavors to achieve what I have called a "reverse soft landing," a transition to potential from growth above potential achieved by a period of below-trend growth. This feat, I am compelled to admit, has never before been successfully accomplished. It is, nevertheless, achieved with precision in the Bluebook!

[Laughter] While there are some limited signs that inflationary pressures may be building, the inflation process still has a lot of inertia, and we may get some help from a decline in energy prices over the next couple of years. In addition, a reverse soft landing, requiring as it does a slowdown to below-trend growth for an extended period, is easier to achieve without recession in a fast growth economy like today's than in the slower growth economy of the 1970s and 1980s.

CHAIRMAN GREENSPAN. Governor Kelley.

MR. KELLEY. Thank you, Mr. Chairman. The afternoon is getting on and by my tally I am the final speaker. But let me say a few brief words, if I may, about momentum in the economy and productivity, where the trends that have been in place for some time seem to be continuing, and about inflation, where it seems to me a change is now potentially close at hand. Momentum in the economy clearly remains strong. The record highs of the stock market and consumer confidence are resulting in continuing strong consumption. Investment spending remains high, manifested by rising durable goods orders and backlogs of unshipped goods. So

far, housing has not collapsed--perhaps being supported by a shift to adjustable rate financing as mortgage rates rise--and export demand is rising. If sustainable, it's a bright outlook.

Productivity gains continue to be very strong and I believe may be enhanced further in the upcoming period as a fallout from the Y2K episode: Millions of managers and proprietors of economic units--large and small, profit and nonprofit--have attained a new level of awareness and know-how in the high-tech arena. That's truly a wonderful prospect.

But I am concerned that the price level picture may now be changing in an unfavorable direction. As we know very well, we've enjoyed a superb mix of rising activity and declining inflation. This has been made possible mainly by the surge in productivity, but productivity gains have not done it all. There has been significant help, and many of those helpful factors are going away. As we expanded, much of the world was in a slump until recently. Consequently, we have seen the dollar rise, helping to hold down import prices even as we went on a buying spree that ballooned the trade deficit but absorbed considerable excess demand. Weak export demand also has freed domestic capacity to fill domestic demand. We've enjoyed weak commodity prices and for a time collapsed energy prices. All of that has either ceased to help us or actually turned negative, with the tenuous exception of the notoriously capricious energy prices, which may fall again.

Domestically, as new jobs continue to be created--to our society's great benefit--our remaining available labor pool gets thinner, less skilled, and less motivated. As demand continues strong, the effects of that development have to show up in costs at some point and may be doing so now. It may be too much to expect any likely level of productivity gains to carry almost alone the burden of maintaining price level stability in the near-term environment. A number of price series are beginning to move. Industrial commodities, the ECI, core

PCE, the CPI, the GDP deflator, and other measures had been stable at low levels but recently have been showing at least tentative signs of moving upward. It is too soon to declare this a trend, but I suspect a trend may become increasingly apparent. It is still only a trickle and far from a flood, but I believe it is now our job to insure that it is not allowed to become a flood. I look forward to discussing how that can best be done while maintaining a healthy rate of economic growth. Thank you.

CHAIRMAN GREENSPAN. Thank you. Let's adjourn until 9:00 tomorrow morning.

[Meeting recessed]

February 2, 2000--Morning Session

CHAIRMAN GREENSPAN. Good morning, everyone. Before we turn to Bill Whitesell, let me remind you that Mike Prell would appreciate receiving any changes you might have in your individual forecasts by close of business Monday, February 7. Mr. Whitesell.

MR. WHITESELL. Thank you, Mr. Chairman. This briefing provides background for the Committee's decision regarding the ranges for money and debt in 2000. I'll be referring to charts and tables in the Bluebook that have been distributed separately to you this morning.³

The Humphrey-Hawkins report of last July noted that the growth rates of the monetary aggregates were likely to be at or above their longer-term price stability ranges in 1999 and 2000, given Committee members' projections for nominal GDP growth. In fact, nominal GDP expanded faster than the range of projections of Committee members last July, and the monetary aggregates grew noticeably above their ranges. M2 expanded 6-1/4 percent last year and its velocity declined slightly on balance. Although M2 velocity tracked the rise in its opportunity cost rather well over the second half of the year, as shown in chart 1, that conformance with historical relationships followed a period when movements in velocity were not so readily explained. From the end of 1995 through mid-1999, velocity rose and then declined, despite rather stable opportunity costs, as conventionally measured. The demand for M2 assets over that period is not fully understood, but we believe that it was importantly affected by interactions with household stock market investments. Increases in velocity up to mid-1997 were associated with strong flows into stock mutual funds, excluding retirement accounts, suggesting substitution of equity investments for M2 assets. As capital gains boosted stock market wealth over the next two years, however, non-retirement flows into equity mutual funds slowed noticeably, and M2 strengthened relative to income, perhaps reflecting some portfolio rebalancing by households. On balance, M2 demand, while more predictable than in the early 1990s, remains very uncertain. As regards M3, growth for the year came to 7-1/2 percent, boosted to some extent by a Y2K-related surge in institutional money funds and large time deposits.

Turning back to table 1, M2 growth is expected to moderate substantially to 4-3/4 percent in 2000, despite projected growth of nominal GDP at about 6 percent--the same as in 1999. The slowing in M2 growth

³ A copy of the charts used by Mr. Whitesell is appended to this transcript. (Appendix 3)

owes importantly to the staff's assumption of an increase in the federal funds rate of 1-1/4 percentage points over this year, which should help to induce a substantial rise in M2 velocity. The staff anticipates that the demand for retail money funds and M2 deposits will be buoyed a little over the year owing to disappointing returns for stock market investors.

M3 is also projected to grow substantially slower--6-1/4 percent--this year. Expansion of institutional money funds should weaken appreciably as the buildup of corporate liquidity in late 1999 dissipates and as investors find yields on market instruments more attractive than the lagging returns on money funds. The managed liabilities of banks in M3 should also increase more slowly this year, as banks pare back their extraordinary Y2K-related pace of issuance of the fourth quarter. But with loan demand expected to remain strong over the year, M3 should continue to grow faster than nominal GDP.

The runoff of federal debt is projected to accelerate this year, helping to slow growth of the debt of domestic nonfinancial sectors from 6-1/2 percent in 1999 to 5-1/4 percent this year. The advance in nonfederal debt is also expected to edge down, though to a still rapid 8-1/4 percent. Although the gap between business capital spending and the generation of new internal funds should widen noticeably this year, the external financing needs of businesses will be restrained by the substantial volume of liquid assets they accumulated in late 1999 and by a projected slower pace of equity retirements. Household debt growth is also expected to ease somewhat, along with home purchases and spending on durables, owing to higher interest rates and a sluggish stock market.

Table 2 in the lower panel shows the provisional ranges for money and debt in 2000 that you selected last July, along with an alternative that adjusts the money ranges for faster growth of potential GDP. Since the mid-1990s the Committee has chosen ranges for the monetary aggregates that are benchmarks for money growth under conditions of long-term price stability and historically typical velocity trends, while the range for domestic nonfinancial debt has been aligned with the projected growth of that aggregate. The provisional range for debt, at 3 to 7 percent, is centered not far from the staff's projection for debt growth in 2000 and, therefore, no alternative setting for that range is offered for consideration.

You may wish once again to retain the provisional ranges, perhaps as an implicit indication to the public of the low weight placed on the monetary aggregates in formulating monetary policy. The existing ranges might also be selected if the increases in productivity growth observed in recent years were seen as likely to be transitory.

On the other hand, the Humphrey-Hawkins report of last July noted that an adjustment to the monetary ranges might be needed if the more rapid recent pace of productivity growth persisted. In fact, with exceptional strength in the second half of 1999, nonfarm business productivity grew an estimated 3-1/4 percent over the last four quarters. In light of our analysis of productivity behavior in recent years, the staff has revised upward its estimates of the expansion of potential output. When the Committee shifted to using price stability ranges in the mid-1990s, potential output growth was thought to be only around 2-1/4 percent. However, the staff estimates that potential GDP growth has averaged 3-1/2 percent over the last four years. Adding perhaps about 1/2 percentage point of upward bias in the implicit deflator, that would imply nominal GDP growth at a 4 percent rate under conditions of price stability. The ranges in alternative II are adjusted upward to be better aligned with this faster steady-state growth of nominal GDP, assuming historically typical velocity behavior. As shown in chart 2, M2 velocity has been stable over most of its history, while M3 velocity has generally trended down.

The central tendency of potential output growth implied by your forecasts for this year appears to be at about the 3-1/2 to 3-3/4 percent expansion of real GDP you have, given the roughly unchanged unemployment rate. This growth rate for potential, plus the estimated inflation measurement bias, would be very close to the midpoint of the ranges shown in alternative II. As you know, the staff has revised up its projection for potential output growth to about 4 percent over this year and next. Though higher than your implied potential growth estimates and those of outside forecasters, productivity surprises have generally been to the up side of late. These and other uncertainties are reflected in the idea of price stability ranges rather than point estimates. Nevertheless, if you select the adjusted ranges given in alternative II, the Humphrey-Hawkins report and testimony could clarify that the revision reflects the faster expansion of potential GDP observed in recent years rather than a projection of potential growth going forward. It could also be stated that if additional information suggests a different pace for potential GDP, the Committee could alter its benchmark ranges again. In addition, the report could affirm that the adjustment to the ranges does not reflect any change in your long-run goal of stable prices and does not signify that any greater weight would be placed on the monetary aggregates in the formulation of policy.

CHAIRMAN GREENSPAN. Questions for Bill?

MR. JORDAN. I am troubled by the idea--I know it was said last year and repeated again here--that faster productivity growth means we should raise the money growth ranges. I

suppose in the 19th century if we had discovered we had faster productivity growth, we would have said we have to go out and dig gold at a faster rate. There is nothing inherent in our objective for price stability and what we are trying to do about the purchasing power of money that says that when we have a favorable supply shock we should raise our money growth objectives. There's no more reason to do that than to cut the money growth targets if we had an adverse supply shock. We wouldn't do that. I'm sure that back in the 1970s or the 1980s we didn't argue for lowering our targets. What we want to do is to view the transitory effects of the acceleration in productivity growth in a lower reported rate of inflation or transitory decline in the price level as an increase in the purchasing power of money. It would be a one-time decline in the price level--I don't want to use that "D" word. And then when the supply shock goes away, we would return toward the sort of balanced equilibrium that we would have been in. Also, I don't see why it follows that leaving the money growth ranges alone communicates that they are not important and that we have reduced the weight we give them. Why do we need to change them to say that we are paying attention to them? And why does not changing them mean we don't pay attention to them?

MR. WHITESELL. Perhaps I can respond to that. I think you are absolutely right in the case of a temporary supply shock. We would not expect the concept of some long-run steady state condition to be altered if there were a transitory supply shock or temporary increases in productivity. If, in fact, you believe that the productivity growth surge we have experienced over the last four years or so is transitory and is going to go away soon, that would not be a reason to alter long-run price stability. However, if you believe that there is a permanent component to those increases in productivity, which I think most people do, then presumably you would be altering your expected steady state of growth of nominal GDP. And if you believe that you need

to have comparable growth rates of, say, M2 to your expected steady state growth of nominal GDP to accommodate that kind of steady state expansion, then presumably you would want to be adjusting up the long-run range for that aggregate.

MR. JORDAN. The part I am questioning is the linkage of saying we should adjust up the nominal growth of GDP; it's a sort of nominal spending effect. That was the point I was getting at yesterday with regard to Dave Stockton's simulation. To be clear about it we ought to be explicit rather than implicitly saying that we want a monetary policy that is going to be "accommodative" to nominal demand increases because we have a real supply-side favorable development. If we are going to do that, then let's also think about the implications of being symmetric about the matter. If we were to have a surprising adverse supply shock, what would we be doing then? Would we say "Let's cut our money growth targets"? Probably not.

MR. KOHN. Of a permanent nature, certainly. If productivity growth shifted down, as in 1973, in order to achieve the Federal Reserve's goals of stable prices and maximum employment, the FOMC at that time--though those were not the goals set forth in the Federal Reserve Act at the time--should have shifted its targeted M2 growth rates down. The question is what is a steady state nominal GDP growth? And when you have a steady change in the rate of growth of productivity that is expected to persist for a while rather than be a one-time change, consistent with what Bill said--

MR. PRELL. In a sense the logic that is being applied here is the very logic that got you to the current targets. It's just recalibrating the targets to a new, longer-term trend.

MR. JORDAN. I would agree with what Don said if it were the case that we had the ability to distinguish between an adverse oil shock in 1973-1974 and something that much later on the profession came to view as a secular trend in what we call productivity. I don't know that

our ability to know what we are experiencing at any given time allows us to make that judgment. The Committee certainly did not do it in the 1970s.

MR. KOHN. Not until very late, right. I think to a certain extent you can observe what is going on. You can see things like oil shocks, dollar appreciation or depreciation, excise taxes, or whatever that might change a price level more than you can see an ongoing change in productivity, which I agree takes some time to recognize. This Committee has been struggling with that for the last several years. But it has been four years since it appears in retrospect that productivity growth changed. And I think it is true that by changing these ranges you would be saying that your best guess is, as Bill said, that there is a permanent component to this change in productivity and that you will have to reevaluate that on an annual basis.

CHAIRMAN GREENSPAN. Isn't the issue here a little more limited? We are in effect, as best I can judge, assuming that long-term M2 velocity is flat. In doing that we are effectively engaged in estimating long-term nominal GDP. And the issue here is that if--and I underline the word "if"--price stability is the goal defined, then what falls out is a specific range of central tendency for M2. It strikes me that the other question is whether it is bad if prices are declining. In other words, if we hold to where we are now in the context of rising productivity and rising real growth--that is, keep nominal the same--we will then get declining long-term prices. That is a different issue. And I think that's a very legitimate question to be asking. It comes down strictly to the question of what our goal is over the long run. And having stipulated that, if we assume stable velocity, then the issue is what is the implicit M2 projection. I don't think it is any more complex than that. I don't disagree with a word that you said, but I don't disagree with a word that your opponents said in this debate either. So I raise the question: Do we really have a problem here?

MR. MEYER. I think the issue is this: Is our goal stable money growth or stable inflation? If your goal is stable money growth, you'll take whatever inflation comes out of it depending upon the productivity shocks.

CHAIRMAN GREENSPAN. That may be okay.

MR. MEYER. That may be okay. But that is not the goal, as I understand it. We operate under a mandate of achieving price stability, which I think indicates not necessarily zero inflation but at least a stable inflation rate. So we have to make a choice.

MR. WHITESELL. As the Chairman mentioned, given the midpoint of the existing range of 3 percent, if we take your estimate of potential output plus a measurement bias-- implying nominal GDP of 4 percent as consistent with price stability--that means you are aiming for deflation of 1 percent per year.

MR. JORDAN. I agree that that's an arithmetic implication. We did not start this period with price stability. Had we started with price stability and then later found out that we had an acceleration of productivity growth, that would have been one thing. We did not do that. So to me an acceleration of productivity growth when we've started with a positive rate of inflation, somehow measured, means we have a deceleration from that inherited rate to something moving toward price stability. At the juncture where we are today and with concerns like those being registered yesterday by the staff and others, I would be afraid of what the message that we are changing the ranges would convey. Rather than communicating that we are going to put more emphasis on achieving a higher rate of growth, it would seem to say that we are more willing to be accommodative of an acceleration of inflation. We could all say to ourselves that we are accommodating faster productivity growth. I might even be persuaded that

that is the right thing to do. I think the message that would be heard is that we are accommodating faster inflation.

CHAIRMAN GREENSPAN. Suppose we say explicitly that that is not the issue? We can say that we are trying to find the range for price stability and that we envisage that potential growth has risen. And, therefore, other things equal, the ranges should go up if our objective remains where it was several years ago.

MR. JORDAN. I am sure you have the credibility to say that and be believed; I do not. I know that people wouldn't believe me if I said that.

CHAIRMAN GREENSPAN. I don't believe that! In all seriousness, I do think--and I may be wrong in this--that to the extent we raise this question, we have the capacity in the minutes and the Humphrey-Hawkins report and in speeches we make to say that essentially nothing has changed--that fundamentally our goal is price stability. But if potential has risen, of necessity, unless there is a change in income velocity, our money supply goals should be different. As you said, it's an arithmetical truism.

MR. MEYER. I think it is easy to attribute an adjustment in the range to productivity because nobody actually believes that our goal in setting the range is pure price stability. Nobody believes that our goal is just price stability. So, in my view, people will not think that we are accommodating higher inflation if we raise the range.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. My question is related to much of the discussion that has been going on. For alternative II, I think you said that the midpoint of 4 percent on M2 is consistent with a shift in productivity and also our goal of price stability. So, potential output growth would be in that 4 percent area and price stability would be defined as zero inflation. I guess what is

troubling to me is that if nominal GDP is 4 percent, that means the goal is zero on the GDP deflator. If we went around the table, nobody would give that number.

MR. WHITESELL. I'm not sure if this answers your question, but what we are suggesting is that the 3-1/2 percent potential growth that has been observed--

MR. PARRY. Oh, I see.

MR. WHITESELL. --that plus a 1/2 percent measurement bias. In other words, the measured GDP deflator would be 1/2 percent, but the true inflation would be zero.

MR. PARRY. Well, if that is what the group is happy with, I'm really happy.

MR. KOHN. That's the way the ranges have been constructed for the last five years-- that is, with the same reasoning and arithmetic in mind. The Committee might want to think about whether it wants to change that. But we were just being consistent with what the Committee has been doing.

MR. PARRY. Okay.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. I think being very explicit about the numbers involved would be a good thing for us to do. Suppose we were to say that our long-term goal is 1 percent on the deflator and that we now estimate 4 percent on real growth as potential, which adds up to 5 percent. That would be all right with me. What I fear, however, is that without being explicit about the inflation goal, people will read that 5 percent--given that prices have been creeping up a bit and most of the pressures are on the up side--as indicating that we are going to accommodate somewhat higher inflation. That is the message that we would be giving. That would be my fear if we are not explicit.

CHAIRMAN GREENSPAN. That is clearly the down side. There is no question that if people were to read that as accommodating more inflation, then the argument for moving up, I think, is unambiguous. But the point is that may not be the case, and that is the problem.

MR. POOLE. Well, as I said, if we are willing to be very explicit about what our long-run inflation target is and what our estimate of potential growth is, then I think we can make the argument. And I believe we should. I've said before that I think we should be much more explicit about our inflation target. In my view, that would be constructive.

CHAIRMAN GREENSPAN. We are essentially saying that price stability is our goal. You want a numerical judgment of price stability. Is that the issue?

MR. POOLE. Yes, because given what I'll call our "revealed preference" in the way we actually have been behaving, I think the market believes that we are perfectly satisfied with an inflation rate somewhere in the neighborhood of where it is right now. And that's a little above what I would regard as zero inflation, properly measured, taking account of the biases in the indices. My best guess is that something like 1-1/2 percent on the CPI and 1 percent on the deflator, taking account of measurement biases, is a pretty good estimate of what zero inflation really is. We are somewhat above that right now and I think the market believes that we are quite happy to be somewhat above, as evidenced by our own revealed preference in terms of the decisions we have made.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. I have not bought into changing the ranges and I have some reluctance to do that, given the discussion we are having. But suppose we do. If we raise the ranges for M2 and M3 by a point, tell me again what we would say about debt. Would the reason for not changing the debt range be the reduced federal debt or what?

MR. WHITESELL. We have never interpreted the debt range as being a long-run price stability range. We could move to that interpretation on debt as well, if you thought that was desirable, and make the interpretation for all three of the ranges consistent and make all of them long-run price stability ranges. If you wanted to do that, you could have the debt range match that of M2, because for long periods of time debt has grown at rates comparable to nominal GDP growth. Or if you take the decline in debt velocity of the 1980s very seriously and think that experience could be repeated in the future, you might leave the debt range right where it is at 3 to 7 percent and interpret it as a price stability range. But that is not how we have spoken of it in Humphrey-Hawkins reports in the past.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. I think you said it well, Mr. Chairman. One can make a pretty solid argument for making a change, so I don't feel that strongly about not doing so. But if we do, I believe there is going to be a significant communications issue, as Bill Poole and Jerry Jordan and others have pointed out. To me, this whole discussion is a good argument for a numerical inflation target. We have to have a clear, nominal anchor in the long run. I think that is the key thing. So it is against that background that I would prefer to stay where we are. The other thing that bothers me a little is that while I certainly have the sense that there has been an increase in trend productivity growth, I am uncertain how transitory it is and exactly what its magnitude is. So, I don't think the argument is absolutely ironclad. And if we go that route and try to explain it that way, that is going to involve our taking positions on things that I am not quite ready to take a position on yet. I don't see any particular reason to do that now.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. I would like to join Bill Poole and Al Broaddus on the comments that you just heard. I, too, see considerable merit in moving in the direction of a more explicit inflation target. I don't know whether we are going to talk about that some more this morning or not. But particularly in the absence of such a target, I believe it is much smarter to leave the ranges alone for the moment. I think it could be distracting. We have some much more important policy work to do and I don't think we ought to confuse the message that we are sending to the public at the moment.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Mr. Chairman, changing these ranges is always a dicey issue these days because no matter what we say or what we do, there are more interpretations than there is reality. At the same time, I could be talked into it because I think there is a building consensus that the rising trend in productivity improvements is real. And if, in fact, we are willing to accept that--and there may be some who are not--then moving the targets does make some sense in terms of their consistency with price stability. And I do agree with what Jerry Jordan was saying about how we might have reacted to productivity shocks in earlier periods, but I think things are a little different now. On balance, I could come down in favor of raising the ranges.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Thank you, Mr. Chairman. I just want to go back to the question portion of this discussion. On page 20 in the Bluebook, Don, you talk about a 2-1/4 percent trend productivity growth as opposed to something in the high--

MR. KOHN. That was trend potential output growth when the Committee first set these targets.

MS. MINEHAN. Oh, yes, excuse me. Is 2-1/2 percent your trend productivity growth?

MR. WHITESELL. Currently it's 3 percent.

MS. MINEHAN. How much of that upward revision is the result of the change in the NIPA numbers?

MR. WHITESELL. Not very much actually, in part because the staff's current estimate of potential output growth in the mid-1990s--through the second quarter of 1995--is still 2-1/4 percent. The current estimate for the last four years, by contrast, is 3-1/2 percent; and then we have 4 percent going forward. There has been a ratcheting up of potential output growth estimates with structural productivity, so that after the second quarter of 1995 we moved from 2-1/4 to about 3-1/4 percent. At the beginning of 1998 we have potential output at 3-3/4 percent and then beginning this year we've predicted that it is 4 percent.

MS. MINEHAN. So in the mid-1990s you had a potential output growth of somewhere around 2-1/4 to 2-1/2 percent and now it is a full percentage point higher than that?

MR. WHITESELL. Our estimate is still that up to the second quarter of 1995 potential output growth was 2-1/4 percent. Starting this year we have it up 1-3/4 percentage points higher to 4 percent.

MS. MINEHAN. Yes.

MR. PRELL. In each case, we've done little more than extrapolate the recent experience for a near-term period. In thinking about what you might want to do if you adjusted the ranges, one question would be your assumption about potential GDP growth. Would you want to rest your assumption on the experience of the past few years--where the behavior of the unemployment rate relative to GDP, for example, would seem consistent with potential output

growth somewhere in the 3-1/2 percent range or a little higher? Or would you want to look forward in the optimistic way that we have with an assumption of about 4 percent?

MS. MINEHAN. I understand exactly what you want to do. I was just trying to get a handle on the effect of the NIPA revisions. I knew there was some effect--a few tenths of a percentage point--from the NIPA revisions all by themselves.

MR. PRELL. A few tenths came from the change.

MS. MINEHAN. I'm just thinking about this communications issue.

MR. PRELL. Sure.

MS. MINEHAN. If any portion of this productivity change was really the fallout of revising numbers in a better way, presumably as a result of the NIPA changes, that is something that would help in communicating the reasons for a change.

MR. POOLE. Cathy, if I could just comment very quickly on that: It doesn't change nominal. What the NIPA revisions have done is to change the split between real output and prices. So in that respect those revisions do not really bear on this issue.

MS. MINEHAN. But they did change productivity.

MR. POOLE. That's right, but there was an offsetting change in the inflation number. Essentially it changed the split of the nominal.

MS. MINEHAN. I realize that. That isn't the point.

MR. PRELL. But forward-looking, relevant to thinking about the bias adjustment in the price measure, if that were all that was going on, switching from one component to the other in nominal GDP, then there would be a wash.

MR. WHITESELL. Back in the mid-1990s we think that perhaps the bias was closer to a percentage point, whereas now it's only about 1/2 percentage point.

MS. MINEHAN. Now it's about ½ percentage point, and I was thinking in terms of looking forward, which is what these ranges are supposed to be doing. If we have a different productivity number, in part because we think it was different in the past--because of the change in the break between the price bias and underlying real growth--then that gives us a non-policy oriented reason for making a change in our thinking about the growth rate in money.

That said, I think the people who have commented on the communications difficulty have a point, particularly in an environment in which we do not think the outlook for inflation is at all biased on the down side. It is not evenly biased; there is upward bias. Whatever we want to say about risks, everyone around this table yesterday talked about the underlying pressures on the economy. So I don't think anybody is satisfied with the existing state. The inflation number looks okay, but the direction in which it is likely to be moving is not. The difficulty in communicating our reasoning, if we change the ranges, is that it does tend to say something about our willingness to accommodate the conditions that exist right now--unless, as other people have said, we want to get a lot more precise.

MR. WHITESELL. In terms of the communications issue, President Minehan, we did inform the public last July that a change in the ranges might be coming up because of adjustments in our assessment of productivity.

MS. MINEHAN. I know you did.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. I walked in here being really quite agnostic on this issue. I know it is a matter on which some people feel strongly, but I was interested in hearing both sides. I have come to the conclusion that perhaps the better course is just to leave well enough alone--not to make a change at this stage--for a variety of reasons. Jack

Guynn raised one reason that to me is most important. During the course of this year, I suspect we will be under a fair amount of scrutiny about core policy matters, and I would prefer not to have to go into that period having to explain monetary aggregate issues, which frankly are not terribly important to us right now.

Secondly, there is the whole issue, which also has come up, about numerical inflation targeting. I happen to be one of those who think that the qualitative inflation target that we have now has served us well. And I see no reason to open that debate, which I think we would have to do in the course of reaching a decision to change the ranges.

The third thing that worries me, as I listen to this conversation, is that it will also force us in some sense to be more explicit as a Committee about our views on productivity and the productivity trend. And I'm not sure that I am hearing consistency among the Committee members on those issues.

Finally, I believe there is a lesson to be learned from some of our central bank colleagues around the world who are in a position of having to talk about and defend their actions vis-à-vis what is happening to growth in the monetary aggregates. In particular, the ECB, which has put more weight on money growth than perhaps it should have, is being lambasted week by week in the newspapers for why it is allowing M3 growth to be above its target. I think we are in a much better position in that we have clearly said we are not putting much weight on these aggregates, and so M3 growth may or may not be above our targets. I frankly prefer to be quite clear in our communications. We have enough other issues about which we need to be clear. If we just leave this one alone for the course of this year, I think we will be in much better shape, given the other things we are likely to be doing.

CHAIRMAN GREENSPAN. Vice Chair.

VICE CHAIRMAN MCDONOUGH. I associate myself with Governor Ferguson's very wise remarks.

CHAIRMAN GREENSPAN. Governor Meyer.

MR. MEYER. Well, now for a different perspective, I suppose. I must say that this has been a very interesting discussion so far and I think we have identified two issues relevant to the target ranges. The first is whether to revise them to reflect the faster rate of growth of trend GDP. The second is what implicit inflation target we should use to set the midpoint of the revised range.

Alternative II deals with the first issue and I believe perpetuates the possible misunderstanding that our inflation target is pure price stability, adjusted only for an estimate of inflation bias. Now, I say a possible misunderstanding because the Committee has not fully discussed its preferred inflation rate and certainly hasn't worked to achieve a consensus on that point. As for the strict price stability target that is implicit in the target range today, we might ask this question: Does that really make us look like the central bank most focused on price stability around the world or like the central bank least transparent about its inflation objective? I think it is the latter.

I will offer an alternative III set of ranges that incorporates my view that the implicit inflation target, set as the midpoint of the M2 growth rate, should reflect what I've called price stability plus a cushion. Although there remains a lot of uncertainty about the precise value of trend GDP growth and how it might evolve over the next several years, I think the current monetary growth ranges are outdated and badly in need of revision. Now, I am comfortable with the judgment reflected in alternative II that the ranges should be updated to reflect an assumption that trend GDP growth is currently 3-1/2 percent. The Humphrey-Hawkins report and testimony

should emphasize that the FOMC will reconsider the setting for the monetary aggregate ranges as incoming information leads us to revise our estimate of trend real GDP growth. That is, instead of thinking of the monetary growth ranges as being carved in stone, we should use them as digital--subject to costless adjustments in response to the flow of new information.

Let me turn to the second issue, which is undoubtedly the more controversial one. I think we are sending an implicit message about how we define price stability when we set the ranges. We can try to escape from this reality, but I doubt we will be successful. Any change in the ranges, as many people have already indicated, may result in a probing for our implicit inflation target. Clearly, we go through this exercise very explicitly when we set the ranges. The question is how we present it to the public: Should we blur this logic, ignore the issue entirely, or be more transparent about it? I think the main--and maybe the only--purpose of the monetary aggregate ranges today is as a means to offer an implicit inflation target. So perhaps we should view today's discussion of the ranges as an opportunity for an internal discussion about how we should set an inflation target that is consistent with our interpretation of price stability. And we might also look at our discussion and decision today as an opportunity for another step in the direction of transparency.

I want to point out that, in my view, there is a subtle but very real difference between an "explicit inflation target" and "inflation targeting." I do not understand how a central bank can conduct monetary policy to achieve price stability without establishing an inflation target consistent with our interpretation of price stability. Given that we want markets to help us achieve this target, there is also a value in being explicit about it. And I believe I can accept an explicit inflation target without having to sign on to a specific strategy for achieving that, which is what I interpret "inflation targeting" to be.

Other countries that have price stability mandates and explicit numerical targets have uniformly set ranges centered on what I've referred to as price stability plus a cushion. This, in my view, is an appropriate option, in light of concern about a deterioration in cyclical performance near zero inflation with a zero nominal interest rate valve. Therefore, I offer as alternative III a range centered on my preferred midpoint of 5 percent. That reflects the sum of a 3-1/2 percent rate of trend growth in GDP, a 1/2 percentage point estimate of bias in the chain measure of the price index for GDP, and a 1 percentage point cushion. And this suggests a 3 percent to 7 percent range. This would be a small step to take toward an explicit inflation target and enhanced transparency, but it would be a big step for this Committee to take.

I will give you an alternative strategy here, which would be to set a central range rather than a point, with the bottom point being consistent with pure price stability and the upper point consistent with price stability plus a cushion. In this case, the central tendency might be 4 to 5 percent. Attaching a symmetric range about the central tendency would yield a range of 2 to 7 percent for M2. This is analogous to the Australian approach of setting a "thick" point target of 2 to 3 percent. It has its own problems, particularly the indecision once M2 growth is inside the central range. But it would allow us to defer a more precise setting of the midpoint until a consensus could be reached in the Committee and perhaps until there was consultation with Congress.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. This is an interesting discussion, but from a practical standpoint I come back to exactly the same place I have been the last 11 times I have been here when we have discussed this. And that is that we should not make any change in the ranges. I think it would be misleading to the public for us to make a change unless there is a

huge education program up front. As others have said, a change would give the impression that we are placing a lot of weight on these ranges in the formulation of monetary policy and we aren't. I think the communications challenges are significant--not insurmountable, but very significant--because a lot of people don't accept the premise that the economy's potential growth rate is as high as many people around this table think it is these days. So we'd have to explain that as well; otherwise people are going to think that moving these ranges up indicates that we are going to be conducting monetary policy in a way that they would view as inflationary.

Finally, on the inflation target issue, the question is really whether we should have a quantitative inflation target. That is a very important issue and I think it is one that should be discussed, but in my view it should be discussed separately and not in the context of these monetary policy ranges. It is something on which reasonable people obviously disagree. We have disagreement around this table. I believe it is important to discuss it, but I really think it calls for a separate discussion entirely.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you, Mr. Chairman. Well, I don't have a lot to add. As many people have already observed, we have discussed all of this before. In my own case, unlike in previous discussions, I do think that today both arithmetically and substantively the case for raising the ranges is pretty strong. But I don't feel very strongly about it because I think there is a communications challenge. Having said that, my guess is that the communications challenge can be dealt with. I think market participants would get the message pretty directly if we used the vehicles available to us. But that is just a guess or a judgment. I could be wrong about that, so I don't feel all that strongly about raising the ranges.

CHAIRMAN GREENSPAN. President Boehne.

MR. BOEHNE. Governor Ferguson captured my views nearly completely and I would like to associate myself with his comments.

CHAIRMAN GREENSPAN. Governor Kelley.

MR. KELLEY. Thank you, Mr. Chairman. After listening to this discussion, I have to say that I have reversed the position that I came in here with this morning. The question for me is: How permanent is this higher rate of growth that we now perceive? If it is permanent, then I think we ought to move to alternative II. But I note that the concept of what sustainable growth is has shifted meaningfully in the past several years. And it seems to me that it could very well shift again, possibly in either direction. I note that, for very good reason, we are able to recognize and, if you will, formally accept these shifts of what is sustainable only with a considerable lag. So, if the dynamic here involves what is sustainable growth and it moves around and we are able to perceive it with confidence only with a lag, then I think we run a considerable risk of being out of sync a lot of the time. If we go chasing this explicitly by moving these ranges around, I think it will be very hard to explain and very easily misunderstood or misinterpreted by the public. And I see no compelling reason to do it.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Thank you, Mr. Chairman. This comment is going to sound a bit tired and I apologize for that. I think transparency is good. And as I've said a number of times, I think we would be well advised to move in the general direction of inflation targeting. At some point we might even try to agree on explicit targets. But I think right now we have bigger fights to fight and I'd just as soon pass on this particular one and not talk about explicit targets in connection with these monetary ranges. So I would prefer no change, alternative I.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you. In the earlier comment period, I was in the questioning mode, so I'll state a view on this now. We are talking about two different things back and forth at times here--about a belief in a sustained growth in productivity and potential output and what would be an appropriate stance of monetary policy, especially as implied by monetary growth, versus acceleration in productivity. Those can, at least, be separated analytically in the way we think of them. If it was a matter of a consensus that we are going to have real growth on the order of 4 percent--through a combination of productivity gains and labor force growth--and if in raising the ranges it could be communicated that the Committee was pro-growth, that is one thing. And I would have a hard time objecting to that. If it is a question, though, of accelerations and decelerations with a fair degree of uncertainty about what is happening to productivity, then we run higher risks of miscommunicating our policy intentions.

I would be delighted, as I think everybody would be, if productivity growth accelerated to the point where real output growth was 6 percent. But I still would not necessarily conclude that we should very quickly change our monetary growth assumptions. That's because with a favorable productivity surprise, there is nothing wrong with an increase in the purchasing power of money. There is nothing wrong with manifesting and distributing the wealth gains through society in the idea that the dollar buys more. We know that in most sectors and industries where productivity growth is increasing rapidly, prices are falling. And that is a good thing. There is no reason why we should think that prices of other goods and services need to rise faster than they otherwise would have in order to hit some statistical measure of average price changes. So I don't think we should rule out the idea that favorable productivity developments can be accepted as being associated with rising purchasing power of money or a falling price level.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. I wish Jerry hadn't just said that!

CHAIRMAN GREENSPAN. Erase that from the record and start again! [Laughter]

MR. MCTEER. He made me have misgivings regarding what I am about to say. I agree with Gary Stern's ambivalence; I don't feel strongly about this issue one way or the other. But since I am on record as believing that productivity gains are not a transitory phenomenon and if consistency suggests it, then I guess I would have a small preference for raising the ranges, although I could accept deflation as a way of taking those productivity gains as well.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, I liked what Governor Meyer said, although I must admit I'd probably be happier with a thinner cushion than he would. That leads me to think that a case can be made for alternative II. But I keep coming back to the idea that we really do not have much confidence in our forecast of the aggregates and what they mean and that, therefore, it is probably best not to draw attention to them. So, on balance, I have a slight preference for alternative I. In either instance, however, I think we should make it clear that we are not targeting the aggregates and that our goal is price stability, defined in the way that we talked about earlier.

CHAIRMAN GREENSPAN. I came into the room, having been staunchly against doing anything with the ranges previously, at least thinking about the possibility of changing them because, unlike a lot of you around the table, I think the productivity changes are now unquestionably real and, if anything, still accelerating. But the arguments cited on the difficulty of communicating the logic of a change are really quite persuasive. And since we have been so successful in defusing interest in the ranges, the question is: What do we gain by stirring this

issue up? And the answer is not very much except academic consistency, which is not to be dismissed materially, but it doesn't strike me that that has been a high priority among our set of goals in general.

Let me just weigh in a little on this price stability question, because I think Jerry Jordan has raised an issue that is going to become very important. It wasn't all that long ago that we had considerable discussions about what is the optimum price path. We talked about the issue, for example, of price stability as a necessary condition for economic stability. That is fundamentally the reason why we have opted for price stability--on the grounds that the risk premiums rise on both sides of price stability and that price stability is at the lower bounds of any evidence of risk and uncertainty almost by definition. Yet it is hard to argue the case of, say, a highly technologically oriented economy with productivity rising very rapidly, nominal sales and profit margins reasonably stable, but prices, however defined, falling. Remember, prices are not easy to define in certain instances. All we can visualize are sales, profits, and income. And, since an hour is an unambiguous unit, I guess we can measure average hourly compensation. But price is not an unambiguous notion nor, therefore, is price stability. As we move into a high-tech economy, this issue becomes a lot trickier than I think we realize. The question isn't price stability as an ultimate goal; it can't be. That is a secondary issue. And it is subject to differences in measurement, so we have to be careful about what we are doing in terms of what our goals are and what we lock ourselves into. I think at some point we are going to have a very interesting discussion on this issue. But at the moment, I must say that I have been persuaded by most of you that it is a great idea to move forward, but somebody else better try to explain it because it isn't going to be easy! And I think it raises some very serious questions. So, as I judge the discussion around the table, it is very clearly the desire of the large majority of people

here to keep the ranges where they are for M2, M3, and debt, which I presume is alternative I. Let's vote on the total alternative accordingly. Would you read the appropriate language?

MR. BERNARD. I will be reading from page 28 in the Bluebook, the bottom half of the page: "The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. In furtherance of these objectives, the Committee at this meeting established ranges for growth of M2 and M3 of 1 to 5 percent and 2 to 6 percent, respectively, measured from the fourth quarter of 1999 to the fourth quarter of 2000. The range for growth of total domestic nonfinancial debt was set at 3 to 7 percent for the year. The behavior of the monetary aggregates will continue to be evaluated in the light of movements in their velocities and developments in prices, the economy, and financial markets."

CHAIRMAN GREENSPAN. Call the roll.

MR. BERNARD.

Chairman Greenspan	Yes
Vice Chairman McDonough	Yes
President Broaddus	Yes
Governor Ferguson	Yes
Governor Gramlich	Yes
President Guynn	Yes
President Jordan	Yes
Governor Kelley	Yes
Governor Meyer	No
President Parry	Yes

CHAIRMAN GREENSPAN. Shall we move on to Don Kohn?

MR. KOHN. Thank you, Mr. Chairman. I shall first discuss the simulations in the long-run scenarios section of the Bluebook, and then consider the choices at this meeting about the stance of policy and balance of risks to announce. The results in the first set of scenarios on Chart 3 following page 8 extending the Greenbook forecast and looking at policies to reach alternative inflation rates depend critically on the staff assessment

of the current state of the economy. The FOMC has, in effect, taken the positive supply shocks stemming from the acceleration of productivity and from the decline in oil and import prices of a few years ago importantly in the form of added output and lower unemployment. But in the staff view, this has left the economy operating well above the level of its long-run potential, and now, with price shocks reversing and productivity growth seen as accelerating only a little further, inflation is about to pick up. Moreover, the policy tightening implemented last year is not viewed as sufficient to eliminate that tendency. Indeed, current financial conditions are seen as sufficiently stimulative that inflation pressures are likely to intensify if the federal funds rate is not raised further. The effects on demand of the rise in equity markets last year and the ongoing resurgence in foreign economies mean that the equilibrium funds rate is expected to continue to increase into this year. And the Greenbook baseline forecast sees a 125 basis point tightening as necessary just to hold the unemployment rate flat.

All three scenarios see substantial additional tightening beyond that 125 basis points as needed to keep inflation from continuing to rise. That need arises from the judgment in the Greenbook forecast that at the end of 2001 both the unemployment rate and the real funds rate will be appreciably below their natural or equilibrium levels. To say the least, such judgments about the level and growth of potential supply and equilibrium interest rates have been especially difficult to make in recent years, and a number of you have wondered whether policy shouldn't scale back its reliance on such assessments. To address this question, the Bluebook also showed several sets of simulations that compared the behavior of the economy under a policy rule that looked only at current and past inflation with rules that also took into account perceived output gaps. Moreover, the realized-inflation policy-setting rule was one that determined the change in the nominal funds rate--not its level--so that policymakers need not form a judgment about equilibrium real interest rates.

Of course, it will always be advantageous to employ all the accurate information you have when forming policy. But using less than what you have in hand might work to your advantage if some of it turns out to be wrong. [Laughter] In fact, as can be seen in Charts 4, 5 and 6, the realized-inflation rule does tolerably well in stabilizing the inflation rate and producing reasonably good economic performance under some circumstances. In particular, Charts 5 and 6 show that when the supply side of the economy behaves in unexpected ways that you learn about only slowly, the inflation rule does much better at stabilizing inflation than basing policy on misperceptions about the trend of the growth of potential. The rule allows supply-side surprises to show through mostly in variations in output, which is especially advantageous for favorable supply shocks

when inflation is already low. It can be successful in these circumstances because it is very aggressive in leaning against actual changes in inflation, while at the same time also paying attention to the level of inflation relative to the Committee's objective. However, as can be seen in Chart 7, one risk of such a strategy is the slow response it has to an aggregate demand shock, producing greater fluctuations in inflation and output than a rule that also looks at realized output gaps, even when the output gap may be misperceived.

In December, you expressed concern about the strength in aggregate demand and the potential inflationary consequences of its tendency to outrun increases in the economy's long-run potential over time. With demand and output showing few signs of moderating since then, and with recent data on costs and prices raising questions about how long the good news on inflation will last, the Committee's choices about policy at this meeting would seem to be about how much, not whether, to firm. How you assess the uncertainties about supply and demand, and how much weight you wish to place on estimated levels of potential output relative to incoming inflation data, may help to shape your decision today on exactly how much to tighten.

A 25 basis point firming accompanied by a balance of risks sentence that suggested persisting concern about potential inflation is currently expected by the market. That combination is the unanimous projection of primary dealer economists. And it is roughly consistent with rates in federal funds futures markets, where there is certainty of a 25 basis point firming at this meeting, a small probability of a 50 basis point action, and a certainty of at least 50 basis points of tightening by the end of your next meeting in March. The Bluebook discussion presumed that, in light of recent data and forecasts, you would still assess the risks to be unbalanced toward inflation pressures if you firmed by 25 basis points. Any "relief rally" that might be sparked by a 25 basis point firming should be limited by the balance of risk statement and by any associated increase in the discount rate. As a consequence, this combination should have no appreciable long-lasting effect on longer-term interest rates and asset prices.

Judging from the yield curve, those longer-term rates now embody a total of 1-1/4 percentage points of tightening by the end of this year, but little further thereafter. As I already noted, in the staff forecast this path for policy is consistent with stabilizing the unemployment rate, but not the inflation rate. Still, the current configuration of market rates may be acceptable to the Committee, at least until the extent of inflation risks becomes clearer. The Committee might be uncertain enough about the judgment that the NAIRU is substantially above the projected level of the unemployment rate, to want to down weight its importance in its plans. At

the same time, even with the fourth-quarter NIPA price data, longer-term trends in inflation and costs would not yet seem to confirm the hypothesis that the economy is operating well beyond its potential. Four-quarter averages of most core inflation rates remain relatively stable, and the effects of strengthening compensation on unit costs have been offset by faster productivity.

Even if the Committee is convinced that you will need to tighten more than 25 basis points eventually, so long as you do not see the restraint built into the yield curve as clearly inadequate, the costs of a gradual approach to the contemplated policy actions would seem to be small, and gradualism would seem to have some advantages. It gives you more opportunity to adjust the trajectory of your actions over time, based on new information about the economy and financial markets. This flexibility might be seen as especially valuable when there is so much uncertainty about prospective aggregate supply, and when financial markets are volatile and their reaction to policy difficult to predict. In the past, the Committee has deviated from this approach primarily when expectations and psychology have moved adversely, working against the Committee's objectives. In the current circumstances, long-term inflation expectations seem to remain reasonably well anchored at moderate inflation rates. The nominal/real yield spread on Treasuries, for example, still embodies 10-year average CPI inflation of 2-1/2 percent or less--within its range since last June although up a lot from a year ago, as Governor Gramlich noted--with only a percentage point or so of tightening in the yield curve. And a firm dollar on foreign exchange markets, where the demand for dollar assets seems to match the burgeoning supply from our current account deficit, suggests an absence of concern among global investors about adequate policy responses to developing inflation problems.

However, if the Committee sees the inflation risks as greater than do the financial markets--perhaps because the Committee is putting weight on the possibility that the sustainable unemployment rate is well above the current rate--and believes it will need to tighten considerably more or faster than is now built into the yield curve, it might want to raise its target federal funds rate 50 basis points at this meeting. The Committee would be surprising markets with that action, and would most likely prompt increases in interest and exchange rates and a drop in equity prices. Such reactions would not be unwanted in that they are an integral aspect of the less accommodative financial conditions you saw as necessary to restrain real growth and contain inflation.

The public's interpretation and market reaction would depend importantly on the associated balance of risks statement. A statement that risks were balanced would suggest that the Committee saw financial

conditions after the firming as equally likely to produce rising as stable or falling inflation. Such an announcement would tend to limit any increase in rates; indeed, one could not rule out a rally in capital markets--especially the equity markets--if the symmetry were seen as an expression by the FOMC of substantially less concern about longer-term inflation pressures than the market now perceives.

More likely, given the strength of demand and the firmness of labor markets, the Committee would still view the risks as unbalanced toward higher inflation, even after a 50 basis point tightening. The response of interest rates and asset prices to this combination could be considerable, and markets would remain on alert, attempting to discern whether additional tightening might be forthcoming at your next meeting. Both the response and the volatility might be muted to some extent if the Committee also tried to indicate in its statement that it was not necessarily contemplating another firming at its next meeting--that is, emphasized that the timing of its next action was highly dependent on incoming data. The Committee's new disclosure policy contemplated that announcements might provide such indications, now that the official language is focused on the longer-run economic environment instead of on the possibility of near-term policy action.

CHAIRMAN GREENSPAN. Questions for Don?

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Don, I'd like to hear your thoughts about how the Greenbook is characterizing the current stance of monetary policy. In one part of the Greenbook there is a reference to the real equilibrium funds rate as being 5 percent. I suppose that calculation involves the PCE chain-weighted core rate less food, energy, and tobacco. Recent experience would suggest that the inflation premium is maybe 1-1/2 percent if one's analysis is backward-looking and about 2 percent if it is forward-looking. That would suggest to me that the Bluebook is saying that until the nominal funds rate reaches a level of 6-1/2 to 7 percent policy is in a stimulative mode. Is that what the Bluebook is saying?

MR. KOHN. The Bluebook is the extension of the Greenbook forecast, and Chart 3, immediately after page 8, is essentially saying that. It is saying in the stable inflation case--the

middle line with dots and dashes--that the funds rate gets up to 7-1/2 percent in the next two years. And over that period inflation rates are rising, so it's not 2 percentage points of real tightening, but it is about 1-1/2 percentage points of real tightening. So I think the message of the Greenbook, which is reflected in these alternative strategies, is that policy clearly is not now positioned to keep inflation from rising. In fact, it is not now positioned to keep inflation pressures from intensifying in the sense that with an unchanged funds rate the unemployment rate would likely fall further.

MR. PARRY. So with an increase of $\frac{1}{4}$ or $\frac{1}{2}$ or even $\frac{3}{4}$ of a percentage point, we would still be in a position of basically stimulating the economy and providing an environment where inflationary pressures are likely to continue to rise?

MR. KOHN. As I was trying to say in my briefing, that depends importantly on the weight you put on the NAIRU calculation. What you do at each meeting is important obviously, but what the market perceives you are going to do may be even more important in terms of the effects on economic activity. And it's the intermediate- and longer-term interest rates that have the most effect. So I think what is important is the trajectory that the market perceives you to be on. That is what is going to be reflected in intermediate- and longer-term interest rates, where we see most, though not all, of the effect on economic activity. That has effects on the dollar and presumably on equity prices if the discount rate matters at all for equity prices these days. So, the point here is that the market has built in approximately 125 basis points of tightening over the next year or so, which is what the Greenbook has built in.

MR. PARRY. So if we were to move cautiously, it would be very important to communicate clearly about the work that apparently still has to be done?

MR. KOHN. That's right. And I think that is what the balance of risks sentence is designed to do. And my judgment was that a combination of a 25 basis point increase and an unbalanced risk sentence, plus potentially a discount rate change, would tend to communicate that. One can never be certain about how the markets are going to react.

MR. PARRY. That same communication probably would not be modified much if we went 50 basis points?

MR. KOHN. If you went 50 basis points and had an unbalanced risks sentence, I think that would communicate a greater sense of concern on the Committee's part than the market now perceives.

MR. PARRY. But not a greater sense of concern than is in the analytical work that has been presented to us.

MR. KOHN. I agree. And what I think that would tend to communicate is that you are putting weight on an estimate that the economy is operating well beyond potential and that the unemployment rate needs to rise appreciably to stem inflation. The question is whether you want to do that now or wait for some evidence that that in fact is the case. In a sense it's a strategy issue--whether you want to surprise the markets now with that assessment or wait until you get some evidence.

MR. PARRY. Thank you.

CHAIRMAN GREENSPAN. Don, how comfortable do you feel about all of these simulations when the econometric structure that they are being simulated from has not provided a good record for judging the outcomes with respect to inflation, costs, and the like?

MR. KOHN. There is a lot of uncertainty about the supply side of the economy and I would try to communicate that. We ran a number of other simulations and presented them in the

Bluebook to underscore that point. But I think the staff has been catching up with this very quickly; we might even be ahead on productivity but certainly we have been catching up very quickly on the growth of productivity. We have modified our wage/price assessments, which in effect is what several people were remarking on yesterday about the sacrifice ratio. That is now higher because we see the economy in effect as a little less inflation prone in the sense that, even taking account of supply side effects, the rate of inflation seems to be less sensitive to output gaps than it might have been before. So I think we are moving as quickly as the data will allow toward our best assessment of what those supply side effects are. But you are right; that assessment is embodied in these simulations. I tried to emphasize that the results, particularly the extent of the firming, are crucially dependent on those assessments and that there is a lot of uncertainty about them. The Committee may want to think carefully about how much weight it puts on them.

CHAIRMAN GREENSPAN. In the simulations, what are you doing to the statistical discrepancy?

MR. KOHN. I don't know. That's an income side thing and the simulations, I believe, are basically done on the product side.

CHAIRMAN GREENSPAN. As you know, the huge opening up of the statistical discrepancy is creating different coefficients than one would get using the product side. And I would submit to you that the stability of a number of the outcomes you are getting in these simulations relative to the forecast of this discrepancy is much larger than I think we all realize. My concern is that we be careful about this because the number of differences is not small, and my suspicion is that the policy implications are of significance. That is important to recognize, for example, when we raise the question about whether this productivity improvement is real.

And, eventually, when I get to my remarks, I will try to provide some evidence that there is something very unusual going on. The one thing we know is that the apparent marked increase in profit margins in the fourth quarter, in the context of a relatively modest set of increases in cost structures, makes it very difficult to get around the conclusion that productivity growth is significantly above what the numbers are giving us basically because they are being reduced by a widening negative statistical discrepancy. I just want to say that, as an old aficionado of building econometric models, I know what they can do and I know what they cannot do. I am a little concerned about the definitiveness of some of these results; they give the appearance of reality. I submit that models that don't forecast all that well have deficient coefficients. And then to simulate a forecast using those coefficients gives one a sense of reality, which is at root false. I am not saying that these are not useful exercises; they are, if we consider them not in terms of the actual numbers they produce but in the structure of the changes that they are telling us about. One example is the issue that Larry Meyer was raising yesterday with respect to the Wicksellian real interest rate. Qualitatively these are important issues to discuss. But to put specific numbers on them and say this is the number of basis points we need to move the funds rate to make the system balanced is ludicrous. I would be laughing hilariously were it not such a serious question, because there is just no way these models can be precise about that. Their range of error is such that they cannot give those answers. What they tell you is direction and rough orders of magnitude. But the presumption that small changes here and there will make a difference I think misreads what these techniques can do.

MR. PRELL. Mr. Chairman, may I make a couple of comments? One is that I would encourage people to look at most of these simulations in a broad sense, simply in a directional sense. I think the message will carry even if one adjusts some of these coefficients significantly.

On the question of the statistical discrepancy, many of the things that would be affected by that would affect both the potential output and the aggregate demand side of the equation.

CHAIRMAN GREENSPAN. I disagree with that. That is not factually correct.

MR. PRELL. If it is a matter of mismeasurement of output growth over the recent period, then that is something we would need to recalibrate--both in terms of our estimate of potential as well as actual growth.

CHAIRMAN GREENSPAN. It changes the probability, in the sense of the security one has in what the underlying rates of trend productivity are.

MR. PRELL. True.

CHAIRMAN GREENSPAN. You are assuming right now that the second derivative, which has been positive for quite a period of time, falls to zero. You have been assuming that for the last 3 or 4 Greenbooks and it has been--

MR. PRELL. Actually, in this case we are assuming that the second derivative is positive for the forecast period relative to the recent period and we are making no assumption about it past 2001.

CHAIRMAN GREENSPAN. Remember you are forecasting it to fall.

MR. PRELL. That's a very long-term assumption in the simulation, yes.

CHAIRMAN GREENSPAN. I don't want to get into a detailed discussion on this. It's just that I want to make clear that there is sometimes a presumption about the accuracy of the results these models produce, which I don't think conveys the humility required for them. I just want to put that on the table. If we want to have a seminar on this, I would be most delighted to get involved in it because I think this is a very important issue.

MR. PRELL. I take a backseat to no one in terms of humility about these models, but I just want to close a loop on one other thing so everyone understands what we have done in the projection. This is getting into how the sausage is made. In fact, in balancing the income and product sides of our forecast, we actually do have a continuing widening of the statistical discrepancy. So that's built into our baseline forecast through 2001. The model extension, in effect, takes some of this on board because it is deriving the structure that is carried in the future beyond 2001 based on the structure of the judgmental Greenbook forecast.

CHAIRMAN GREENSPAN. That is the point. Suppose it is actually going in the other direction? Look, I am not arguing. I do not disagree with the general policy focus that is coming out of the Greenbook. I happen to think that, this year, we are going to have to move the funds rate quite significantly higher. And the number I would put in the back of my head would not be terribly different from where you are coming out, and a lot of that is implicit in the intermediate period. It is just that I believe we have to be terribly careful about the notion of what we know and what we don't know. I am a little concerned, basically, because we can exaggerate the extent of our knowledge very readily.

I didn't mean to digress into that long discussion. President Jordan.

MR. JORDAN. Thank you. I, too, have a lot of reservations about the national income accounts sets of information that we use to think about an increasingly globalized economy. It is certainly not what we would construct if we were starting from scratch today, given the way we see the world going. Nevertheless, it's what we have, so we try to torture the data in our efforts to find some useful information. I thought this was a useful set of exercises and simulations from the standpoint that while we are all very uncertain at times about all kinds of things, our degree of uncertainty about specific things varies a lot. Some people are quite

certain about one thing while others are very uncertain about that same thing. So these exercises at least allow people to be rather explicit about what they are certain about and what they are not certain about. So from that standpoint, I think they are useful.

What occurred to me as I was looking at this was one exercise that I would have been interested in, which was not included, involving the augmented Taylor rule that Ben McCallum has written about--essentially what in the 1970s we would have called a Taylor rule with a proviso clause. That would have been one additional exercise that I would have been curious about had it been presented.

I am going to ask a question to characterize my understanding of this and you can tell me how close or far off I am in the characterization. First, I need to digress into the frameworks that we are looking at, because for the last three decades at least we've had essentially two competing paradigms. One has to do with the supply and demand for money, somehow measured, and the other relates to the supply and demand for output or the unemployment rate and the NAIRU. At times the empirical experiences tended to favor one framework and at times the other framework--going back and forth, with reasons for uncertainty about both of them.

As I looked at the different charts and listened to the narratives that went with them, the message I took from the material was this: The greater the confidence one has in any leading indicator--whether in a NAIRU framework, a money supply/money demand framework or something else--the more gradualist one can afford to be in terms of smaller incremental changes in policy actions. The less confidence one has in leading indicators, the more aggressive one has to be. One might have to see a blip or some new information in order to take policy actions. You might not like the characterization, but the label I would put on the simulation you called the realized-inflation rule is the "Bunker Hill" or "whites of the eyes" approach. As soon as we

see a blip up in inflation, bang, we move and we move aggressively. Is that a fair message to come out with in regard to one's confidence or uncertainty about leading indicators?

MR. KOHN. I think that is a fair message, and it is illustrated in Chart 4 to a certain extent. I'm not sure about the gradualism part, but it certainly relates to the policy success that you can have. Chart 4 looks at that realized-inflation rule against one that is the same as the price-stability rule. Now, that price-stability scenario in Chart 3 is derived from the model. It assumes that households and businesses and the Federal Reserve have at least a pretty good idea about what is going on. They form their expectations. The Federal Reserve is assumed to have a very good idea what is going to happen in the future as it changes the funds rate. So in a sense this is about as well as we can do. The alternative is the case where we are not sure about what is going to happen in the future. The inflation-rule was used there to illustrate how, if you wait until you see inflation because you are not sure, it may not be such a bad rule to follow, provided there are certain kind of shocks occurring in the economy--that is, the favorable supply shocks. Secondly, as you noted President Jordan, once you see inflation--these are four quarter changes, so it's not just one quarter's worth of inflation--you do need to respond fairly robustly, twice as robustly as the Taylor rule would have you respond. If you do that in circumstances when you are uncertain about the supply side of the economy and you're experiencing favorable supply shocks, the outcomes are not bad. And they are certainly better than if you act on incorrect information. So, the basic message you took was approximately correct: That you can run a successful policy responding ex post under certain circumstances. You have to be careful; that's not the case under all circumstances. It's good to be preemptive where you know some information. But if your policy response is more reactive, you have to get more aggressive.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. Don, I suppose this is half comment and half question, and it is premised on the idea that these simulations are useful. I think they can be useful, especially in making comparisons between particular simulations. I'm on Chart 3 and I just want to compare the so-called baseline scenario and the stable-inflation scenario. The baseline scenario basically incorporates the tightening assumed in the Greenbook forecast through 2000. There is no further tightening in 2001 and then we begin to tighten further. The result shown in the bottom panel on the page is that the PCE inflation rate is up to 3 percent, steady state. It wasn't too long ago that we were talking about the core CPI and I imagine its relationship has remained the same in terms of what we used to talk about. So we're talking about maybe 3-1/2 or 3-3/4 percent inflation on the core CPI measure. I think that is a result that would not be acceptable to many people--if any--around this table.

The stable-inflation scenario, though, does produce a better result; whether it would be acceptable to everybody or not, I don't know. But there is no difference in 2000 between that scenario and the baseline. The difference is that in 2001 we continue the tightening. I would have expected in order to get that much of a difference that we would have had to move more strongly this year in order to preempt inflation expectations. It raises the question in my mind as to whether the structure of the model takes adequate account of credibility issues and effects, and I thought you might want to comment on that.

MR. KOHN. The structure basically assumes credibility. That is, unless the Federal Reserve changes, the structure assumes that if you have a 2 percent target, the public knows you have a 2 percent target. And as long as you are following the policy actions that flow from having that target--so that you are confirming period by period the public's perception of your target--then those expectations are firmly anchored. What happens, and this partly follows

through on my response to President Stern yesterday about sacrifice ratios, is that if the Fed deviates from the actions the public expects with, say, a 2 percent target, then the public begins to change its expectations. And that gives you different sacrifice ratios in the short run. It gives you different effects in the short run. But the public would slowly learn that you had a 3 percent target instead of a 2 percent target over 2001. I think part of the difference here is that while the nominal rates aren't that different, that's not the case for the real rates. Because the tightening in 2001 gets a bit ahead of the rise in inflation, real rates are considerably higher in 2001, and that is to a large extent what builds in the extra restraint.

MR. BROADDUS. That's a good point, especially at the end of the year.

MR. KOHN. Right. So, there's almost a percentage point of extra restraint by the end of 2001 and that persists for the next year or so. That is a significant amount of extra restraint.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. As I said yesterday, I liked this exercise. At the same time, I think we all should be very humble. There is actually an added dimension to the humility and it goes to this productivity debate. I had always thought that whatever the rate of productivity, if we had a positive shock--that is, if productivity went up--that would be good news for inflation. That would make the economy generally less inflationary. Larry Meyer made a point yesterday that I think is right. You've said this in the past, too, Mr. Chairman. If you link the supply and the demand, that is not necessarily so. We could get a situation, as the illustration Larry gave yesterday indicated, where a productivity shock would actually be more inflationary or, I suppose, it could be neutral. So while we are putting our humility on the table here, I think we also ought to be humble about that! Even if there is some change in productivity, we don't necessarily know what that is going to do to our price forecast.

MR. KOHN. You can see from Chart 6 that a positive productivity shock does not tend to lower inflation rates in the short run unless you are targeting the inflation rate very hard. I think one needs to differentiate between very short-run effects and longer-run effects. Let's say in the short run that you have the productivity shock, which is consistent with Dave Stockton's charts yesterday. Inflation would tend to go down as profit margins are swelled, and competition would drive prices down. Over time, however, the demand feeds back. That lowers the unemployment rate, wages begin to catch up with the higher productivity, and we end up with a higher equilibrium interest rate approximately equal to the size of the productivity shock. It depends on the model, obviously. There is a short-run effect, but if we let it run on too long, we will find ourselves in that situation.

MR. GRAMLICH. True. But also if we have forward-looking long-term markets, such as the stock market, it could be that the demand effect gets telescoped up front into higher consumption and investment demand.

MR. KOHN. That mechanism is in the model. Now, whether it's sufficiently captured in the model is a question. But the effect of the extra earnings on stock prices feeding back on consumption--though you may think all of it has not been captured in the last couple of years--is in the model.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Don, I have two comments. One, if you're uncertain about whether the growth is the outcome of a supply shift or a demand shift, wouldn't a nominal income rule dominate the Taylor rule or the inflation rule in terms of exercises like this?

MR. KOHN. If it were a price shock--a change in the price level of the old oil shock variety that we used to study--then a nominal income rule is a way of taking part of that in

inflation and part of it in output. In that regard it's much the same as a Taylor rule. There might be a different dynamic path, but I don't think it would differ very much. But in some ways it's a bit like the discussion you folks were having a little while ago. If you had a nominal income rule and you tilted up the productivity growth and kept the old nominal income, you'd start building deflation into the economy if the starting point was price stability. So I think the kind of supply shock that occurs matters a lot.

MR. PARRY. My other comment follows from what the Chairman said earlier. It seems to me that it is important to keep in mind that there are standard errors in these exercises and they are significant. I must admit that if I didn't think that was the case, I would have been terrified by these outcomes. Instead, I'm only scared!

CHAIRMAN GREENSPAN. Any further questions? If not let me get started. I believe we are entering a period of considerable turbulence in financial markets. Its characteristics are what one would expect, though we may never have experienced them, from being on the upward slope of a general acceleration in technological applications and accelerating output per hour. This is the old "S" curve scenario, which we have looked at theoretically but have never observed in the past. The current economy has all the S-curve characteristics, and I am not looking only at the macro data. We can see it in companies; we can see it in the multiple applications of a lot of new technologies. Something very different is happening in the way this economy is functioning. It differs from any economy that I have observed in the past, and I have been looking at our economy every day professionally since the summer of 1948. There has been nothing like this in my experience. It is just dramatically different.

Leaving aside the measures that we have for productivity, all we have to ask ourselves is how we can reconcile the behavior of profit margins from domestic business operations in recent years with the price patterns we have seen. Algebraically, what we get from the income side is the same acceleration in profit margins as in productivity. I see no evidence at the moment that the acceleration in productivity has stopped. The second derivative for the latest data is still positive. And I am not aware of any evidence that the expansion is slowing down.

The general notion of a significant deceleration in the first quarter is an interesting forecast, but we are one-third into the quarter at this point and I don't know what evidence supports a slower growth forecast. Certainly, initial claims are down significantly. Orders are quite strong. Retail markets are quite strong. And, indeed, if we were getting some slowing in GDP growth measured either from the income side or the product side, one would presume that it would be evidence of slowing growth in productivity. Alternatively, until the evidence changes I think the most reasonable view is that productivity probably is still accelerating. Indeed, if we examine the earnings estimates of security analysts, including those who look at the earnings outlook company-by-company, the overall estimates through January are still rising in the sense that forecasts of long-term earnings per share are still going up rapidly. This evidence suggests that productivity-enhancing investments are still moving up.

Since what we are observing is very unusual, as I indicated at the last meeting, we tend to get statistical acrophobia. We are not accustomed to seeing motor vehicle sales at these levels, housing starts so high at these interest rates, or business activity so robust in virtually every part of the economy while inflation has not moved an iota. Indeed, total unit costs in the four quarters just ending are about as low as we have seen them in this cycle. Unit labor costs have barely moved.

The rise in inflation in the fourth quarter shows up wholly in profit margins. Actual unit costs, granted the rough nature of the data, apparently declined in the fourth quarter. This is not an inflationary price environment or an inflationary cost environment. If we look at inflation expectations, the best measure that we have in my view is one derived by subtracting the yield on an inflation-protected 10-year Treasury security from a so-called synthetic 10-year nominal rate to get the best estimate of expected 10-year CPI inflation. That number is barely different today than it was in December 1997. The implicit inflation expectation in that calculation declined with the Asian crisis. It had recovered by the spring of last year and has been absolutely flat since then. To be sure, the actual nominal 10-year rate has gone up compared with the real 10-year rate. But that is merely a reflection of the fact that the adjustment for “on-the-run” and “off-the-run” rates, appropriately made, has raised the nominal rate by about 1/2 percentage point since November of last year. In other words, the dramatic change between the so-called synthetic rate and the nominal rate gives a false view of accelerated inflation expectations unless it is properly adjusted, as is done by the staff, for the degree of illiquidity in an inflation-indexed Treasury security vis-à-vis an appropriate nominal Treasury obligation.

It seems to me that what we have here is an acceleration of a process that would not create a problem were it not for the wealth effect. The problem, as we have discussed in the past, is that while potential supply increases *pari passu* with the rise in trend productivity, which I believe is still accelerating, it has a more pronounced effect on demand. Obviously, rising productivity creates higher real incomes from which expenditures can be made. But, leaving aside the issue of whether or not the stock market is appropriately priced, rising productivity also creates a rational upward adjustment in long-term earnings expectations which, all else equal, will result in an increase in the value of stock market assets. Unless there is no wealth effect,

and there are some who argue that case though, frankly, I think the evidence is overwhelming in the other direction, there will be an increase in purchasing power over and above the increase in supply. That has been the case in recent years. The resulting excess demand basically has been met by an increase in our net trade deficit and by drawing on new sources of labor. The latter have been found by draining the pool of the currently unemployed, through increases in the participation rate, and through immigration. Both increasing net imports and drawing in new workers obviously are safety valves that can for a time fill the gap created by excess demand; but they cannot be drawn upon indefinitely for reasons we have discussed previously.

The high rates of return that are driving our technological boom are also attracting dollars from abroad--or I should say increasing claims against the United States--and that has held the dollar essentially unchanged. That process can go on for a while, but the question is how long. Obviously, as I have noted before, the minimum unemployment rate is zero. I do not care whether we bring the notion of a NAIRU into the analysis. The point is that there is an ultimate limit to unemployment, and it is called zero. So, we are sitting here with an imbalance that essentially says the wealth effect by its nature cannot persist indefinitely. To argue that it can implies that the gap between excess demand over supply can always be filled without creating major inflationary pressures. The point I am making does not rest on any econometric model but merely on the proposition that there is a wealth effect on consumption and that accelerating productivity will continue to increase expected earnings.

The question basically is: What closes the gap? What closes the gap is obviously the real long-term interest rate, and it has been going up quite significantly. It is putting pressure on financial markets. At the end of the day it is going to swamp the rate of discount in the stock

market, which now is virtually zero as best I can judge. That is a slight exaggeration, but only slight.

The problem that we have here is that monetary policy works through its effects on overall financial markets. The presumption that a 25 basis point, a 50 basis point, or even a 75 basis point change in an overnight rate can come to grips with the supply-demand imbalance is in my view silliness in the extreme. The overnight rate is just not tied into this process in any direct way. What we actually do is to foster a term structure of interest rates by our policy actions and thereby influence real long-term rates. What I am saying is algebraically equivalent to what Larry Meyer was saying yesterday about the Wicksellian real rate and the gap. The difference, I think, is not simply how we may view the gap between the expected equilibrium real rate and the market rate, but how we look at this process from a disaggregated perspective. In order to disaggregate, what we are really looking at in the real world, and not in a Wicksellian world, is this crucial issue of the wealth effect. The policy question that confronts us in my view is how we should influence the real long-term rate, which is the primary force involved in this process. It is doing most of the work that we would like to think we have the power to do, but we really don't have that kind of power except to the extent we can influence how the markets perform.

It strikes me that what we have at this stage is a very unusual situation, which if anything is going to become still more difficult for us. In that regard I think the answer that Don Kohn gave is the correct one--namely, that inflation will stay down in the short run because of the acceleration in productivity. But ultimately, if we do not solve the problem of the gap, meaning that if the acceleration in productivity leads to continued expectations of accelerating earnings per share, the only way to eliminate the wealth effect, which has to be eliminated, is for the

discount rate--the market interest rate used by investors to calculate the present value of expected earnings--to rise. I think that is in the process of occurring. And if that is the case, the interesting issue, which really gets to the question of the longer-term effect of inflation in this model, is why the bond market is showing no real evidence of accelerating inflation expectations. In short, what the markets basically are saying, right or wrong, is that long-term rates are going to rise eventually to close the gap. They may also be arguing that the current rates are the right rates. I personally do not believe that, but that is what one has to assume is the prevailing opinion in these markets.

The question that confronts us here is what we should do in the context of this phenomenon. If the rate used by investors to discount future earnings has to rise as a necessary condition for stability, the question is how we can facilitate that rise. To put the monetary policy issue in a somewhat reversed order, as Don Kohn did, I think the crucial point here is that we express and continue to express a general view that our goal is basically to move the funds rate up consistently. At this point I don't know whether we eventually will need an increase of 50 basis points, 75 basis points, 100 basis points, or 125 basis points. My guess is that the increase is likely to be toward the upper end of that range.

In my view, the key consideration at this stage is to make certain that we do not adopt what we used to call "symmetry." That would be the wrong thing to do no matter what else we do. Indeed, while I am going to argue against a 50 basis point increase, I would say that if we were to decide on 50 basis points, we would have to do it with asymmetry. In my opinion, 50 basis points with symmetry would be a terrible mistake at this stage. It would imply that our job is over. What we have to convey to the markets, consistent with what is clearly an acceleration

in productivity and I think increasing turbulence in financial markets, is that we are on the scene and that we are embarking on a routine of incremental tightening.

What is the argument against 50 basis points today? I would say the argument is basically twofold. One is that, as a general rule in an environment like this, the last tightening move that we make is going to be a mistake. We will not know that at that time, but it is almost invariably a mistake. If we tighten in small incremental doses, the size of a mistake is smaller by definition. Secondly and far more importantly, I think that our latest evaluation of the equity premium in the stock market is that it is downright scary! I haven't seen anything like this before. In fact, if we use the inflated earnings expectations of the security analysts and the P/E ratios that we have now, we get an extremely impressive equity premium. Back in 1987, you will recall, long-term rates were going up as the stock market went up, and the market just ran out of steam. We are in a far worse situation now than we were then.

I am concerned that, if we are too aggressive in this process of tightening, we could crack the market and end up with a very severe problem of instability. I don't know how far we will have to go. Indeed, I don't know how long we can continue tightening by 25 basis points. As a sort of working hypothesis, I would argue that we should think in terms of moving at every meeting and that we move by 25 basis point increments. We would continue on that course unless and until it appears that we are getting behind the curve on inflation or inflation expectations, in which case we would raise the size of the adjustment. On the other hand, we could continue to implement our strategy if we began to see the wealth effect stabilizing and/or the gap between supply and demand beginning to close. Unless and until that happens, we will remain in a very unusual period that we have never experienced before. What I am arguing is not something that is coming out of a particular simulation. All that is needed for my argument

to be valid, as best I can judge, is that there is a wealth effect, that the market is at extremely high valuation levels, and that we have to take action to close the supply-demand gap. I would propose, therefore, that we move the funds rate up by 25 basis points today and that we include in our press release the equivalent of what we used to call asymmetry. There would be a full expectation that we will be moving again in March. If it turns out that the economic expansion is accelerating, and indeed I have every reason to suspect that it may, that would not in itself be a policy issue in my view. That is not what we ought to be looking at. We should be looking at the underlying inflation pressures in the economy. And if they become larger, then I think we will have to move faster. But for today I think it is appropriate to move 25 basis points and issue an asymmetric statement--I don't remember the exact language we plan to use to express that.

VICE CHAIRMAN MCDONOUGH. "Balance of risks."

CHAIRMAN GREENSPAN. The balance of risks is toward inflation. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, I fully support your recommendation, but let me make a few comments. The issue clearly is not whether we should do nothing, but whether we should firm 25 basis points or 50 basis points. And I agree that in either case we would have to use the balance of risks language indicating that we are more concerned about inflation. I think we have to look at ourselves. The reality is that we are perceived everywhere around the world as the best central bank in the business. We are highly regarded, highly respected. And our commitment to price stability, certainly as defined by you in speeches and testimony, is I think unquestioned anywhere. Our style is that of a strong, silent leader, one who moves incrementally. We move 25 basis points at a time in a very systematic way. If we were to move 50 basis points--to continue my analogy, if all of a sudden the strong, silent leader starts beating his chest to show what a tough guy he is--what would be your

conclusion? I believe it would be that he is scared! What do we have to be frightened about? We can certainly go about our business in our normal way, continuing to exhibit the confidence that we have earned by our performance. And I think that is the thing that will contribute the most to stabilizing the economy. I agree with you fully that a working hypothesis that we will have to have a series of tightening moves is appropriate, and I believe that that should be in the background of our thinking. But I feel very strongly that 25 basis points combined with a balance of risks statement toward inflation concerns is by far the right package for today. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Mr. Chairman, I certainly also support your recommendation. We are faced with very powerful, real forces that we want to allow to run to the extent that they can in terms of increasing productivity, employment, and real income without upsetting the inflationary apple cart. I would like to relate your comments this morning to our discussion yesterday about the trade deficit. The trade deficit is also part of this real adjustment that is going on in the economy and it is not fundamentally a nominal phenomenon. The trade deficit is financing the capital flows that are coming to this country because the rate of return is so high. And it cannot itself be an object of our policy because it is determined by these real forces that are so unusual, certainly in the context of postwar U.S. history and perhaps much further back than that.

I think a move of 25 basis points and a statement that the balance of risks is toward inflation is exactly the right way to go. The market is our friend. The market, after all, has anticipated this move. We saw interest rates rise. This federal funds futures prediction has been in the market for four weeks or more, and we should not do anything that leaves the market wondering what we are up to. If we were to go with 50 basis points and a balanced risk

statement, the markets would most likely say that we have concluded that we are done. And that is certainly not our conclusion. So we want to make the market do as much of this work as possible, lead the way, and help us figure out what is the correct response to the incoming flow of information. I absolutely agree that this is likely to mean a sequence of 25 basis point increases at each meeting. It wouldn't be correct to say in Dave Stockton's famous language "as far as the eye can see" but, nevertheless, for quite some time. And by working cooperatively with the market I think we will have the best chance of coming out of this without a big upset. So, I support your recommendation 100 percent.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, I would prefer a 50 basis point increase in the funds rate and also a public statement that we are focusing on heightened inflation risk in the future. My concern is that the time period between this meeting and the next meeting on March 21st is quite long. I might suggest something that would make me more comfortable with a 25 basis point increase and that is that we agree to assess the situation again at the end of this month. We will have considerably more data, certainly more data about prices. We could review those data and see if we feel at that time that a further move is appropriate. I don't see why we have to be constrained by a fixed calendar, which in this case involves quite a long interval between meetings. Over the 14 years I have been with the Fed, we have found telephone meetings at times like this to be very useful. From my perspective, though it's certainly not one shared by everyone here, it would reduce the possibility that we will get behind the curve.

CHAIRMAN GREENSPAN. The option of a telephone conference is always on the table. It always has been. It's just that we have not needed to employ it for a while. But it is obviously there.

MR. PARRY. Well, I think there might be a case for it this time.

CHAIRMAN GREENSPAN. The markets will tell us. President Stern.

MR. STERN. Thank you, Mr. Chairman. I support your recommendation in its entirety. It seems to me, given the kind of technology or productivity shock that we have had, that real interest rates need to rise. To some extent, that has occurred. My judgment is that they need to go up more. I do not see any way we can accomplish that other than by raising the funds rate. So, a ¼ point increase is certainly acceptable to me. I would not go beyond that and be more aggressive, principally for considerations of uncertainty. It seems to me that we are uncertain about the future path of productivity and we are uncertain about NAIRU. I personally am uncertain whether the latter is a useful concept at all. And we are uncertain about the implications of the increase in real rates that has already occurred and what the effects may turn out to be. So, I think what you are suggesting is what we ought to do.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Mr. Chairman, I support your proposal completely. I believe the increased risk of inflation is there, so I think we ought to say it. Also, I am very much in favor of 25 basis points for several reasons. First, while the models show direction, I agree that they don't show it with precision, so I think we should proceed gradually. Secondly, we are in an environment where core inflation has been very modest, and we need to recognize that as we begin to pave the way for higher rates. And thirdly, some imbalances remain out there, which we are trying to take into account, but we don't want to shock the system either. So I think continuing the steady path that we have been on is the appropriate approach. Therefore, I support your recommendation.

CHAIRMAN GREENSPAN. Governor Meyer.

MR. MEYER. Thank you, Mr. Chairman. I support your recommendation for a 25 basis point increase in the funds rate and what I will continue to call an asymmetric posture. I also agree with you that we are likely to have to implement a series of tightenings this year; it is likely to be appropriate to make a move at each meeting for a period of time. Given the uncertainties about trend growth, NAIRU, and inflation dynamics, and also given the uncertainty about the impact of our policies on financial conditions more broadly, I think there is a strong case for a gradualist approach. I hope we will be able to use the bias in the announcement that accompanies today's action skillfully. By that I mean that I hope we don't undermine what I view as very sensible expectations about the rise in the funds rate that are built into the term structure and futures markets.

We had a lot of discussion today about uncertainty, about the structure of the economy and inflation dynamics, and about the value of humility. I don't want to lead a discussion opposed to humility. [Laughter] However, I think sometimes we draw an implication here that humility suggests inaction, though that is certainly not what you have been arguing, Mr. Chairman. But I want to bring us back to the discussion of our monetary growth targets because it seems to me that in a monetary growth target regime the danger of inaction is much less than in a funds rate regime. And that, I think, is consistent with some of the points that President Jordan was making. If productivity growth is a little higher, we will end up with a little lower inflation; it will be somewhat limited and won't be as much of a problem. But in an interest rate regime inaction can be very, very dangerous--and particularly dangerous in an expansion that is driven by higher productivity, which raises real equilibrium interest rates.

I also want to comment a bit on your discussion of the role of the wealth effect. It clearly has been very important. We go from the productivity upturn, to the wealth effect on

consumption, to the excess of demand growth relative to supply growth. And we've had a lot of discussion, not only here but in a number of other arenas, about how a declining equity premium or higher equilibrium growth rate can raise the value of equity prices. A lot of that is a partial equilibrium analysis. You just plug into the formula a low equity premium and voilà--higher equity prices. That makes very little sense in a general equilibrium model, because in such a model that wealth effect will ultimately generate increases in real interest rates that will significantly cap and diminish the increase in equity premiums.

I think the danger that we have been facing recently is that a monetary policy that has been somewhat slow to tighten and has allowed the economy to operate in this partial equilibrium world. I think we are now going to see how equity prices evolve in a general equilibrium world, and I think that is one reason why we have to be a bit cautious and gradualist.

I want to make just a few comments on what I perceive to be the consensus strategy that is unfolding. It seems to me that what we have been talking about is being very preemptive now in slowing the economy to trend growth, but being very reactive once we get to trend growth and we have stabilized the unemployment rate. Then at that point we are prepared to be very reactive and respond only to evidence of higher inflation. I have been struggling with the issue of whether this is an appropriate strategy, or perhaps even an optimal strategy, given our uncertainty about the output gap. If it is a sensible strategy, I think there are some gaps or details we have to fill in. Obviously, we have to decide what the appropriate path of the funds rate is to slow the economy to trend. But we also have to keep in mind that if we are unsuccessful in slowing the economy to trend and, therefore, the output gap rises even further, that should affect our policy and we should tighten by more than we otherwise would. That is, we should tighten enough to slow the economy to below trend so that we can push the output gap back down. I

think that is consistent with the nonlinear rule that I have discussed in the past. As uncertain as we are about the output gap, that uncertainty about whether or not we are beyond the economy's potential diminishes very greatly as the output gap increases based on our best estimate of potential.

And the third issue I think we are going to have to focus on in this strategy is just how aggressively we should move against higher inflation. To the extent that we have down weighted our response to increases in the output gap, when inflation rises we have to be more aggressive than we would otherwise be. The way to think about that is that once we get to trend growth and the unemployment rate stabilizes, we have assumed that our policy setting and strategy are consistent with stable inflation and the output gap is basically zero. If inflation then begins to rise, not only do we have to respond to the increase in inflation the way we ordinarily would, we also have to revise our estimate of the output gap. That requires a more aggressive response to inflation than would otherwise be the case.

So, those are a few thoughts that at least shape my views of the strategy going forward.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. I agree with both halves of your recommendation. I think we should reinforce markets when they are right and I think they are right in their expectations. Secondly I, like others, am moved by the uncertainties that we have talked about, but I also recognize that inflation does not appear at this stage to be on the verge of a virulent outbreak. So a move of 25 basis points seems to me moderate and appropriate. I think you're absolutely right in suggesting that over time we can and will continue to look at the reaction of markets generally, including the asset markets where I do think, as I said yesterday,

there is likely to be some underlying turbulence. Finally, on the outlook sentence I believe the statement that suggests the risks are balanced toward inflation is obviously the right one to use because it does not take back all the other things that we're doing.

CHAIRMAN GREENSPAN. President Boehne.

MR. BOEHNE. I agree with your recommendation of $\frac{1}{4}$ point and I think we need to convey the view that we have more tightening ahead of us. My best guess is that there will be a significant amount of tightening over the coming year. There may well be a time in this series of tightening moves where a move of $\frac{1}{2}$ point is going to be appropriate. But today I think $\frac{1}{4}$ is just right. Our basic product is one of confidence--confidence that we're going to do what is appropriate to keep the economy on the right path. And in today's environment a 25 basis point increase in the funds rate captures that because it indicates that, yes, we know that tightening is appropriate. We're going to do what needs to be done. We are neither going to underreact or overreact. I think that is important for our image as a strong, confident central bank that the public deserves to put its confidence in.

CHAIRMAN GREENSPAN. President Broadus.

MR. BROADDUS. Mr. Chairman, I am pretty much where Bob Parry is. This is a tough call but, if I had my druthers, my preference would be to go the full $\frac{1}{2}$ point. It would be a very decisive move that would preempt any inflation expectations that might either be building or likely to build in the near-term future. I recognize it would be a strong move, particularly in the context of the need for asymmetry whatever we do; I agree fully with your point on that score. So, I recognize that there are risks. To me the big risk is that we might get a market break that could lead to what I would refer to as a disorderly plunge in the stock market. That would complicate the situation and make it more difficult for us to take the kind of steps we will need to

take. So I am able to accept the $\frac{1}{4}$ point increase this morning. But I would hope that we will do it with what I might call "asymmetry plus." We need that language. Also, I would hope--and I expect you'd be inclined to do this in your testimony, which is not too far down the road--that we will underscore the intensity with which we are watching developments and our readiness to move more aggressively if in fact we need to do so. Also, and I hope this is not out of line, I would hope that the Board of Governors might consider a complementary discount rate increase in the near future. Furthermore, I agree with Bob Parry. I know that an intermeeting conference call is always on the table but, in the context of your remarks, I hope we will watch market developments very carefully for any signal that we should have a call.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. First, on the data point: I talked yesterday about the difference in ten-year bonds between the nominal and the real spread. I am no match for you in developing the synthetic yield!

CHAIRMAN GREENSPAN. I didn't do it! It was your colleagues down at the other end of the table.

MR. GRAMLICH. I was using the chart, Exhibit 18, that the staff sends around every Monday. And on that rendering, certainly in the last month there has been a rise in the inflation premium. But Don Kohn did persuade me that I way overstated it yesterday. Nevertheless, it has gone up.

The second thing I would like to say is that I tend to agree with the Bluebook simulations on inflation targeting, humble as we are about models. And I believe that we are likely to need a lot of tightening, and that the real question we have to deal with today is how we get there from here.

I will support the recommendation of a 25 basis point move with a tilt and the implicit gradualism. I recognize the benefits of that strategy. I'm delighted to be thought of as a strong and silent leader! [Laughter] I think you make a good point, Mr. Chairman, that the economy is in many ways very fragile, that things could change rather abruptly, that the past record has not been good in calling the turns, and that, therefore, there is a chance that we could overreact. In that regard, as I thought about the tilt in connection with Roger Ferguson's Working Group, there is one thing I like about the tilt. It is easily reversible. If we were to raise the rate 50 basis points, discovered we did too much and then reduced it 25 basis points, it would look as though we didn't know what we were doing. If we do 25 basis points with a tilt and new data come in indicating the economy is not as strong as we thought, we can take off the tilt. Then it looks as if we do know what we're doing and we're just looking at the data. That's a nice advantage of the tilt and I'm glad we are using it in this situation. So, there are a number of benefits in the gradualism strategy. I recognize that and I support your recommendation.

Having said that, there are some costs to the gradualism strategy. We could be moving too little and too late. There is historical precedent for that, too, and I think we ought to keep that in mind.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you. When I look out at what the financial markets are telling me--or maybe more importantly not telling me--I see the Treasury yield curve upward sloping a bit from two years out to five years. Beyond five years it's downward sloping, with corporate bond yields and mortgage rates at 8 percent. I would be hard pressed to say that those are at the wrong levels for an environment as outlined in the Greenbook and the associated expectations. I would feel on much firmer ground in saying that there is something wrong with

these market levels if, given the second-half experience of 5-3/4 percent real growth and, depending on the inflation measure, nominal spending of 7-1/2 to 8 percent, I thought it didn't add up. But this says to me that the market is not building in that kind of real growth plus inflation inherited from the second half of last year through this year. So, I don't know that nominal interest rates need to go up. If inflation were to turn adversely and accelerate more than seems to be built into the marketplace right now and inflation expectations were beginning to rise, I do think it would be undesirable for real rates to go down. Then I would think that nominal rates would need to increase.

On the front end of the curve, though, when I look at the rise in rates for securities maturing in up to two years, it does leave me with the feeling that a 5-1/2 percent overnight interbank rate is too low to be consistent. Just closing that gap somewhat would be the wisest thing to do. And taking a step today, I think, is appropriate.

I have a comment, though, on this question of 50 basis points versus 25 basis points, and that requires me to make reference to the discount rate. There was a time, and I think it is still the case, that a movement in the funds rate with an accompanying increase in the discount rate was interpreted as being a more lasting move as opposed to a move in the funds rate alone. Given that, I would think a 50 basis point increase in the funds rate with a discount rate change is too strong. And since I do consider directors' recommendations for a discount rate increase appropriate in this environment, I would prefer 1/4 point on the funds rate knowing it is to be accompanied by a discount rate move. In fact, I would oppose a 50 basis point change in the funds rate either with a discount rate increase or without it.

CHAIRMAN GREENSPAN. The Board of Governors will be meeting later to vote on the discount rate. President Guynn.

MR. GUYNN. Thank you, Mr. Chairman. I came into the meeting with the intention and inclination to argue for a 50 basis point tightening, and I think the staff presentations we heard yesterday and the comments made around the table would certainly support that. I believe there is evidence of mounting inflationary pressures. The probability of inflation moving up has clearly increased in my view. My biggest worry was that if the consensus was to go with a 50 basis point tightening, there would be an inclination to slide back to a balanced risk statement. And as you eloquently pointed out, that is not where we want to be.

I can support $\frac{1}{4}$ point tightening today with the balance of risks on the side of inflationary pressures. I guess you already answered this question, but let me just say that I, too, would really like to see the Board consider a discount rate increase. I think that gives our directors some ownership in this policy action and reinforces the action we are taking. And in my view there is a reasonably high probability that we will have to step up the pace in terms of further policy actions in the meetings to come. But I support your recommendation.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. There was a table in today's Wall Street Journal. I don't know how many people saw it, but it listed a series of possible Fed actions today, gave the odds on them and the likely market reaction. It had all the different scenarios we've talk about--an increase in the funds rate of 25 or 50 basis points, with a tilt or without, and so on. And the last line in the table was a rate cut by the Fed. The odds were "as likely as the Cubs winning the World Series." [Laughter] And the likely market reaction was "holy cow!" [Laughter] I found that very upsetting. Obviously, there is no chance we are going to lower rates today, but Cubs fans are always optimistic!

Mr. Chairman, I support your recommendation very strongly. I think the strategy of incremental moves is an excellent one, supporting the markets when they are right and helping confirm their inclinations. It seems clear that if we do not move today, that would not only jeopardize the expansion but would also jeopardize our credibility as well, which is so important.

I should note that our outlook assumes a fed funds path that has a decidedly upward drift over the forecast horizon. And even with that strong upward tilt, we project a deterioration in the inflation outlook. Regardless of whether we look at the core PCE or the core CPI or all those measures that I mentioned yesterday, inflation is still going up. So in my judgment, an increase of 25 basis points is not going to be enough over the forecast horizon. I believe, as you said, that we should be thinking of a series of moves to make sure that we correct the imbalance between aggregate demand and aggregate supply. I think it's also very important that we say that the balance of risks is tilted to higher inflation for exactly the reasons that you explained so articulately.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Thank you, Mr. Chairman. One thing I came into this meeting very determined about was that we should end with an asymmetric directive, whether we went with a 25 or a 50 basis point increase in the funds rate. So I'm glad it appears that we are going to do that. I imagine that most people, if they gave any thought at all to what I might recommend at this meeting, would have thought I would clearly be on the side of a 50 basis point move. But I must admit that I'm having more frequent debates with myself, not so much on the demand side of the equation--I don't think anybody doubts the strength of demand--but about all the elements of supply that are so richly portrayed in Don Kohn's different graphs. I'm becoming much more a believer in the view that the potential for productivity to stay flat at its current high level or to

grow in the future is better than I thought it was. And I don't know where the NAIRU is. As with any forecast, all the forecasts we've been doing in Boston require a great deal of jiggering after they are done to try to capture a bit of the uncertainty that I know I feel and other people apparently feel on the supply side. I also think that the interaction with the markets presents us with a series of risks that you talked about. I tried to incorporate some of that into my discussion yesterday, with respect to the buildup of imbalances in terms of credit, all related to rising asset values. So, with those two things in mind, both a sense of risk and a sense of uncertainty about the economy's actual capacity, I'm very comfortable with a move of 25 basis points.

CHAIRMAN GREENSPAN. Governor Kelley.

MR. KELLEY. Mr. Chairman, I support your recommendation for all the reasons that have been expressed. I think it's exactly the right thing to do. But I do want to say that I feel a good deal of identification with the remarks of President Broaddus and others around the table.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. I support both parts of your recommendation. As far as the future is concerned, I hope we will keep looking at the data and make our decisions one step at a time and not get too programmed in advance as to what we are going to do.

CHAIRMAN GREENSPAN. I guess we have heard from everybody.

MR. BERNARD. Yes.

CHAIRMAN GREENSPAN. It looks as though we have strong support for an increase of 25 basis points and a balance of risks statement toward concerns about inflation.

MR. BERNARD. I'll be reading from page 29 for both the balance of risks sentence and the sentence on the federal funds rate. Only one vote is involved, encompassing both: "To further the Committee's long-run objectives of price stability and sustainable economic growth,

the Committee in the immediate future seeks conditions in reserve markets consistent with increasing the federal funds rate to an average of around 5-3/4 percent.”

And moving on to the balance of risks sentence: “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 are weighted mainly toward conditions that may generate heightened inflation pressures in the foreseeable future.”

CHAIRMAN GREENSPAN. Call the roll.

MR. BERNARD.

Chairman Greenspan	Yes
Vice Chairman McDonough	Yes
President Broaddus	Yes
Governor Ferguson	Yes
Governor Gramlich	Yes
President Gynn	Yes
President Jordan	Yes
Governor Kelley	Yes
Governor Meyer	Yes
President Parry	Yes

CHAIRMAN GREENSPAN. I’d like to adjourn the FOMC meeting for a few minutes temporarily and ask the Board members to join me in my office. Subsequent to that, we have to review the statement that we will be putting out. So, just give us a few minutes. I’m sorry, let’s also do coffee!

[Coffee break]

CHAIRMAN GREENSPAN. The Board has voted to approve a ¼ point increase in the discount rate to a level of 5 percent. The floor is open for comments or suggestions on the draft press release circulated to you.

VICE CHAIRMAN MCDONOUGH. Perfect!

SEVERAL. Perfect!

MR. BOEHNE. Absolutely perfect, Mr. Chairman.

CHAIRMAN GREENSPAN. Including the run-on sentence? [Laughter]

MR. FERGUSON. It couldn't run on any better!

CHAIRMAN GREENSPAN. If there are no comments, then this press statement will be released on schedule. Our next meeting is March 21, as President Parry mentioned earlier. It's 8 minutes and 10 seconds to noon. What's the status of lunch?

MR. BERNARD. It should be ready within the next 10 minutes.

MR. BOEHNE. Mr. Chairman, in addition to this remarkable economy, this is a remarkable meeting. This Committee has resisted the opportunity to talk endlessly about a press statement. I think we ought to note that!

CHAIRMAN GREENSPAN. Why don't we adjourn.

MS. MINEHAN. I would just like to mention for the minutes of this meeting the passing of Frank Morris, the former President of the Federal Reserve Bank of Boston and a participant in these Committee meetings for 20 years. He died a week or so ago. He was, to my knowledge, an active contributor to the work of this Committee and of the Federal Reserve System in general. And we will miss him.

CHAIRMAN GREENSPAN. Is it appropriate to put that in the minutes?

MR. KOHN. Yes.

CHAIRMAN GREENSPAN. Frank was a good friend to a large number of us around this table.

MS. MINEHAN. Ed Boehne mentioned last night that he was a good friend to everybody who is in the Federal Reserve System, both retired and current employees, in terms of his involvement with the Thrift Plan and his chairmanship of the Investment Committee.

END OF MEETING