Meeting of the Federal Open Market Committee
June 26-27, 2001

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., beginning on Tuesday, June 26, 2001, at 2:00 p.m. and continuing on Wednesday, June 27, 2001, at 9:00 a.m.

Present:

Mr. Greenspan, Chairman
Mr. McDonough, Vice Chairman
Mr. Ferguson
Mr. Gramlich
Mr. Hoenig
Mr. Kelley
Mr. Meyer
Ms. Minehan
Mr. Moskow
Mr. Poole

Messrs. Jordan, McTeer, Santomero, and Stern, Alternate Members of the Federal Open Market Committee

Messrs. Broaddus, Guynn, and Parry, Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco 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. Stockton, Economist

Messrs. Fuhrer, Hakkio, Howard, Hunter, Lindsey, Rasche, Reinhart, Slifman, and Wilcox, Associate Economists

Mr. Kos, Manager, System Open Market Account

Ms. Smith and Mr. Winn, Assistants to the Board, Office of Board Members, Board of Governors

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

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

Mr. Madigan, Associate Director, Division of Monetary Affairs, Board of Governors

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

Messrs. Freeman[1] and Whitesell, Assistant Directors, Divisions of International Finance and Monetary Affairs respectively, Board of Governors

Ms. Kusko[1] and Mr. Sichel[2], Senior Economists, Division of Research and Statistics, Board of Governors

Mr. Nelson, Senior Economist[1], and Ms. Garrett, Economist, Division Monetary Affairs, Board of Governors

Mr. Fleischman[2], Economist, Division of Research and Statistics, Board of Governors

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

Ms. Pianalto, First Vice President, Federal Reserve Bank of Cleveland

Messrs. Beebe, Eisenbeis, and Goodfriend, Mses. Krieger and Mester, Messrs. Rolnick, Rosenblum, and Steindel, Senior Vice Presidents, Federal Reserve Banks of San Francisco, Atlanta, Richmond, New York, Philadelphia, Minneapolis, Dallas, and New York respectively

Mr. Altig, Vice President, Federal Reserve Bank of Cleveland

Mr. Fernald[3], Economist, Federal Reserve Bank of Chicago

1/ Attended portion of meeting relating to staff presentations.
2/ Attended portion of meeting relating to productivity developments.
3/ Attended Tuesday's session only.

Transcript of Federal Open Market Committee Meeting of
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June 26--Afternoon Session

CHAIRMAN GREENSPAN. Mr. Kos.

MR. KOS. I'll be referring to the package of colored charts that was distributed this afternoon.[1]

U.S. short-term interest rates have continued to decline during the intermeeting period, reflecting weaker-than-expected economic data and weak corporate earnings reports. Three-month cash rates fell 33 basis points since the last meeting and 3-month forward rates declined 31 basis points. The 3-month deposit rate nine months forward, the yellow line, has also fallen by a similar amount, but it continues to imply higher interest rates for the first half of 2002, although I should add that anecdotal conversations find few people who go along with that expectation. The exception is the minority of market participants who believe that a sharp recovery will manifest itself in the second half.

In the middle panel, the euro-area cash rates have been stable since the Committee's last meeting. But the 3-month and 9-month forward rates have been pulled down, as data have come in weaker for the euro area as a whole and for Germany in particular.

In the bottom panel are three snapshots of the Japanese government yield curve from three months out to ten years. The three snapshot dates were March 1st, a few weeks before the change in the Bank of Japan's operational target, May 15th, and June 25th. At first, the bill sector was bumping up against the zero axis, but now the short end of the coupon curve is also being dragged down. And as we speak, all Japanese government bond maturities out to three years yield 14 basis points or less.

On the next page is an update of a chart that you last saw at the March meeting. The chart depicts the shape of the yield curve at the short end in the major economies. The top panel shows the 2-year yield less the central bank's short-term policy rate. The bottom panel shows the 2-year swap rate less the same policy rate. I should note that the policy rates used involve slightly different maturities; some central banks have an overnight rate, some a rate with a maturity of as long as two weeks. And the top panel uses the German 2-year note versus the ECB's refinancing rate. The bottom panel uses the euro 2-year swap rate. Whether measured against the 2-year note or the swap rate, we observe fairly sharp inversions by year-end 2000. Since the easings of the past few months by the central banks of the

[1] Copies of the charts are appended to this transcript. (Appendix 1)

United States, the euro area, Canada, the United Kingdom, and Japan, the degree of inversions has lessened, or in some cases turned slightly positive. In the last few weeks, though, some yield curves have reinverted or seem headed in that direction.

Turning to the next page, the top panel depicts the 2-year, 10-year, and 30-year U.S. Treasury yields since March 1st. Unlike the flat or inverted short end of the curve, the coupon curve is steep. The 2- to 30-year spread has widened another 5 basis points since the last Committee meeting to about 166 basis points today. The middle panel shows spreads of 10-year A-rated industrial bonds, the 10-year Fannie Mae benchmark, and the 10-year swap rate over Treasuries. The spreads, which had been narrowing all year despite the strong pace of new issues and poor news from the corporate sector, have begun to widen out ever so slightly in the past couple of weeks. In the bottom panel, we see the same kind of pattern with respect to the Merrill Lynch high-yield index and the EMBI+ spreads. Again, most of that widening has occurred in the past couple of weeks.

Now, given the large amount of issuance by the corporate sector, perhaps it's not surprising that the market is digesting somewhat and that spreads are backing up a bit. An alternative hypothesis suggests that a bit of risk aversion might be setting in, as some market participants may be having second thoughts about the appropriate level of spreads if the timing of the recovery is being pushed out.

The top panel of the next page has the major U.S. equity indices indexed to April 17th, the day before the FOMC's intermeeting move. As we can see, equities appreciated sharply in the weeks after that move, then went sideways for a while, but actually have fallen from their late-May levels by between 5 and 10 percent, as corporate earnings preannouncements have been largely negative.

The middle panel shows a similar, if more pronounced, pattern to the downside for major foreign indices. And, in fact, today European markets were down another 2 percent on average. Perhaps there, too, we're witnessing some signs of risk aversion over the past few weeks, as corporate and economic forecasts were being revised down. However, if we saw pronounced risk aversion, then we might also expect to see an uptick in implied volatilities on equity indices. But as the bottom panel shows, the implied volatility on the S&P 100 futures, also known as the VIX Index, has actually been trending lower and the absolute level is toward the lower end of its observed historical range.

Turning to the next page, let me say a word on the euro-dollar exchange rate. The top panel depicts that rate since the launch of the euro in January of 1999. The middle panel charts the differentials between the

U.S. and euro rates for 3-month deposits, the 2-year swap, and the 10-year swap. We observe the sharp narrowing during that time in the euro's favor. But I would note that the 10-year swap spread stopped narrowing in January, just as the latest bout of euro weakness reasserted itself, and that spread still favors the dollar by about 60 basis points.

The bottom panel has 1- and 12-month implied volatilities of the euro-dollar exchange rate for that same period. I would make two points. First, volatilities have drifted higher for almost the whole two-year period after the euro's launch, as the euro depreciated and as most traders and analysts were certain that the euro would and should rise. Second, volatilities have actually been falling during this most recent period of euro weakness. The bearish view accounting for this change in behavior is that the market is no longer fighting euro weakness and has become comfortable with the euro trading in the mid- to high 80s. The bullish view is that perhaps positions that needed to be insured by options have been reduced. Now, if the weaker longs are out and hence the overhang of long euro positions has been flushed out of the market, then ironically that may suggest that the euro might finally begin to rise. Time will tell.

Turning to the last page and a word about reserves, the top panel graphs our forecast for currency growth for the rest of 2001. As of the May FOMC meeting, we were still forecasting 5 percent currency growth for the remainder of 2001, consistent with the relatively slow growth we saw in 2000. Since that meeting we have adjusted expected currency growth to 7 percent to reflect the faster growth observed in the most recent months and also our anticipation that currency growth may revert toward the pace that we had seen before last year.

The bottom panel shows the implications of this change for our operations. This chart is an updated version of one you saw at the last meeting, outlining the expected net growth of SOMA, shown by the blue bars, and our total purchases of securities required to offset redemptions--if the entire need were met by outright purchases--shown by the gray bars. We at the Desk expect to rely mostly on outright purchases to meet these reserve needs, but I am a little reluctant to rely solely on outright purchases given our already hefty presence in the market. To some degree we will benefit, though very slightly, from the Treasury's introduction of a four-week Treasury bill, which is expected in mid-July or August. We plan to participate in the auctions for those bills and we will also look to expand modestly the long-term repo book, which has been at $12 billion recently.

Let me mention two other items if I may, Mr. Chairman. Two memos were circulated to the Committee last week. The first is a note regarding a technical adjustment to our collateral pool as it relates to Sallie Mae debt. The second memo, from Don Kohn and myself, provided an update on the work that's being done on the SOMA assets study and I'd like to make two points about that second memo. First, there is a group of people researching the possibility of adding Ginnie Mae debt to the list of assets that we buy, and we hope to provide an update on that issue at the August meeting of this Committee. There was also a typo in the cover note that I wanted to correct. Second, with respect to municipal debt and foreign sovereign debt, as the memo indicates, we have looked at both possibilities. The municipal debt does not seem to show promise for our operational needs, while the foreign sovereign debt has some potential. We would like to explore the latter possibility further, but at the same time--with the Committee's concurrence--cease further work on municipal debt.

Mr. Chairman, there were no foreign operations in this period. I will need a vote to ratify our domestic operations. And I'd be happy to answer any questions.

CHAIRMAN GREENSPAN. Questions for Dino?

MR. JORDAN. Does your currency forecast make any explicit assumption about currency demand as we head toward the end of the year and the launch of the euro as the currency in Europe?

MR. KOS. Not explicitly. Some noise may be created so it may have some effect. But we think it's likely to be very small, or at least that's the assumption embedded in the forecast.

MR. JORDAN. Well, there has been some anecdotal speculation that the countries that are outside the euro area--where very large amounts of deutschemarks are held and no provisions have been made for conversion--may find alternatives in either Federal Reserve notes or travelers checks or something, at least temporarily. I've been told that the price of jewelry, of diamonds and so forth, is really skyrocketing in Europe. But the word is that large amounts of Federal Reserve notes also are being used again.

MR. KOS. It's possible that we may see that effect, but it's very hard to measure and to forecast so we have not really included it in our projections. Sandy, do you have anything to add?

MS. KRIEGER. To the extent that we have seen a slowdown in the reflow of cash from abroad, it has been incorporated in the forecast. But we didn't build in an explicit addition to growth related to the euro. Our analysts are following the pattern of foreign currency demand, but they haven't added anything extra, in terms of it escalating as the year goes on, because we don't really know how much to put in.

MR. KOS. If that did happen, that would make the Desk's burden even bigger.

MR. KOHN. The data I remember seeing through April--I don't know that we have shipments data through May--from several large banks that specialize in this kind of activity did not show any pickup in net shipments to any of these countries. We looked specifically for that. Now it's very early before the launch of the euro currency, and the anecdotal stories are already starting. Nevertheless, we couldn't really see any evidence of that in the shipments data.

VICE CHAIRMAN MCDONOUGH. Well, the anecdotes were all over the place by April and May. So the fact that the shipments didn't in fact increase would suggest that the anecdotal reports are a little exaggerated.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. On page 4, in the panel showing the VIX index, as I understand it there's some seasonality in that index--or at least I heard some market commentary to that effect. Do you have any idea what is normal for the summer? It's usually lower in the summer, as I understand it. Secondly, is that just a 30-day volatility? If so, it doesn't look very far into the future.

MR. KOS. That's right. I'm not familiar with the seasonal characteristics of this index, but the pattern we have seen is that it tends to run between the low 20s--perhaps the high teens--and the low 40s. So on an absolute level, it's fairly low, and I think it's interesting to note that the trend has been heading downward. I don't want to make too much of it, but if one were thinking that risk aversion was setting in, one might point to this as an indicator going the other way.

MR. POOLE. Yes, I understood that was the reason you put it in there. But my question had to do with its normal seasonal pattern. So before we reach a conclusion about what that index suggests, I think we better know what the usual seasonality is. I don't know the answer to that.

MR. KOS. Again, there may be some seasonal there. I don't know that it's so pronounced that it would affect the index in a meaningful way.

MR. POOLE. I don't know one way or the other either. Okay, thank you.

CHAIRMAN GREENSPAN. Further questions for Dino? I assume there are no objections to his request to go forward in the manner he described relevant to municipal and foreign issues. If I hear none, I assume that it's perfectly fine.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, I move approval of the domestic operations.

CHAIRMAN GREENSPAN. Without objection, they are approved. We now go to a series of very interesting studies on the issue of productivity. Dan, will you be starting it off?

MR. SICHEL. Yes. Thank you, Mr. Chairman. In response to the wishes of the Committee for a discussion of productivity developments, the staff will be presenting three briefings this afternoon. Sandy Struckmeyer and I will discuss the staff's view on structural productivity and potential output. Jeff Fuhrer will present the perspective of the Federal Reserve Bank of Boston, and Charlie Steindel will discuss the productivity slowdown of the late 1960s and early 1970s. We will be referring to the materials labeled "Staff Briefings on Productivity Developments."[2]

The performance of the U.S. economy in the second half of the 1990s was nothing short of remarkable. One of the key factors driving this economic resurgence was the substantial acceleration in labor productivity, following nearly a quarter century of sluggish growth. As can be seen in the upper left panel of chart 1, the average growth rate of labor productivity picked up from 1.5 percent in the period from the early 1970s through 1995 to 2.8 percent since then. As seen at the right, the growth rate of labor productivity has tended to rise since 1995, although more recently it has dropped back as the economy has slowed and as a retrenchment has taken hold in the tech sector. This briefing reviews what we know about the causes of the resurgence in the second half of the 1990s and, given the most recent developments, assesses how much of that pickup is likely to persist.

As highlighted by the bullets in the lower panel, we first explore the sources of the pickup, examining how much resulted from more rapid capital accumulation and how much from a quickening of the pace of technological progress. We focus particularly on the role played by information technology. To assess the sources of the pickup, we use a traditional growth accounting framework, relying primarily on the multifactor productivity data produced by the BLS. Following that discussion, we then turn to the question of how much of the recent productivity growth is cyclical and how much is structural. Finally, given today's economic situation, we discuss the outlook for structural labor productivity and potential output.

The upper panel of chart 2 lays out a simplified version of the standard neoclassical growth accounting framework that we use--a framework that was developed by Robert Solow and Edward Denison in the 1950s and 1960s. As shown in equation 1--where dots over variables indicate growth rates--this approach expresses growth in output (designated Q) as a weighted average of the growth rates of the inputs. The two inputs included in the equation are capital services (labeled K) and labor hours (shown as L). In this expression, the growth rate of each input is multiplied by its income share--denoted by s for the income share of capital and (1-s) for labor's share. The portion of output growth not attributable to growth in inputs is the multifactor productivity residual (labeled MFP); it also has been called total factor productivity. It is a catch-all for technological or organizational improvements that increase output for a given amount of input.

Equation 2 decomposes growth in labor productivity (labeled LP). In this decomposition, growth in labor productivity reflects increases in the amount of capital per hour worked (referred to as capital deepening) and MFP

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[2] Copies of this material are appended to this transcript. (Appendix 2)

growth. In our empirical implementation of these equations, we also include a term that accounts for changes in labor composition; that is, for the effects of changes in the experience, gender, and educational attainment of the workforce—factors that might affect labor productivity.

Before getting to the numbers, the lower panel lays out some of the key strengths and weaknesses of the growth accounting framework. One strength of the growth accounting approach is that it is based on the microeconomic theory of the firm, applied to the overall economy. In addition, the approach is straightforward and intuitive, representing output growth as a simple weighted average of the growth of inputs. And, it is a rich approach that can help to identify the sources of growth in a period of structural change.

A weakness of the growth accounting approach is that it requires several strong assumptions about how the economy functions. For example, the approach assumes that markets are competitive and always in equilibrium. In addition, as typically implemented, the growth accounting approach assumes that capital becomes productive as soon as it is installed. This assumption seems reasonable for some types of assets, such as personal computers, but probably is not reasonable for certain types of complex infrastructure--such as communications networks--where elements put in place now may not be brought on line for a number of years. Also, a full implementation of this framework imposes heavy data requirements, raising the possibility of measurement error. Finally, this approach ignores the costs of adjusting capital stocks. For small changes, this assumption probably does not matter much, but supply shocks that induce significant changes in production technologies or relative prices--such as large energy price shocks--may cause the model to go off track. Despite these limitations, this framework has been a mainstay of growth analysis for many years, reflecting the widespread view that it generates numbers that are sensible.

Our empirical implementation of growth accounting is the subject of your next chart. We start with the multifactor productivity data set put together by the BLS, focusing on the nonfarm business sector. The output measure--which is based on the National Income and Product Accounts--is real GDP in the nonfarm business sector, and the measure of labor hours is based on the series for hours of all persons published by the BLS. For capital, BLS uses the concept of capital services, which I will describe in a minute. As indicated in the second bullet, the BLS uses these measures of output, capital, labor, and labor composition to calculate MFP as a residual using a growth accounting framework similar to equation 1.

Currently, BLS has published MFP only through 1999. To extend these data to 2000, we use published information on output and hours, and we construct a figure for capital services using published data on investment. Because we translate investment to capital services at a higher level of aggregation than will the BLS when they estimate MFP for 2000, there is an extra element of uncertainty surrounding our numbers for 2000. To generate quarterly numbers that can tie into our Greenbook forecast, we then interpolate the BLS annual numbers for output, hours, capital services, and labor composition. From these numbers, we calculate quarterly estimates of MFP growth.

The middle panel describes the capital services concept used by the BLS. Growth in capital services (denoted by K_t) is a weighted average of the growth in individual capital stocks. These individual stocks are denoted K_{it}, where the subscript i indexes the different types of capital. The weight for each asset (the "w"s) reflects the marginal product, or relative efficiency, of a particular asset. The weights differ primarily because of differences in the useful lives of each asset. For example, a unit of computer capital has a short useful life and likely will be scrapped after only a few years. Because the cost of the computer is amortized over a very short period of time, it has a high marginal product and gets a high weight. In effect, the service flow from a unit of this capital must be large enough to cover the costs of rapid obsolescence. In contrast, a unit of office building capital--which has quite a long useful life--generates a smaller service flow in a year and gets a smaller weight because the costs of the asset can be amortized over many years.

Using the growth-accounting framework and the data I just described, the lower panel decomposes the growth of actual labor productivity growth for selected periods. The decomposition shown is quite similar to that reported in a series of research papers, including work by Steve Oliner and myself and by Dale Jorgenson and Kevin Stiroh. The first two columns compare the period of relatively sluggish productivity growth from 1973 to 1995 to the resurgence period from 1995 to 2000; the third column shows the acceleration between the two periods. As can be seen on line 1, the rate of increase in actual labor productivity rose from 1.5 percent per year to 2.8 percent per year--an acceleration of 1.3 percentage points. This pickup reflected larger contributions from capital deepening (line 2), which stepped up 0.5 percentage point per year. MFP growth (line 6) accounted for the rest of the pickup. By these numbers, capital deepening accounted for a bit less than half of the pickup in labor productivity growth.

Because of our interest in information technology, we extend the system to split the capital deepening term into the portion related to IT capital--including computer hardware, software, and communications equipment--and to all other business capital. And, we also split MFP growth into the portion coming from the production of computers and related semiconductors and the portion coming from all other sectors. To do this, we use information on relative prices and shares of these high-tech products to estimate the MFP contribution related to their production.

As can be seen by comparing lines 2 and 3, greater use of IT equipment and software more than accounted for the rise in capital deepening. Moreover, MFP growth arising from the production of computers and the semiconductors that go into them (line 7) accounted for a noticeable chunk of the step-up in MFP growth, even though these sectors represent a small share of total output. Taken together, the *use* of IT--represented by the IT capital deepening numbers on line 3--and the MFP gains associated with the *production* of IT (shown on line 7) accounted for 1 percentage point of the 1.3 percentage point resurgence in labor productivity growth in the second half of the 1990s.

Some analysts, most notably Robert Gordon, have argued that the pickup in MFP growth was concentrated in the production of IT, and, indeed, those sectors made a sizable contribution to the step-up in MFP growth. However, as line 8 indicates, the sectors outside of the production of IT contributed 0.4 percentage point more to MFP growth in the second part of the decade than in the first. Although some portion of this pickup likely was cyclical, these numbers indicate that this broader sector of the economy also enjoyed a resurgence of actual MFP growth from 1995 to 2000.

Sandy Struckmeyer will now continue our presentation.

MR. STRUCKMEYER. Dan has described the data that we use in our analysis of the supply side of the economy. I will outline our methods for estimating the rate of growth of structural productivity and potential output. Referring to the top of chart 4, the starting point for our analysis is the simple observation that the growth of labor productivity is procyclical. Labor productivity typically rises rapidly during the recovery phase of the business cycle, slows down in the expansion phase, and declines during recessions. For many purposes in economic analysis, it is essential to abstract from these short-run swings and focus instead on the underlying rate of increase in productivity. For example, firms may base their pricing decisions on “normal” unit costs that correct for short-run cyclical variation in productivity, or households may base their consumption on their perceptions of their permanent income, which arguably reflect their views of the long-run growth in their real incomes and hence the trend in productivity.

Thus, for our medium- to long-run analysis, we define structural productivity growth as the component of productivity growth that can be sustained over a complete business cycle. It has also been called “trend” productivity growth or “cyclically adjusted” productivity growth by other researchers. Its determinants are the same as those Dan described except that estimates are made of the structural contributions of each of its components--with one important exception. We do not distinguish between actual and structural growth in capital services. Although business investment clearly fluctuates over the business cycle, in our view the actual path for investment--

and hence the actual growth in individual industry capital stocks and services--best captures the resources available to produce goods and services at any point in time. We also do not adjust for changes in the workweek of capital in our measure of the growth of capital services. Such an adjustment could be made for manufacturing industries, but it would be much more problematic in the trade and service sectors.

Given these assumptions, the critical part of our analysis is the estimation of structural MFP. Initial estimates of structural MFP growth are generated using several econometric models. These estimates are refined using other information about technological developments and supply shocks (such as increases in energy prices) that influence the choice of production technologies. The black line in the middle panel of the chart shows actual MFP growth. If all of the recent pickup were judged to be permanent, this series might be viewed as an upper bound on structural MFP growth. The staff's estimate of structural MFP growth is shown in red. Beginning in 1991, it moves up in discrete steps to a 1.2 percent growth rate in the post-1998 period.

We put together the pieces of structural productivity growth in the table in the lower panel. As you can see on line 1, structural productivity grew slowly over the 1973 to 1995 period but accelerated markedly after 1995, reaching 3.2 percent last year by our estimates. A significant part of this step-up can be attributed to the boom in investment spending over that period that substantially raised the contribution from capital deepening (line 2). But the rise in structural MFP (shown on line 4) also is an important part of the story.

Your next chart presents our estimates of potential output growth over history and our projections through 2002. By our definition, potential output is the level of real GDP that could be produced with existing plant and equipment when the unemployment rate is equal to the NAIRU. Potential output growth is estimated as the sum of potential labor hours and structural labor productivity. As shown on lines 2 through 6, the primary determinant of potential labor hours is growth in the civilian population. However, it also incorporates shifts over time in labor force participation, the employment rate, and the average workweek. For example, the increase in labor force participation over the 1973 to 1995 period is estimated to have boosted potential output growth by almost ½ percentage point per year, but this was partially offset by a lessening in the average number of hours worked each week (line 6). Movements in the NAIRU also affect our estimates of potential output growth through the potential employment rate shown on line 5; a decline in the NAIRU increases the quantity of labor employed at full employment, raising the potential employment rate. By our estimates, the decline in the NAIRU over the 1995 to 2000 period contributed an extra 0.1 percentage point per year, on average, to the growth of potential output over that period.

Our forecast for potential output growth is shown on the right-hand side of the table. We project potential real GDP to increase 3.4 percent in 2001 and 2002--much more slowly than in recent years--owing to less rapid growth in structural labor productivity (line 7) and potential labor hours (line 2). The anticipated slowdown in the growth of potential labor hours reflects the updrift in the staff's estimate of the NAIRU (line 12), which pushes down the potential employment rate (line 5) in both years.

The contribution from capital deepening to structural productivity growth (shown on line 8) also is expected to drop back, given our Greenbook forecast of a decline in business investment this year and only modest growth in 2002. As you will recall, we began linking our estimates of capital deepening to the projected Greenbook path for investment last summer. We felt that such a direct link would help to ensure consistency between our estimates of the supply side of the economy and our outlook for investment. At the time, Dave Stockton predicted that this would make our forecast for potential output growth much more variable than in the past--certainly one of Dave's best forecasts of the past year! [Laughter] But, given the wide fluctuations in capital spending since early 2000, we believe this approach has helped us to better monitor and better understand supply-side developments and their implications for our forecasts of economic activity and inflation.

In contrast to the smaller contribution from capital deepening, we expect structural MFP (line 10) to continue to grow at the 1-1/4 percent pace that we estimate has prevailed since 1998. Despite the economic weakness this year, businesses reportedly are proceeding with plans to use information technologies to streamline the ways they deal with their customers and suppliers. A recent survey of planned research and development expenditures also suggests that MFP growth will remain strong. As shown in the lower left panel, the Battelle Institute reports that R&D expenditures will increase another 3-1/4 percent in real terms in 2001, after growth of 5-3/4 percent per year from 1995 to 2000. This finding is consistent with statements from many high-tech firms that, despite cutbacks in other parts of their budgets, spending for R&D is key to their long-run financial success and will not be scaled back.

The lower right panel of the chart illustrates one possible stress test of our estimates of structural productivity growth and potential output: Okun's law. Okun's law has proven to be one of the most reliable methods for forecasting the unemployment rate. Using our estimates of the NAIRU and potential output, we estimate a version of Okun's law (specified in levels) through 1994 and then perform a dynamic, out-of-sample simulation from 1995 through the first quarter of 2001. If our estimates of potential output growth are too high, we would expect Okun's law to over-predict the unemployment rate; conversely, if we are too pessimistic about potential, the model will underpredict. As you can see, with our estimate of potential output growth, Okun's law tracks the movements in the unemployment rate fairly closely over this period. This gives us some confidence that our estimates are not too far off the mark.

Jeff Fuhrer will now continue the presentation.

MR. FUHRER. I'd like to begin by thanking Don Kohn and Sandy Struckmeyer for inviting the Boston Fed to give its perhaps aberrant views on productivity developments.

I'd also like to start off by emphasizing that I am a productivity optimist. I believe that the creation, adoption, and adaptation of new technologies over the past twenty years has increased the efficiency with which the economy produces a wide variety of goods and services. As you know, this process, while inherently a surge in the *level* of productivity, is ongoing and gradual, and has thus been manifested in a notable rise in the average *growth* rate of productivity. The process continues today; I am optimistic not just about the past, but about the future growth of productivity.

I want to take a minute today to raise a few questions--in particular, quantitatively: how much optimism is warranted, and with how much precision can we quantify it? Second, how much weight should we put on the most recent observations in estimating trend productivity growth? And finally, how much more difficult does the strong complementarity of computer hardware and software make our attempts to measure the capital services that derive from them?

To anticipate my answers to these questions, I believe that:

(1) statistically, it is difficult to justify long-run productivity growth much in excess of 2.5 percent or so;

(2) how much weight to put on the most recent observations is largely a matter of judgment, not statistics; and

(3) the interactions between computer hardware and software make inferences about capital services especially difficult and subject to more than the normal degree of uncertainty, which is large to begin with.

To put my cards on the table, I estimate that we currently enjoy a 2.5 percent trend rate of productivity growth and will likely continue at a rate near that for the next 5 to 10 years. Reassuringly, as of the June Greenbook, the Board staff and I have converged on the same near-term estimate. My basis for this long-run assessment is that network and telecommunications technologies are still evolving, and their improvement, adaptation, and gradual adoption will likely add to productivity over the next decade. My estimate of current and near-term productivity growth is derived, as is the

Board staff's, from a variety of techniques including direct trend estimation, inference from Okun's law relationships, and growth accounting. All of these involve a good measure of judgment.

To begin, I'd like to take a very simple look at aggregate productivity data. Turning to the next page of our briefing materials, the top panel of figure 1 displays the distribution of quarterly productivity growth rates over the past 6 years. I chose this period because many have dated the shift in productivity growth to early 1995, and I will provide evidence corroborating that date in a moment. What do I see in this simple picture?

First, there are only 25 quarterly numbers in this plot. That is not much data from which to infer a trend shift. As a necessary consequence, we cannot say with much certainty whether a shift has occurred, and if so, how large the shift is. Again, I believe a shift upward to about 2.5 percent growth has occurred. But I could not rule out the Board staff's earlier, more optimistic estimates, nor could I rule out the possibility that recent productivity surges will prove largely transitory.

The second observation to make from the figure is that the 25 quarters fall more than 2 to 1 in growth rates below 3.5 percent. The average growth rate during the period is about 2.5 percent.

Turning to the bottom panel of figure 1, it is *not* the case that higher growth rates tend to be clustered in the more recent years or that lower growth rates are clustered in the early portion of the sample. This panel uses the same color-coding by growth range as the upper panel, from slow growth (dark blue) to rapid (red). As the lower panel indicates, slow and moderately rapid growth rates are fairly evenly distributed across the six years. This time distribution of growth rates suggests that, while the average growth rate has likely shifted up, the basis for an *ongoing* acceleration in productivity is not as immediately evident.

Nonetheless, the three highest growth rates in this period occurred relatively recently, in the third and fourth quarters of 1999 and the second quarter of 2000. As a result, the rate of productivity growth for the four quarters ending in the 2nd quarter of 2000 was an astonishing 5.3 percent. If evidence of further acceleration is to be found, it is in the fairly short and recent period from mid-1999 through mid-2000.

More formal statistical tests for productivity trend shifts confirm the insights from this simple analysis. Figure 2 presents results of tests for a shift in the productivity trend allowing for multiple unknown breakpoints. This test looks for breakpoints over a given sample while remaining completely agnostic about the location of the breakpoints. It's important to note that, owing to restrictions from statistical theory, this procedure does *not* allow breakpoints *too* frequently, say every two or three years, or breaks too close to the beginning or end of the sample. But I think that's actually a good thing: determining frequent or recent breaks in trends is a matter for judgment, not statistics.

The actual quarterly growth in nonfarm business productivity is shown in the gray bars in the figure. The red line depicts the estimated trend productivity growth rates for the sub-periods defined by the breakpoints. The figure suggests the following:

The simplest test, shown in the top panel, finds a shift in trend productivity growth in early 1995. The estimated growth rate from 1995 to 2001 is 2.4 percent.

In the middle panel, I add to the breakpoint test regressors that attempt to control for "cyclical" effects on productivity growth--rapid, unmeasured increases in labor effort during spurts of high demand, for example. While these cyclical effects are indeed significant in explaining some of the quarterly fluctuations in productivity, they do not materially alter the estimates of the recent trend growth rate from the top panel.

In the bottom panel, the growth in capital services per hour--the "capital deepening" variable of choice--is added to the test regression. The addition of this variable virtually eliminates any recent shifts in trend productivity. That is, after controlling for capital deepening, average productivity growth since the mid-1990s is roughly equal to the average for the dozen years before that.

This last result suggests that multifactor productivity growth, which accounts for the bulk of labor productivity after excluding the effects of capital deepening, has grown at a healthy pace over the past decade or more --about a percentage point faster than in the dismal '70s and early '80s. However, this method provides little evidence of a more recent increase in trend multifactor productivity growth. Sustained increases in productivity must ultimately be supported by multifactor productivity growth--that is, by technological progress. With steady technological progress, we can continuously add new machines that embody the latest technology without suffering diminishing returns. I believe that this process of embodied-technology-driven investment was at the heart of the capital deepening in the late 1990s and may well drive additional capital deepening when we recover from the current slowdown. But once again, an acceleration in productivity which arises from an increase in the rate of growth of multifactor productivity is hard to justify using this methodology.

In discussing Figure 1, I noted that the evidence for a more rapid increase in productivity growth lies in a few key observations between mid-

1999 and mid-2000. This leads naturally to the question: In assessing changes in productivity growth, how much weight should one put on the recent past? As I suggested, this is largely a matter of judgment, not statistics or economic theory. Your next chart (figure 3) displays the evolution of the Board staff's estimates of structural productivity growth over the past six years. As the chart indicates, as recently as mid-1997, the Board staff had estimated structural productivity growth, shown in the black dotted lines, at below 1 percent, which looks quite pessimistic by today's standards. To be sure, some of this pessimism arose from the less robust growth evident in the unrevised, real-time data shown in the light gray line.

As of September 1999, the Board estimated trend growth for 2001 (the bold red line at the right) at 2.3 percent. From that point, their estimate rose dramatically, increasing almost 1.5 percentage points in less than 12 months, echoing actual productivity performance in 1999 and early 2000. Since August of 2000, the Board's forecast for structural productivity growth for 2001 has fallen almost 1.2 percentage points, just as actual productivity growth has slowed. In the interest of full disclosure, I should note that I was probably too slow to revise my estimates of productivity growth upward. In May of 1998 I estimated structural productivity growth at 1.3 percent; in June of 1999 my estimate was at 1.75 percent; and only by September of 2000 had I raised my estimate to 2.5 percent, where it stands now.

Of course, the Board staff's rising and falling estimates arise through the link between the staff's investment forecast and its computation of capital services per hour. Rapid investment implies larger net additions to the capital stock, a larger flow of capital services from that stock, and more capital services per hour. While this methodology has a sound theoretical basis, our judgment is that it has produced large and rapid swings in structural productivity that may stretch many people's notion of "structural." I offer two reasons for smoothing through some of these recent bursts of productivity: First, it is conceivable that much of the investment in 1999/2000 was Y2K-related computer investment--or just generic over-investment--that didn't deliver much in the way of additional capital services. Second, we think it likely that a good portion of both the unusually high productivity numbers and the very recent lower ones reflects unmeasured variations in *effort*, rather than changes in underlying productivity. Not all hours of work yield the same effective input. It is likely that workers can increase effort per hour for short periods of time when demand is high. These unmeasured changes in the intensity of effort may have allowed temporary, unsustainable increases in output without structural productivity increases.

Finally, I'd like to raise a conceptual question about how well our productivity accounting systems capture the joint contribution of computing equipment and software to capital services per worker. In essence, my concern boils down to the possibility that we may have over-adjusted computer prices for quality improvements, thus over-estimating their contribution to real output and productivity. No doubt the rapid declines in hardware prices approximate the increased processor speed and storage capacity of new computer models. However, it may not be the case that these increases in hardware capability accurately reflect the increased functionality provided to businesses by the combined hardware-software bundle. Hardware often advances just enough to make it possible to run the latest software. Here I have in mind, for example, the "killer apps" reference in the staff memo on capital overhang--killer applications that require new hardware to run them. As a result, the services delivered by the bundle of hardware and software are not likely to equal the sum of the independently computed service flows for hardware and software. In addition, this interdependence of the development of new software and hardware is a key determinant of the effective rate of hardware obsolescence. This is a significant departure from standard assumptions about capital depreciation. These complexities seriously tax our standard methods for tracking the additions to capital services of the hardware/software bundle. I am not suggesting an elegant alternative to our current methods, although I believe this will be an important area for future research. But I do wish to point out that this fundamentally complex conceptual problem adds to the uncertainty surrounding our estimates of capital services and, hence, of structural productivity growth.

In sum, our near-term estimate of trend productivity growth is 2.5 percent, the same as the Board's current estimate, although we have sometimes differed in the past and may in the future. The long-run prognosis for productivity growth is also good, because it appears that the growth in multifactor productivity has improved markedly compared to the 1970s. That said, the difficulties in estimating productivity trends should not be underestimated. They include inferring recent trend breaks with relatively few data points, separating "cyclical" from secular fluctuations, making assumptions about the rate of technological progress going forward, and measuring capital services for conceptually complex hardware/software bundles. These difficulties leave plenty of scope for reasonable individuals to disagree.

Charlie Steindel from the Federal Reserve Bank of New York will now continue the presentation.

MR. STEINDEL. Thank you. I'd also like to thank Don and Sandy for giving me the opportunity to speak today. It seems my job is to talk about a less optimistic period of productivity performance.

As we all know, productivity growth in the nonfarm business sector was noticeably slower from 1973 to 1995 than in earlier or later periods. The transition to slower productivity growth appears to have been gradual. Labor productivity growth in the years from 1967 through 1970 was low by the standards of the postwar period. There was a resurgence in 1971-72, but 1973 saw a drop to the lower numbers that became customary through the mid-1990s. Table 1 shows measures of productivity for various subperiods since 1960. We can see that the downshift in productivity growth after 1966 through 1973 was widespread across sectors. Nonfinancial corporate productivity growth moved in line with the total, though manufacturing productivity remained rather strong.

Developments in various multifactor productivity measures in the late 1960s and early 1970s were similar to those in labor productivity. Chart 1, on the next page, shows the annual estimates of multifactor productivity growth for nonfarm business made by the Bureau of Labor Statistics. There were several years of negative multifactor growth in the late 1960s and a very brief 1971-72 revival. From our vantage point today, the slowdown in multifactor productivity growth in the years in the late ’60s appears to be a good indication that the basic productivity trend was beginning to falter. However, as Dan noted earlier, such estimates of mutifactor productivity depend very heavily on detailed, definitive data that simply were not available at that time.

Contemporary observers were well aware of the sluggishness in productivity in the late 1960s, especially in 1969. Nonetheless, there apparently was a widespread belief that productivity growth would rebound to the trends of the 1950s and early 1960s. Table 2 pulls statements from reports of the Council of Economic Advisers from 1967 through 1971. They continually asserted that the longer-term trend in productivity growth was 2-1/2 to 3 percent. The transition from the Johnson to the Nixon Administration only seems to make a difference in the boilerplate language or where the discussion of productivity was placed in the report; the numbers were generally the same.

Of course, the inability to detect the shift in the productivity trend was likely compounded by the exceptional turbulence of the late 1960s and early 1970s. Just to remind everybody, major events included: the Vietnam War, large swings in federal taxes, substantial expansion of federal regulations and entitlement programs, the collapse of the Bretton Woods system of fixed exchange rates and gold prices, a period of widespread wage and price controls, the first oil shock, and sharp shifts in monetary policy. Given the disruptions of the day, it is not surprising that low productivity growth was often dismissed as reflecting short-term disruptions--in 1969, for example, a shortage of skilled workers often was mentioned as impeding productivity--rather than the beginnings of a more disturbing long-term trend.

There were a number of developments in the late 1960s and early 1970s, potentially observable at the time, which could have suggested that the productivity trend was weakening. First, productivity growth was weak on a number of occasions, given the overall state of the economy. Chart 2 shows the results of a number of rolling regressions I ran of productivity growth on output growth. These regressions were estimated year by year over samples ending in the late 1960s; the regressions were moved forward every year--extrapolating forward a further year and seeing how the forecast compared with actual productivity. The forecast line is shown in red and the actual productivity change, Q4 to Q4, is shown in blue. While the errors were mostly rather modest, we see repeated cases where the projected productivity growth was greater than actual growth in the late 1960s, and the shortfall in 1969 was rather large. However, as we all know, such regressions are subject to normal sampling error of some magnitude. In any event, these regressions were back on track from 1970 to 1972.

Profit trends and equity market developments provide some further evidence that productivity growth was deteriorating in the late 1960s and early 1970s. As Chart 3 shows, current-dollar profits of nonfinancial corporations dropped substantially as a share of sectoral output in this period. At the time, one might have attributed the decline in the profit share to some of the special forces then at work, besides of course the recession in 1970: the upward trend in nominal interest rates, increased pension costs, increased payroll taxes, intensified foreign competition, and the surge in imported commodity prices. The recovery in the profit share in the expansion of the mid- and late 1970s does suggest that there were some unusual short-term factors--again, aside from the cyclical decline--holding profits down around 1970. However, the longer-term signal provided by the profit slump appears to have been reinforced by the stock market's performance.

Chart 4 shows the earnings-price ratio and various measures of real interest rates. The earnings-price ratio, in black, was little changed on balance after the mid-1960s before beginning a prolonged uptrend in 1973. The blue dashed line is the real funds rate, measured as the nominal rate less the four-quarter change in the core PCE price index. Real interest rates appear to have peaked around 1966 and drifted down for a few years in the late 1960s; but they were then quite volatile through the early 1970s before bottoming out in the middle of that decade. The real 10-year rate, shown in red and computed on a comparable basis, behaved similarly.

The impression, therefore, is that real rates may have peaked around the mid-1960s and perhaps started trending down. This impression is reinforced by the Board staff's calculations of the equilibrium real rate, which shows a pronounced decline from the mid-1960s through the mid-1970s. But that measure of the real rate, which is based on current estimates of the output gap, was not observable at that time. The relation between the earnings-price ratio and real interest rates depends on perceptions about the riskiness of the stock market and expectations of earnings growth. The rise in the earnings-price ratio relative to real rates in the late 1960s, as a matter of logic, suggests that investors either were regarding the stock market as an increasingly risky investment or were revising downward their estimates of future corporate earnings. Either adjustment would appear to be consistent with reduced estimates of the longer-term productivity trend.

In conclusion, the experience of the late 1960s and early 1970s suggests that productivity trends can indeed change rather unexpectedly, and it shows the difficulty of detecting such a trend shift while it is occurring. Using our knowledge of subsequent developments, comparisons of observed productivity to that predicted by overall activity as well as observations of profits and the stock market would seem to have provided evidence, available at the time, that the deterioration of the productivity trend was under way in the late 1960s. However, an observer of the day, familiar with the long record of a strong productivity growth trend, may well have overlooked those signals. In sum, the experience of thirty years ago shows us how hard it is to detect in real time that the productivity trend is shifting and by how much.

That concludes our presentation, Mr. Chairman.

CHAIRMAN GREENSPAN. That was extraordinarily effective, gentlemen. I think you ought to be pleased that you coordinated so well.

Let me raise a few questions myself. You've all raised basic conceptual problems and I think the major concern that you expressed relates to the fact that the input data are not adjusted for intensity of use in one form or another. You're working off the capital stock and you're using depreciation as an important component of the weights used to aggregate capital stocks to get at capital services. You're all, however, using gross product in constant dollars as measured by BEA. Yet as we all know, the statistical discrepancy underwent a very dramatic widening over a protracted period and did not reverse. As a result, real gross income grew significantly faster than real gross product during the period when productivity growth was accelerating. Many of the conclusions that come out of this analysis are affected by using product-side data rather than income-side figures. We know that gross domestic income and gross domestic product are conceptually identical, so we're dealing strictly with measurement questions. More importantly, the weight of the argument is that while the data are possibly marginally superior on the product side, that superiority is indeed marginal. Therefore, robust conclusions on issues of this nature, at least in my judgment, should be those that come out of data from both the income and product sides and are effectively independent of the types of measures used.

Even if we get beyond that question, there is also the problem of which we are all aware, namely that implicit in the gross product--and in fact in the gross income--data are some structural issues. In particular, there are industry productivity estimates or cross-classifications of industry, such as corporate versus noncorporate, which when you squeeze the data effectively produce very significant numerical howls, if I may coin an awful metaphor. Our analysis indicates, as does that of others, actual declines in real output per hour over the past few decades in significant areas of the economy, such as health services, legal services, and repair services. However, the gross product originating data in nominal terms in all of these areas are not particularly out of line, suggesting that we are indeed looking at some very important biases in the price indices. Of course, the crucial question here is not whether there are biases but whether the biases are changing. And of that we’re not terribly certain.

The cross-classification by legal form of organization suggests that the locus of the measurement problem is the noncorporate sector. So, if we look at productivity in the nonfinancial corporate sector, the growth rate shift we see from the pre-1973 to the post-1973 period is actually significantly less than for the nonfarm business sector. Let’s look at some of the averages. For example, let’s take 1967 to l973, which is a strong productivity era, and compare it to the 1974-1995 period. As you can see on the table shown by Charlie Steindel, the decline in nonfinancial corporate productivity between those two periods was a lot smaller than it was for nonfarm business. Indeed, the same is true for manufacturing. The obvious inference from those data--which, as I indicated, has been confirmed--is that when we disaggregate the data, the numbers for the noncorporate sector behave in an entirely noncredible way. Therein lies the crux of the whole problem and where a number of questions arise with respect to the robustness of some of the results presented to us today.

In my judgment, it might be useful to rerun this whole exercise using income-side data and perhaps substitute for some of the unreliable price measures we have in our system. For example, as we all know, when people analyze select segments of the medical services area, every study almost invariably shows a long-term deflation of unit medical costs. When we use aggregate price measures, those costs go up. Indeed, if one tries to infer the movement in the average price from the nominal gross output per dollar originating in medical services, one gets a price decline. So, a lot of basic data adjustments are called for, in order to make consistent the internal data system we're working with. I think we ought to make those adjustments and then run through this kind of exercise in order to determine whether or not the results are a function of the data inputs we are employing. Some of them will be; some of them won't be. But before we can stretch our state of knowledge terribly far, I think it's useful to know what raw material we have to put in our system. For example, I suspect that if we spent a good deal more time on the capital input data, we'd come up with a lot more problems than you're raising, Jeff, or that Dan is raising as well.

The ultimate question, however, really boils down to how these systems work in forecasting real GDP. The truth of the matter is that they do pretty well. So you're concluding in a sense that the system is not just noise but that there's something there. Now, the aggregate size of a lot of these inter-relationships probably didn't make terribly much difference on the way up because they were all going in the same direction. They do matter significantly at turning points or when we're trying to look at the longer term. So as I see it, there has been extraordinary progress in the numbers systems, but some of it makes me a little uneasy--especially that chart, which, regrettably I think, designates how we projected structural productivity Greenbook by Greenbook. It ought to be classified "top secret, one eye only"! It doesn't do well for us. I'm not sure that our retrospective view is anywhere near what that set of numbers shows. Anyway, I've said my piece.

MR. STRUCKMEYER. Mr. Chairman, may I respond?

CHAIRMAN GREENSPAN. By all means.

MR. STRUCKMEYER. I have a couple of comments. I personally like Jeff's last chart. And rather than viewing this as a vice of the staff's approach, we think it is a virtue. I'd point to the Okun's law chart, which is my last exhibit, Chart 5. When we've used this approach over the last year or so, we really haven't been off too far in our forecasts of the unemployment rate. Indeed, if we use a gross domestic income concept in Okun's law, estimated in a very similar way to the way we've done potential output on the product side, Okun's law fits about the same as shown in this chart. We haven't done that recently, but when we've done it in the past, the two methods haven't diverged greatly. They may diverge at turning points, as you suggest. That's something we haven't looked at but we can do so. At any rate, we think this method has served us in pretty good stead over the last year in helping us to understand what really has been going on in the economy and in keeping our inflation and output forecasts on track with those developments.

CHAIRMAN GREENSPAN. Sandy, let me just ask you this. I vaguely recall that we used to employ Okun's law to estimate potential. If you start in that direction and work backwards, it's going to generate this particular relationship.

MR. STRUCKMEYER. Well, it is an iterative process. [Laughter]

CHAIRMAN GREENSPAN. I appreciate your--

MR. SICHEL. Mr. Chairman, let me add one thing on the income-side numbers. In addition to the material we presented, we have done this analysis using the gross domestic income data. I can tell you what that would produce for Chart 3, which shows that labor productivity growth picked up from 1.5 percent in the earlier 1973-95 period to 2.8 percent in 1995-2000 period, for a pickup of 1.3 percentage points. If we rerun that using gross domestic income, the pickup would be about 0.3 percentage point more. So, as the Chairman said, there may be some preference for the product side but it wouldn't be that strong. If one went to the income side, there would be a bit more of a pickup in multifactor productivity to explain. Indeed, the Council of Economic Advisers in the way that they do these decompositions in their analysis will typically average the income side and the product side in looking at the numbers, taking a very agnostic view as to which is more correct.

MR. STOCKTON. Mr. Chairman, may I make one comment about Jeff's picture as well? What Jeff hinted at in his remarks, but it doesn't actually show in the chart, is that the techniques that he used--and indeed that we used ourselves before last summer--were techniques that in a period of improving productivity are going to result in a series of persistent one-sided errors. That is in fact what we were observing in our own forecasts for a considerable period of time. So it didn't seem to us to be a reasonable approach to take as a baseline, given that it almost certainly would result in that kind of pattern. We recognized, as Sandy said, when we shifted to our current approach, that by tying our potential output forecast much more closely to our investment forecast we were going to create a series that would move around a great deal. I don't take the up and down movement in our estimates that we've seen thus far over the last year necessarily as a defeat of the basic approach. While proving more variable, like our forecast, it may turn out to be less biased than an approach that looks simply at a linear filter of productivity performance. So I think the jury is still out.

Obviously, we felt in some sense that it was very difficult to present a forecast to the FOMC time after time in which an investment forecast implied something about the pace of capital deepening but we then divorced that forecast from our estimates of structural productivity. That was the concern that led us in the direction of trying to tie those concepts closer together. What has happened, obviously, is that our investment forecast has been off by a ton over the past year. We moved to this technique probably just at the time of our peak forecast of investment and have been revising it down since then. So I think Jeff is entirely fair to present this chart because it indeed reflects our record. On the other hand, I don't think it necessarily requires us to put an "eyes only" over it and never show it to anybody. In fact, I feel quite comfortable explaining it and defending this pattern of errors to the Committee or to people outside the Committee as well.

CHAIRMAN GREENSPAN. Well, maybe the problem is that we're using the term "productivity" to explain all of this but what you're explaining is the use of a structural model to forecast certain internal variables that are the determinants of the level of output in the relatively short run. The words one uses to explain it probably are not really relevant. In fact, it's quite conceivable that what you're doing is really quite different from what Jeff is doing--that the two of you are measuring different things. He presumably has a definition of what he means by structural productivity. Indeed, that's obviously the case if we listen to what he's doing and how he's calculating it. But you and he are not measuring the same phenomenon. You're measuring a different phenomenon. It's almost as though he has a 10-year moving average and you have a 2-year moving average and you're struggling to find out why they don't look the same.

MR. STOCKTON. I think we recognize that.

MR. FUHRER. There is some of that.

MR. STOCKTON. Also, the kinds of questions one might want to address with these various analyses are different. I remember President Minehan asking early on in this process about whether we would use this for a 10-year forecast. We indicated “no,” because we’re thinking in some sense about a higher frequency notion of what is structural. We tried to adjust our language to reflect that by using different terminology--talking not about our view of trend productivity but our view of structural productivity. And in the longer-term simulations that we present to the Committee, that estimate of structural productivity varies over time, depending on the longer-term outlook for capital investment or the relative price of capital equipment.

CHAIRMAN GREENSPAN. I might add parenthetically that we often show negative numbers for multifactor productivity. If we truly mean that as knowledge or some form of technical capability, the presumption that we forget the wheel or some particular major advance somehow just doesn’t seem--

MR. STRUCKMEYER. But that number is not just knowledge. It’s knowledge plus errors and cyclical behavior, too.

CHAIRMAN GREENSPAN. Well, even if you cyclically adjust it, you can still get negative numbers. I would call it errors plus knowledge rather than the other way around.

MR. FUHRER. At some risk--maybe when the Chairman speaks for me, I should just keep my mouth shut and leave well enough alone--I just want to try to clarify one point. And that is that I don’t think we’re actually as far different in our concept of what productivity is as you might be suggesting. I would not as an operational matter use simple long-run linear trends to figure out structural productivity. In fact, the reason I believe that productivity growth accelerated over time is precisely because we had sustained bursts of investment that actually did add capital services because those services embodied new technology. So that concept, I think, is absolutely right. The question is only about short periods, when we impute productivity surges that are structural because of investment bursts that may not deliver capital services in the way that the model says they would. Then there's some scope for applying judgment to adjust those estimates, and I'm applying judgment a little differently from the way the Board staff is as well. But I don't think we're quite so different in terms of our notion of structural productivity.

CHAIRMAN GREENSPAN. Let me raise one final question, which really gets to the issue of capital stock. Our capital stock numbers are heavily influenced by decisions about what spending should be capitalized and what should be expensed or written off. Security analysts apparently believe that writing off items increases the market value of a firm. What in the world do we mean by capital stock other than that which produces income in the future or, by extension, productivity in the future? Therefore, those write-offs are an issue because given the way that we tabulate capital deepening, we are effectively eliminating from the capital stock a number of items that are written off. Brynjolfsson, for example, has some huge numbers that he applies to the capital stock on the grounds that these items are not written off concurrently and thus do add to the value of the firm at a later date. To be sure, that capital will depreciate fast. Average depreciation rates will be a lot faster. Nonetheless, if the capital stock is growing and we never quite catch up, we will get a shift between multifactor productivity and capital deepening. Obviously labor productivity will be invariant in relation to that. But again, it does matter for projection purposes. President Broaddus.

MR. BROADDUS. Mr. Chairman, I'd like to offer a couple of comments and then end with a quick question. I liked these papers very much. I thought they were quite helpful.

For me at least, the bottom line is that the confidence interval around any current estimate or projection of structural productivity growth is fairly wide. I can't say that the papers have actually narrowed it any. Still, it's very useful to me to have a sense of how some of these numbers are constructed, and I appreciate the work.

I might just say, though, that I think it's worth keeping in mind that this is the first in presumably a series of discussions of special topics. These are in some sense a substitute for the discussions we used to have on the money targets. Once we began to deemphasize the money targets, we usually got into some discussion of the longer-term strategy of monetary policy at these so-called "Humphrey-Hawkins" meetings. In my judgment that's a tradition we ought to keep. In that spirit, I think it's appropriate to try to draw out of this discussion as best we can the implications of productivity growth prospects for our longer-run monetary policy strategy. We should determine the connection between the productivity growth trend and monetary policy as clearly as we can.

Now, with respect to our monetary policy strategy, we no longer set explicit money supply targets and we have not as yet adopted any definite substitute for that. But given our public commitment to long-term price stability, I think most of us have some implicit target ceiling for inflation that we carry around in the back of our minds--at least I do--and it's probably something like 2 percent on the core PCE. So it seems to me that the key question here for the Committee is: What are the implications of changing trend productivity growth rates for achieving and maintaining long-term price stability? Actually, it's interesting that from a longer-term perspective if we're targeting inflation--even if it's an implicit target--in a sense trend productivity growth doesn't matter because any trend productivity growth or any sustainable long-term rate of economic growth is consistent with price stability.

Knowledge of trend productivity growth is very important, to me at least and I think to many people, in terms of giving us an estimated range for the equilibrium real funds rate at any point in time, given whatever situation we face. We've talked about this many times before: The higher the productivity growth rate, and hence the faster the expected growth of future income, the more businesses and households are going to borrow money to try to bring some of that expected higher future income forward; and hence the higher the equilibrium real rate needs to be to make people and business firms be patient and wait until the actual higher income arises. The staff has been producing estimates of equilibrium real interest rates to be used in formulating our short-term monetary policy settings. I think that has been useful, and that brings me to my question. I'd be interested in the staff 's estimate of how much the range of equilibrium real rates has to change in response to a particular increase in trend productivity growth. To be more specific, do you have estimates over the long run of how much the range of equilibrium real rates needs to rise when trend productivity growth increases by, say, a percentage point? That seems to me one of the basic practical questions that we need to answer to help us in conducting monetary policy.

MR. KOHN. In some of the papers you've received over the years, and in the Bluebook this time, I think there are some hints of that. The model's estimates of the effect of trend productivity growth on r*, the real federal funds rate, are more than one-for-one because of the big effects on demand. The supply effects on equity prices, on expected income, and expected earnings have a significant impact on demand for consumption and investment. So in the model, unless it's changed of late, a 1 percentage point increase in trend productivity growth gives us an r* that is about 1.3 or 1.4 percentage points higher, and obviously vice versa for a reduction in productivity growth. This is reflected to a certain extent in Charts 6 and 7 of the

Bluebook. Those charts simulate higher and lower productivity growth. They don't extend long enough in time to give us a true trend. But if you look, for example, at the surge in structural labor productivity chart, the real funds rate levels out at 4-1/2 percent in "the perfect foresight" case--the dotted red line. The difference between these is about 1-1/2 percentage points, I guess, but it doesn't go to equilibrium. But you can see there that even in a few years the perfect foresight model takes the real rate up to about 4-1/2 percent whereas the productivity slump case has the rate at about 4 percent, and I think it would continue to come down. That's not as much as the 1 point change, but it gives you some sense of what's going on. A productivity change certainly does feed through into effects on r*.

MR. BROADDUS. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. In thinking about Jeff Fuhrer's chart with the highly variable structural productivity, I believe we can make good sense of that if we go back to the growth accounting equation on Chart 2. In my view the problem here is that we have tended to proceed by thinking about a potential GDP track, which involves labor force growth--taking account of the demographics--and some structural labor productivity trend. We then add the two together. But that can't really be divorced from the investment outlook, which is the point of the growth accounting equation. That equation says that productivity, looking at the decomposition of the growth of output, is tied intimately to the investment outlook. That is even more true today than it was in the past because of the relatively short duration of so much of the new capital. So our idea of potential, which comes from adding together trends divorced from the investment outlook, is really misleading. To me that is the point of emphasizing this concept, and I think that point is absolutely right. Now, we may not like attaching the word "structural" to it because it seems to change too fast, but linking it to the investment outlook I think is absolutely correct. So what that says about the amount of output that the economy can produce, which is obviously relevant for monetary policy--and about the amount of inflationary pressure that might result given the policy that we follow--is that it really is tied very closely to the investment outlook.

As for the multifactor productivity, that's not just information or the accumulation of knowledge. It also includes the effects of regulatory change that may damage productivity, such as laws that affect the entrepreneurial environment. All sorts of public policies are going to show up in multifactor productivity, which certainly can be negative. I'm sure many of us believe, for example, that at times lawyers have damaged the productivity of the society.

CHAIRMAN GREENSPAN. That's why I question all of these declining output per hour figures that are implicit in the decomposition of data for medical services and business services originating in the gross national product. But I'm equivocal on the issue of legal services. [Laughter]

MR. POOLE. One of the issues for those who try to study productivity on a sector-by-sector basis lies in the difficulties of identifying inputs and outputs sector by sector. I think Denison's position was that one has to go to an aggregate level rather than to try to specify productivity sector by sector; the latter ends up being a losing game because of the difficulties of relating one sector to another.

CHAIRMAN GREENSPAN. Well, that's only partially true because staff here addressed that question with input-output analysis and found that many of the measurement anomalies are in industries that primarily sell to final users. I noted earlier, for example, that one of the problem industries is health services; but the bulk of the output of that industry goes to final users. So, conceptually Denison is correct. But as a practical measurement structure--the way you go about it--when you disaggregate the data, that really tells you something.

MR. POOLE. What I'm getting at is the problem of taking aggregate productivity and assigning it to sectors. For example, Bob Gordon has argued that it is very difficult to sort out the productivity of the airlines from that of the aircraft manufacturers because changes in the quality of the aircraft affect both. Trying to distinguish how much of that is aircraft--

CHAIRMAN GREENSPAN. That argument is accurate when one is looking at the contribution to the total productivity. But we do learn things about output per hour within sectors because profitability within a sector does rest on it. Whether or not the productivity in aircraft manufacturing gives us lower input prices for aircraft services is an interesting notion. But it still doesn't give us the check that this disaggregation provides. That's because if we get the numbers in our measurements of sector productivity--irrespective of what's going on elsewhere--that make no sense internally relative to profit margins within that same sector, for example, that is telling us that price is very peculiarly measured.

MR. POOLE. Right, it's telling us that the measures of outputs and inputs are strange.

CHAIRMAN GREENSPAN. No, actually I think that is a different issue than we're discussing here about the accuracy of the data.

MR. POOLE. Well, let me make one other point. I think that perhaps what we need from this analysis is a sense of the standard errors in this process. How much uncertainty do we face? Is there some kind of trend or standard investment outlook that would help us to separate out this uncertainty about the capital accumulation? Then the question would be: Given some standardized investment outlook, what is the standard error for the labor productivity? What is the range of uncertainty? I want to ensure that we're not confounding our uncertainty about the capital accumulation process with the uncertainty about the output that comes from a given amount of capital.

MR. STOCKTON. I think that is a very good suggestion. One would want to know not only the standard error of the invested capital accumulation but its covariance with the multifactor productivity as well.

MR. POOLE. I have no idea. No doubt that is a very difficult thing to do, but I'm trying to distinguish the separate aspects of this problem.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, I'd like to ask the authors to comment about the paper that we all received by John Fernald of the Chicago Federal Reserve Bank. It seems to me that the inclusion of adjustment costs is theoretically a justifiable inclusion. In terms of that paper, it certainly results in a decidedly more optimistic view of structural productivity going forward. I would like to hear your views regarding Fernald’s estimates and also their implications. I must admit that Dan Sichel’s comment, when he indicated that in your approach you ignore the cost of adjusting capital stock, is somewhat unsatisfying to me. I would appreciate your commenting on the paper by Fernald.

MR. SICHEL. Let me start. Indeed, the standard growth accounting approach doesn't take account of adjustment costs. The usual argument for that and why it evolved that way is that originally the approach was used for looking at growth over very long periods--looking at one twenty-year segment compared to another twenty-year segment. And over such long periods of time it's presumably a reasonable assumption to say that the economy within that period converged to an equilibrium and any adjustment costs have worn off. When one takes the analysis to a higher frequency and starts to look at developments year by year, then indeed the possibility that adjustment costs would matter more becomes more important. Certainly in periods like the early ’70s and the late ’70s there were large adjustment costs associated with the oil price shocks that the standard approach doesn't deal with well. Accordingly, the standard approach was not terribly useful for understanding those periods.

As for the Fernald paper, I found that paper very provocative. I think, as you said, that theoretically it makes sense to consider adjustment costs, and the framework in Fernald’s paper seems to be the right one. I believe he did the best job anyone can do in an effort to estimate how large those adjustment costs are. But it is a very challenging task to parse out how much is adjustment cost. When a firm is adjusting its capital stock it is difficult to determine how much involves an adjustment to its desired stock today as compared with how much involves building a telecom infrastructure, say, that is put in place today but won't become productive for a long time. That “time to build” phenomenon--or the lag between the investment and when the actual productive impact is felt--can be difficult to separate from the adjustment costs. So, I think that paper does the best job that can be done, but the task is very challenging.

MR. PARRY. Well, when you think about how we use structural productivity growth in terms of policy, it involves a shorter timeframe. And the assumption that I think we are making--that the adjustment cost is zero--probably is not an optimal assumption.

CHAIRMAN GREENSPAN. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, I’m prompted by your unkind remarks about lawyers to note that it was suggested that the jury is still out on these issues. If your initial remarks are meant to be the charge to the jury, that jury is going to be out for a long time! [Laughter]

Charlie Steindel mentioned and I think in his presentation made clear that when a major shift in productivity is taking place, it’s very easy not to spot it at the time. That, I believe, makes it important that we applaud what the Board's staff was doing, even though it gave rise to that interesting- looking chart. While the staff was struggling with that issue, it was very clear to the Committee that something was happening that we were having difficulty explaining and we were searching for an explanation. And since this is not an economics class but rather a central bank trying to make monetary policy, it's crucial that we know when we’re not sure of something because then the judgmental factor in making monetary policy becomes even more important. If you had been giving us the impression that you really understood these productivity issues more than you actually did at the time, then I think we would have been less aware of the need for judgment. So I very much applaud what you did. I thought the presentation was excellent and the work, especially bringing to our attention when you are less certain than you frequently are, is an important part of helping us make policy.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. I'm interested in the following issue. It's my impression that we have not seen this acceleration in trend or structural productivity in any other large industrial economy, at least so far. If that's true, I think that’s potentially important because that would suggest that something unique is happening in the United States. I'm certainly inclined to believe that the U.S. economy is on a new and more favorable productivity track and I would become even more convinced if I understood why other economies have not joined in that progress. So the question is: Have you looked at that issue and if so, what can you tell me about it?

MS. JOHNSON. May I refer you to a *Bulletin* article last October in which members of the Board’s International Finance Division researched that question on other industrial countries? They came to the conclusion that there was no convincing evidence of accelerating productivity growth in other countries. They offered some conjectures--I hesitate to call them explanations--

MR. STERN. Yes, I remember the conclusion and several of those conjectures as well. I guess my question really is: Subsequent to the publication of that article, do we know anything more that we can say about it?

MS. JOHNSON. The authors of that article continue to update their database and we look to them for additional work on productivity. But they have not in any sense reached firmer conclusions.

VICE CHAIRMAN MCDONOUGH. I have a working hypothesis that is essentially very easy to come up with, Gary. And that is if multifactor productivity depends very much on the use of information technology in order to make older industries be more efficient, the single most competitive advantage a country can have, which the United States has, is a flexible labor force.

MR. STERN. Yes, that's part of my explanation, too. But rather than rely on my own intuition, I was hoping that we had some more hard and fast evidence of what either has or hasn't been going on.

VICE CHAIRMAN MCDONOUGH. Yes, but I think it's really a combination of economics and sociology, since what we're observing is a society as well as the pure economics of the situation.

CHAIRMAN GREENSPAN. Yes, we do know that it is far more difficult to discharge workers in Europe than it is here. That's a legal question, wholly demonstrable, and it shows up in European unemployment rates. If a significant amount of capital investment is labor displacing and a firm is not able to displace labor, then the rate of return on the capital, of necessity, is less. Hence the inclination to invest is less. Therefore, as you would expect--and indeed as has been the case--the degree of high-tech investment in Europe is much smaller than in our country. And if, as we look at the data breakouts we're examining, either the application of technology or its production is a crucial part of the productivity acceleration, one would assume that the labor rigidity issue is all we need to know to explain the difference. That is, I think, the reason you have in mind.

MR. GRAMLICH. Gary, could I jump in on this point? I went through the article to which Karen was referring, and I think ideally what one would like to have is a chart like Dan's Chart 3 for all the other countries--a chart that just sets out the decomposition of productivity growth. But as I remember, we can't get a BLS-type breakdown of the capital stock for other countries. Isn't that right? I think the United States is unique in permitting analysts to do that. So in a way, until there is much more disaggregated data in these other countries, this issue is going to have to remain in the domain of speculation.

MS. JOHNSON. It is certainly true that it is a struggle to get data to work with--even something as basic as hours as opposed to number of employees. In the study our staff used an approach involving a set of OECD countries, and they used OECD data. So the weakest link, if you will, is to find the data. It's certainly possible that if we focused our attention on one or two countries that produce data that they don't all have, we could make some great progress in trying to see what is going on. But we continue to work on this problem.

CHAIRMAN GREENSPAN. Governor Meyer.

MR. MEYER. I would like to try to draw out from these very interesting discussions some implications for the near-term forecast. I want to focus on areas where the two approaches-

-we'll call them the staff approach and the Boston approach--agree and disagree. I take it that the agreement is that currently structural productivity growth is around 2-1/2 percent and that that represents an elevated level from the early 1970s to mid-1990s. The question is: Do you agree on the implication for the outlook--does that reflect an ongoing pace of innovation that is likely to rekindle the appetite for investment and support some optimism going forward about your assumption regarding high-tech investment? Is that fair to say?

MR. FUHRER. Yes.

MR. MEYER. Now where you disagree, I take it, is whether or not we believe this structural productivity growth overshot in some sense and is now reversing. The question is: How does that matter in your two visions? Let me describe how I think the staff is looking at it, particularly if equity values and investment respond sharply to the driving force behind the productivity movements--that is, the changes in the pace of innovation and so forth that motivate investment and give rise to optimism about earnings. It seems to me that the staff views it this way: That if the economy adjusts relatively rapidly to that, then that gives us support for explaining why the economy was as strong as it was earlier. And the reversal has important implications for the near-term outlook. Do you want to reject that or--

MR. FUHRER. I would be somewhat hesitant to draw very tight links between anybody's specific estimate of structural productivity and what the stock market did or didn't do at any point in time. I think a qualitative link is there in that, yes, we in Boston believe that structural productivity has increased for the reasons you just enumerated and that at some level it’s sensible for the stock market to price that in. I have no disagreement with that. We are only disagreeing about how much, whether some of these developments were transitory, and whether the stock market should have seen through them, and so on. That's a matter for an academic debate. But there are lines of your story that I would certainly agree with.

VICE CHAIRMAN MCDONOUGH. Mr. Stockton, please proceed. [Secretary’s note: The Chairman had left the room briefly and the Vice Chairman was recognizing the next speaker.]

MR. STOCKTON. Let me add just one comment to that. With our more variable estimate, we think that some downward adjustment to structural productivity growth probably has occurred over the past year and that that has had an effect of lowering the equilibrium real federal funds rate. For all the reasons that Jeff laid out about our uncertainties and the confidence intervals around many of these estimates, I certainly don't want to lean too heavily on that reed. But it is a piece of our analysis.

MR. MEYER. I have a question for Sandy Struckmeyer on the treatment of capital deepening. You make no attempt to separate out cyclical from structural changes in the case you presented. You indicated that you don't do so because it's not useful in some sense, not that you don't do it because it's too difficult or you don't know how to do it. But take the case of permanent income growth. Couldn’t you argue that households, if they really had perfect foresight, should look through blips and overshooting in structural productivity due to this kind of overshooting in capital deepening because it isn't going to be sustained? And, therefore, if you were really trying to get it right, you would smooth these variations and end up with something that was more stable.

MR. STRUCKMEYER. There are two parts to that. The first is the investment part, and we think we've done that correctly. That’s because for a concept of potential output or structural productivity, we do not want the capital stock that might have been in place had we never had a business cycle over the postwar period. That would be such a departure from reality that it really would not help us to deal with the concepts involved. The adjustment for the workweek of capital is an issue that we want to study. We recognize that in principle it would be better if we could adjust for it, but it's very difficult to do so. We have a capacity utilization rate that presumably could be used as a proxy for the manufacturing sector. But outside of manufacturing, it is difficult to know how hours worked per week are changing. Utilization of capital in a lawyer's office, for example, is very, very difficult to come to grips with. We could take a crack at it, and we will pursue that idea. But I personally am not optimistic that that is necessarily going to be a critical refinement to our measures of capital services that will significantly change the patterns that we see in the final results.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you. Let me make a couple of observations and then pose a different type of question about the international dimensions of this. First, on the observations: I think it is very useful to have these kinds of papers and discussions such as this in light of our relative ignorance on the subject of productivity. When I look at a time series that we label “productivity” and reflect on what we know or think we know about output and the other inputs that produce a result such as this, I wonder what I am supposed to think about it from a policymaker’s standpoint. But, for example, when I look at Charlie’s Chart 2 and that spike in 1971 and 1972 and the subsequent decline in 1973 and 1974, I recall that a number of things were going on at the time that I’ve always thought confounded any analysis of that period. In 1972 it was reported at the time--I don't know what the subsequent revisions showed--that real output supposedly rose 9 percent that year and the GDP deflator rose 2 percent. The GDP deflator rose only 2 percent because that's what President Nixon’s wage/price control program permitted. Then in the subsequent year the control program came off and the price index rose 9 percent or so, and the effect was that output plunged. I've always felt that we ought to average those years together if we were trying to draw any conclusions because the data as reported certainly were affected by the on-again/off-again aspect of price controls. Meanwhile, as that was going on, we had the oil price shock of ’73-’74. I've always believed that those shocks were better thought of as real wealth losses. They represented a change in international terms of trade; we moved to a lower production possibility boundary. We all remember the stories about 747s being grounded, and it had nothing to do with how new those aircraft were. They were economically obsolete given the input price; their economic life was shortened dramatically quite irrespective of their physical life and their accounting life. So we got a plunge in output in 1973-74.

I also remember the mothballed aluminum smelters around 1978-79. Those facilities were brand new but they weren’t viable any more, given the level of gas prices. I mention that now, of course, because we’ve had volatility in energy prices and we've had some other rather odd developments. The State of California by itself is the world's fourth or fifth largest economy and it is 15 percent of our economy. If it were to continue the same energy policies and produce no output or a decline in output, except for suggesting that it should secede and not distort our data, I don't know what I should think about that situation in terms of productivity. We haven't lost technology. We haven't become dumber or anything like that; it's just that the state has an incompetent governor. So if you have any observations about that, I’d like to hear them.

On the international side, as I read these papers, it was easy for me to fall into thinking about our economy as a closed economy. But I do know--and you mentioned investment--that we have some very large corporations that invest across the border--in Canada and Mexico and even in Taiwan. And I don't know what to think about the pace at which they're transferring knowledge and technology and how that feeds back into our economy. So to make my question simple, suppose all innovation--all breakthroughs in technology or creativity or knowledge--occurred in the United States and that the only way other countries acquired a new product or knowledge was through our transferring it. How would that come back into our economy--as an increase in our wealth that would somehow show up in a time series of productivity?

MR. STRUCKMEYER. Were there such an innovation, my supposition is that we would get a major increase in the rate of return on capital. We would see that reflected in greater profitability, a larger flow of capital income, and that would be reflected in the capital deepening numbers that would then boost structural productivity. And over time that would spread to other countries as we exported those products and as we relocated factories abroad because of relative wage differentials.

MR. JORDAN. So if we are importing the final product, partial analysis would say that that's going to enter negatively in our GDP numbers.

MR. STOCKTON. But we are also getting capital income. If you are Intel and your production facility is located in Taiwan, there is a reflow of income from that capital.

MR. JORDAN. Unless in the time period I'm looking at the exchange translation effects of that are swamping that reflow of income. Because we have the innovation going on here, our wealth increases, capital flows in, our currency rises, and we get a lower rate of return at least for that time period on our foreign capital investment.

MR. GRAMLICH. There would also be a positive price shock that would be exactly the reverse of the oil shock of the ’70s because we'd be getting imports more cheaply.

MR. JORDAN. If our measurement is right and we get the J-curve effects.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Thank you, Mr. Chairman. I, too, found this discussion very interesting. Obviously, I talked with Jeff Fuhrer about these issues beforehand, but the combination of all three papers and the Chicago paper was quite interesting. I want to reiterate what Bob Parry said about the adjustment costs because I think that is a fascinating topic and it's not dissimilar to an issue that Jeff raised at the end of his presentation. What do we know about how software and hardware work together and when that really becomes effective? One of your underlying assumptions is that capital is productive immediately. That may or may not be the case, particularly when we're looking at short-run changes or even two- or three-year changes.

One question I had relates to the period of the spike in the estimates of structural productivity growth, when we were going through what one might really call a “shock” in terms of investment spending associated with Y2K. One could arguably say that a lot of the investment spending, or at least some portion of it, involved replacing equipment and software that was already in place. The new investment would not do anything differently but would function in a way that wasn't going to go awry once the calendar changed. And some of the investment involved brand new items that were also Y2K compliant. Over that period of time, pent-up demand was also a factor in investment spending, particularly in the first quarter of 2000, when after everything worked out fine firms could find computer experts--they couldn’t find a computer person six months before--and finally get something done and buy equipment and so forth. Has anybody tried to sort out the impact of Y2K-related factors from those big investment numbers? Do we have any idea what that “shock effect” was?

MR. STRUCKMEYER. Y2K is a very complex phenomenon to analyze. It is particularly complicated for the capital services measure because there are two parts to that measure. On the one hand, there's the capital stock itself and there are also weights--rental prices or efficiency weights--that get attached to those various items. Indeed, one would expect to see the phenomenon you talked about with respect to the capital stock, as firms replaced older equipment that probably was not as efficient as the new equipment that replaced it. On the other hand, the flow of capital income that all of this is benchmarked to through the rental price, in the way the BLS calculates it, was reduced--I would assert --by Y2K and the remediation efforts associated with it. People spent lots and lots of time and money and probably reduced profits relative to where they would have been had there been no Y2K effect. And in the process that pulled down the rental price in the weights, which can either fully offset or more than offset the positive benefits obtained from replacing old equipment with new equipment. So I don't think it's a foregone conclusion, just because old equipment was replaced with new equipment, that in this setting it necessarily was an enhancement to productivity. When we total up all the pieces, I think the Y2K effect probably was a negative, although that is extremely difficult to show empirically.

MS. MINEHAN. That was the thrust of my question.

MR. STRUCKMEYER. We came up with a number of $50 billion for what it cost corporations to remedy their Y2K concerns in terms of labor and consultants. That number didn't include the capital. So that would have been taken out of their flow of capital income and would have been reducing profits and holding down that rental price measure. We don't have a full accounting for all these factors. I don't think it's clear that Y2K necessarily boosted capital deepening as measured in this system.

MS. MINEHAN. That was the reason for my question. I was wondering if we might actually see a leveling off from the productivity growth number here, as a result of the negative impacts of Y2K.

MR. JORDAN. May I follow up on that? That answer suggests to me that the way you think about that event is similar to the way some view the ’70s, when we had enormous capital expenditures--mandated expenditures--on clean air and clean water, but they were not output-enhancing capital expenditures. Some people at least asserted that the decline in trend productivity growth at that time occurred because we were producing something, i.e. cleaner air--or more precisely, not producing dirty air and dirty water--but the associated capital spending didn't add to what got sold in the marketplace.

MR. STRUCKMEYER. The way BLS constructs these numbers, they are part of the capital stock from the product side obviously, but there is also a flow of capital income from the income side. To the extent that those pollution abatement expenditures produced no profits but actually reduced profits, then that would have been a compensating factor in the BLS numbers. It would already be in these data, so you would not have to make a separate adjustment for it.

CHAIRMAN GREENSPAN. Further questions? President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. I, too, want to congratulate the authors of the papers. I thought they were all very good and I believe it was an excellent idea to have this as a topic for our session today. I just wanted to make a couple of comments about the so-called “organizational improvement” portion of multifactor productivity. The paper defined multifactor productivity as a catchall for technological or organizational improvements. We often talk about the technological side but we rarely talk about the organizational side, at least in this forum. Having spent some time in private industry, I think the organizational side is extremely important. I know that some research studies have been done on this, but I would encourage us to do more work in that area. Also, the analysis that we've done--going back five or six years now--at the Chicago Fed about the resurgence in the Midwest economy shows that it was due largely to the reengineering and restructuring of firms, in part relating to information technology but by no means solely. A lot of it just resulted from better management--figuring out how to get things done in a more efficient way.

Also, I think the term "multifactor productivity" is a very difficult one for a non-economist to understand. I've had conversations about this topic with lay people a number of times and I personally think that the term "innovation" is a better characterization of what we're talking about here. Again, I'm using innovation in a broad sense, not just in terms of technology but innovation in management and other areas as well. I simply wanted to make that comment because I found that terminology helpful, at least in my conversations with non-economists.

MR. SICHEL. May I make just a brief comment? There's a very interesting paper by Eric Brynjolfsson and Loren Hitt in last fall's Journal of Economic Perspectives that provides some very nice evidence on the importance of organizational improvements. Also, on the adjustment costs point that Presidents Parry and Minehan mentioned, I didn't mean to suggest that a zero adjustment is appropriate just because we do it that way. That is only a baseline. It's a very simple, transparent framework that people understand. I think, as you suggested, that adjustment costs are a very important issue, and the work that John Fernald did is an important first step in thinking about that. It is something that I think we need to continue to focus on. Hence, the reason I mentioned it as one of the weaknesses of the approach as we implement it.

MR. MOSKOW. Thank you.

MR. POOLE. I have a question that's relevant to the measurement of output and capital. I've seen a lot of stories about companies that invested in equipment--last year, let's say--that didn't work out and they are writing that equipment off at ten cents on the dollar or something like that this year. The equipment is included in last year's output at 100 cents on the dollar because that's when it was produced. What happens to it this year when it gets written off? How is it treated in the capital stock figures? And how does it affect the national output figures this year?

MR. STRUCKMEYER. That's a complex question. I'll tackle a piece of it. The equipment got into output when it was produced; it gets into the capital stock, as measured by the BLS, when a company purchases it. To the extent that it ever yields a profit, that gets into the income flows from the corporate sector that we will see this year and in all subsequent years. Had it paid off the way people thought it would, it would have produced a flow of capital services greater than what you're actually going to see in the data when they're finally published because basically it'll be in the capital stock. But if it's written off, it is yielding zero capital services or it may even be causing losses to the firm, which would be pulling down--

CHAIRMAN GREENSPAN. But it isn't written off. It's basically just not producing profit. The point that President Poole is making is that it's a problem of abusing the concept of gross product originating data--using that rather than net data and then having that item of capital destruction in the depreciation accounts. Maybe we ought to add to it something--say, economic destruction.

MR. STRUCKMEYER. Yes, economic obsolescence.

CHAIRMAN GREENSPAN. Economic obsolescence.

MR. POOLE. But the way it is treated in the capital stock data that you use is that it would be accumulated--sort of a perpetual inventory but depreciated at whatever is the normal depreciation rate.

MR. STRUCKMEYER. Right.

CHAIRMAN GREENSPAN. It actually ends up as lower multifactor productivity or, excuse me, innovation.

MR. POOLE. But I gather that the reason for the sharp drop in productivity this year might have to do in part with the fact that companies are writing off capital--at least some of this capital is equipment--faster than the depreciation assumptions you have built in. So there's capital in your capital stock figures that companies in fact aren't using. Is that right?

MR. STRUCKMEYER. Yes.

MR. POOLE. So that will show up as reduced productivity from capital.

MR. STRUCKMEYER. Yes.

MR. PARRY. But that capital has been sold and purchased at a lower price and is yielding a very good yield for those companies that bought it.

MR. POOLE. Well, it depends on the nature of the capital. Those companies might be getting a yield on it that's worth 10 cents on the dollar, but it's being carried as if it's worth a lot more than 10 cents on the dollar in the capital stock data that the staff is using.

CHAIRMAN GREENSPAN. Well, I think that's absolutely right. What you're thinking of is what actually appears on the books of the company. The property accounts added up from the IRS returns will produce a different set of numbers from the capital stock we use because the former does include write-offs. National income accounts don't pick that up.

MR. POOLE. But the point of the question is that some of what we called output last year-- and it entered our data as 100 cents on the dollar--in fact hasn't turned out to be useful because it is being written off this year to 10 cents on the dollar. So in truth we produced less last year than we thought because part of what we produced turned out to be junk.

MR. MCTEER. We should have called it consumption last year.

MR. POOLE. Or waste or something. That's my point. Some of this huge spike in measured productivity is perhaps a consequence of overstating output last year, but some of that is showing up this year. That's the way the data system works. Is that right?

MR. GRAMLICH. Just on this point, you already write computer software off in a four-year period, don't you? It has a very rapid depreciation.

MR. SICHEL. Three to five years, depending on the type of software.

MR. GRAMLICH. So the point is true, but it's not going to be with us very long.

MR. POOLE. No, that's right. But what I'm focusing on is trying to understand the most recent data and how that bears on our outlook right now. That's what I was getting at with my question.

MR. FERGUSON. But, Bill, isn't part of your point that no capital service is being gained from this investment and that's why it ends up looking as though there's really no productivity improvement? That's because there's no service that gets paid off from this investment.

MR. POOLE. Or it's 10 cents on the dollar, right.

MR. FERGUSON. It's creating an expense.

MR. POOLE. Right.

MR. FERGUSON. So it's really a problem of service being generated as opposed to the accounting concept, which is the definition of service here.

CHAIRMAN GREENSPAN. And it also underestimates the multifactor productivity number because that's picked up in the residual. So it can distort the projections. Any other comments or questions?

MR. MCTEER. I'd like to go back to Gary Stern's question about other countries and focus on Europe. I realize most of this is about structural productivity rather than total productivity. What about the idea of "give growth a chance"? During our period of rapidly increasing productivity monetary policy was fairly easy. We were probably getting ready to tighten and then the East Asian crisis came along and we didn't tighten. And then the Russian situation came along and we actually eased a bit. As I recall, during most of this period Europe was moving toward the euro and trying to get the Maastricht conditions settled, so their monetary policies were all rather tight. Then they started trying to improve their credibility. Is it possible that part of the answer is that monetary policy in Europe has been too tight, particularly recently--that policy has just not given enough room for their economies to grow?

MS. JOHNSON. I think that would be saying that they are misjudging, as it were, how much growth they could in fact experience and still not get inflationary pressures.

MR. MCTEER. I was thinking that in some sense we accidentally found out what our economy was capable of doing.

MS. JOHNSON. That is true. I certainly--and many others--have challenged our European counterparts not to be held hostage to the numbers from the past and to be open to the concept that their economies could grow more rapidly and not encounter inflationary outcomes that would be unacceptable at some point. Then along came the oil price increase and the weakness in the euro, so that perhaps has clouded the opportunity for them to realize that their economies actually could grow faster using information technology even if they use it less completely and less successfully than the United States. So in some sense the jury is still out. If it turns out that Europe experiences some acceleration in its growth five or six years later than this country did, part of it will probably be the result of the timing issues. But it's certainly not the case that observed inflation is surprisingly lower anywhere in Europe. So the Europeans have not reached a point where they believe in the capability of their own economies to grow more rapidly without inflation.

CHAIRMAN GREENSPAN. Okay, why don't we take a coffee break? Let's try to keep it to ten minutes if we can.

[Coffee break]

CHAIRMAN GREENSPAN. Given the availability of these colorful charts and staff advisors, it appears that we have a Chart Show coming up. Mr. Stockton.

MR. STOCKTON. Thank you, Mr. Chairman. If the Vice Chairman found the last presentation a refreshing admission of ignorance, wait until he hears this Chart Show![3] [Laughter]

As you know from reading the Greenbook, we continue to believe that the economy is barely growing at present. Real GDP--the black line in the upper left panel of your first chart--has decelerated sharply from its rapid pace of early 2000. That slowdown has been amplified by a substantial inventory correction, but the growth of real final sales--the red line--also has moved down markedly, on net, in recent quarters. We have received two important pieces of information since the forecast was completed last Wednesday--international trade figures for April and, this morning, a reading on new orders and shipments of capital goods in May; the implications of these data for our forecast are shown at the right. Revisions in the trade data point to even weaker growth of real GDP in the first quarter--about 0.8 percent at an annual rate instead of the 1.2 percent we showed in the Greenbook. This morning's figures on orders and shipments were in line with our expectations and leave our estimate of growth in the current quarter at about 2 percent. For the year as whole, we now expect real GDP to increase 1.4 percent, just a touch lower than in the Greenbook forecast.

[3] Copies of the Chart Show materials are appended to this transcript. (Appendix 3)

With the growth of real output projected to run well below the growth of potential into next year, the unemployment rate is expected to rise from its current level of 4-1/2 percent to about 5-1/2 percent next year.

Overall PCE inflation, the black line at the right, is expected to drop from the 2-1/4 percent rate posted last year to about 1-3/4 percent in 2002. That deceleration largely reflects our anticipation that consumer energy prices will be falling noticeably in coming quarters. Core price inflation, the red line, basically moves sideways at just under a 2 percent rate. The deceleration of structural productivity in the staff projection, discussed by Sandy and Dan, is a source of upward pressure on price inflation over the projection interval. But the indirect effects of falling energy prices and the emergence of slack in labor and product markets are expected to keep a lid on core inflation through 2002.

Clearly, the extent of the weakness in the economy has come as a surprise to most forecasters. As seen at the lower left, the Blue Chip panel has marked down its forecast for real GDP growth in 2001 by about a percentage point since January, while making only a marginal adjustment to their outlook for 2002. Our forecast--the lower right panel--already was well below the consensus in January, but we too have revised down a bit further our projection for growth of real output this year. Like the Blue Chip, we have revised up our forecast for inflation this year, but have not changed our outlook for 2002.

Your next exhibit highlights the two related influences that have most shaped the very rocky economic performance that we have experienced since late last year--inventories and capital goods. Earlier this year, we had expected the sharp cutbacks in production that began last fall to have largely eliminated most inventory overhangs by early summer. As you can see in the upper two panels, that has not happened. Inventory-sales ratios for high-technology products--the left panel--have soared in recent months, and those in the non-tech sector--the right panel--have, on net, edged up further. Firms in the aggregate have been liquidating stocks since about the turn of the year. But virtually all of that liquidation has come in the non-tech sector. For tech products, inventory accumulation appears to have crested this spring, but the bulk of the liquidation phase for that sector still lies ahead.

The collapse in investment has certainly weighed on final demand and contributed to inventory problems. As seen in the middle left panel, orders and shipments of computers and communications equipment have plummeted in recent months. And the outlook for investment in other equipment--shown to the right--has deteriorated as well. Revised data now indicate that orders have been running well below shipments since the turn of the year, implying order backlogs have been drawn down. All in all, it’s a very weak picture.

As a result, we now anticipate that industrial production will fall sharply through the third quarter, and recovery will only take hold early next year as inventories are cleared out and demand begins to firm. In the technology equipment sector--the lower left panel--production is expected to decline into the autumn. Computers and semiconductors should turn up before the end of this year, but communications equipment is not expected to post any gains until 2002. Outside of technology and motor vehicles, we are expecting deep cuts in production to continue through the summer before output reaches bottom toward year-end. The subsequent recovery that we are projecting for next year is a weak one by historical standards.

Your next chart highlights a few sectors that have, thus far, prevented the weakness in capital spending and industrial production from tipping us into outright recession. Light vehicle sales, shown in the upper left panel, have held up very well. And reports for early June suggest that the sales pace has not yet slackened appreciably. To some extent, automakers have been holding up sales through the use of more generous incentives. Even with some further sweetening of incentives, we expect the deceleration of income and the weakening of household wealth to result in some drop-off in coming quarters. As seen to the right, prompt and aggressive cuts in production succeeded earlier this year in curbing motor vehicle inventories, but if our sales forecast is correct, further cuts will be necessary in the second half.

Housing starts--the middle left panel--also have been well maintained this year. Low mortgage interest rates have largely offset negative income and wealth effects, and we are projecting residential construction activity to be little changed over the remainder of the year.

Consumer spending, shown in the panel at the right, has surprised us to the upside. Still, after a jump early in the year, real spending has been on a shallower trajectory than was the case over the past few years. Moreover, we think that the slower pace of spending would have been even more noticeable by the second half of the year absent the effect of the tax cuts--the blue line in the chart.

While I hate to throw cold water on even these few warm spots in the economy, it is worth pointing out that these sectors are not likely to provide much upward momentum to activity in coming quarters. We think motor vehicle production will be a slight negative, housing will be roughly flat, and consumer spending will be restrained by fundamentals that are only being offset by the tax cut.

The risks surrounding that outlook are likely to be further tested by the softening under way in labor markets. As seen in the lower left panel, a four-week moving average of initial claims for unemployment insurance has marched steadily higher thus far this year. Accompanying that deterioration has been a sharp slowing in private payrolls. As seen by the black line at the right, manufacturers and related firms in wholesale trade and help supply have been shedding workers at a progressively faster rate since last year. And in recent months, we have seen evidence that employment increases in private service-producing industries have stepped down considerably. All told, we anticipate total private payrolls to shrink by about 100,000 per month this summer, with a pickup in employment only occurring early next year.

From this current position of weakness, it looks like a long way to get to the 3-1/2 percent growth that we have projected for 2002. And, indeed, we expect the period immediately ahead to be touch and go with respect to whether the economy can avoid outright declines in aggregate output. Assuming it does, the eventual cessation of inventory liquidation should provide a boost to production, employment, and incomes. Moreover, we see two other considerable pluses for the economy--the stimulus from monetary policy and fiscal policy--the subjects of your next two charts.

As shown in the upper panel of chart 4, the recent easing of monetary policy has restored an upward tilt to the yield curve, after last year's inversion. The considerable decline over the past year in both long-term and short-term interest rates should help buoy activity by easing balance sheet strains and lowering the cost of capital to businesses and households. But other elements of the financial configuration are not so supportive as interest rates. In equity markets, the price-earnings ratio, shown in the middle left panel, has generally moved lower over the past year, even as real interest rates have come down. Moreover, the real exchange value of the dollar, shown at the right, moved still higher over this period.

The lower left panel reproduces the Bluebook chart that summarizes these various factors in the form of an estimated range for the equilibrium real federal funds rate--the shaded area. The actual real funds rate has now fallen below its historical average and below our estimates of the equilibrium real rate. Of course, while the actual real funds rate has fallen, so too has the equilibrium rate, suggesting somewhat less stimulus from the current setting of policy than might be judged from movements in the funds rate alone. In the panel to the right, we use the FRB/US model to parse out its estimated 120 basis point decline in the equilibrium funds rate since the middle of last year. About half the decline reflects increases in the equity premium and the exchange rate. The other half of the decline largely reflects the drop in estimated structural productivity growth. While the range of uncertainty surrounding any of these estimates is large, we do think the analysis suggests that monetary policy will be a source of stimulus to activity going forward.

The same can be said for fiscal policy, the subject of your next chart. The tax plan signed by the President was similar in its elements to the one we incorporated in the May Greenbook, though a bit less generous in the near term and more generous next year. The key elements are described in the upper left panel. A tax rebate of $38 billion will be paid out between July and September. A permanent tax reduction of $3 billion will take place this fiscal year and a $71 billion cut is scheduled for fiscal 2002.

As I am sure you can appreciate, we had to engage in a process that was as much art as science as we built into our projection the effects of these cuts in taxes on private spending and production. As noted to the right, we made a number of key assumptions each of which is a gross simplification of a complex reality. We assumed that for some households consumption tracks cash flow closely, and they are assumed to spend tax rebates and permanent tax cuts reasonably fully over several quarters. Other households will spend only a small fraction of their rebate checks and will adjust spending slowly to their increases in after-tax incomes. Finally, some of the initial effect of the boost to spending will be absorbed by a drawdown of inventories.

The effects of the empirical implementation of these assumptions on the level of real GDP are depicted in the graph at the middle left. The black solid line shows the effects of the tax cut on inventory investment; the red shaded area shows the estimated spending effect; and the red solid line shows the total effect on the level of real GDP. As can be seen, we expect the initial jump in spending stimulated by the tax cuts to be partly met in the second half of the year by a drawdown of inventories. Moving into 2002, the next installment of the permanent cut maintains the stimulus to spending, and businesses should, all else equal, move to replenish inventories. Taken together, these influences push up the level of real GDP through much of next year. The panel to the right simply converts the level effects on GDP shown at the left into growth rate contributions. As you can see, the effects on the growth of real GDP are largest in the second half of this year, but they remain positive through most of 2002.

Government spending also boosts activity over our projection period. Real federal purchases--the red bars in the lower left panel--are projected to accelerate this year to a 3 percent annual pace and to increase about 3-1/2 percent in 2002. Purchases by state and local governments--the dark bars--are expected to be reasonably well maintained over the projection period. Many of these governments are now experiencing some revenue shortfalls associated with the slowdown in activity. However, assuming that there is a pickup in spending and incomes next year, overall fiscal positions remain strong enough to tide these governments over during this period without a sharp curtailment of current spending plans.

At this point, we no longer see further substantial fiscal stimulus as a major risk to our projection. The federal budget surplus is expected to be $185 billion in fiscal year 2001 and $214 billion in fiscal 2002. But the on-budget portion has dwindled to between $20 and $40 billion this year and next, and if you take out the Medicare Hospital Insurance trust fund, the surplus available for spending or tax cuts is just about gone.

With that, I’ll turn the presentation over to David Wilcox.

MR. WILCOX. As Dave noted, the tax cut has been a key influence on our thinking about the near-term projection. Almost all of the rebate checks should be mailed out over a ten-week period beginning the week of July 23rd. As shown in the upper left panel of Chart 6, we are assuming that spending out of the rebates--the gray portion of the bars--will provide an important lift to PCE during the next three quarters, with the largest effect in the fourth quarter of this year. As shown by the red portion, the permanent cuts likely will have only a barely perceptible influence this year, but next year they should come into their own as a second and more substantial round of rate reduction comes on line.

The upper right panel shows the influence of the tax cuts on the growth of real PCE. Absent the tax stimulus, as shown by the red line, we would have PCE growth slowing further in the third quarter to less than 1 percent at an annual rate, before picking up somewhat through the rest of the forecast period. But if the tax-related stimulus plays out as we expect, the quarter just ending will mark the trough in terms of PCE growth, and spending should accelerate in the third and especially fourth quarters of this year.

Over the longer term, the personal saving rate helps to anchor our PCE projection. The middle left panel outlines a few recent and prospective influences on the saving rate. First, with some crack detective work, our Flow of Funds Section discovered that BEA has been underestimating employer contributions to private pension plans since 1995. By last year, the miss had ramped up to roughly $50 billion. BEA has indicated to us that the problem won't be fully addressed until 2003, when they next publish a comprehensive revision of the NIPAs. Second, BEA announced earlier this year that data from the Unemployment Insurance system show about $75 billion more in wage and salary income in 2000 than is currently reflected in the NIPAs. This one will get fixed next month, with the publication of the regular annual revision. As shown in the middle right panel, all else equal--a very important caveat when thinking about possible revisions to the saving rate--these two factors suggest that the actual saving rate is higher than the measured saving rate, and by enough to put it back into positive territory. More important, these adjustments remove a little bit of downside risk from the outlook.

Over the projection period, the various provisions of the tax cut will cause the saving rate to bounce around, as households smooth their spending in the face of choppy income. And, we expect the reverse wealth effect to be putting some upward pressure on the saving rate. By the end of next year, once the tax cut effects have largely played out, the saving rate--shown as the black line in the bottom panel--should have settled at the somewhat higher level implied by our projected ratio of wealth to income, which we have shown here as a three-year moving average, on an inverted scale.

Your next chart turns to the subject of whether there is a capital overhang. You have received a staff report on this issue, which, I should say, benefited from the help that several Reserve Banks provided in facilitating conversations with business contacts. The top panels summarize the key econometric results. For each of two types of equipment--high-tech and other--we estimated a target level of the capital stock, shown in each panel with a red line, which we assumed to be a function of variables such as the level of output and the cost of capital. Then we compared the target to the actual capital stocks, which we show with black lines. If the actual capital stock exceeds the target, we say there is a capital overhang, and indicate it with gray shading. By this method, which obviously is imprecise and subject to a slew of caveats, we estimate that firms are holding roughly 20 percent more high-tech equipment than they would prefer, the left panel, and about 10 percent more other equipment than they would like, the right panel. One thing to say in favor of these estimates is that they do seem to line up reasonably well with the views of our business contacts.

An interesting related issue is the role that network-type markets might play in generating capital overhangs. The middle left panel traces through why this might be so. As you know, markets that involve network effects tend to tip toward one provider, because everyone wants to belong to the network that has the largest number of users. Each competitor in such a market will therefore have a strong incentive to invest aggressively in the early going, to improve its chances of becoming the dominant player. If several firms each invest on a sufficient scale to serve most of the potential market, a capital overhang is almost sure to result.

This kind of dynamic may help explain recent developments in the market for long-haul optical fiber. As is shown in the middle right panel, capacity in this industry has exploded in the last five years--by so much as to challenge our graphics software, even with a ratio scale! [Laughter] Moreover, the volume of fiber in the ground--the black line--only begins to tell the story; the devices attached to either end of the fiber are also very important for determining the capacity of the network. As shown by the red line, we estimate that if cutting-edge devices were installed on all the fiber in the ground today, the effective capacity of the network would be multiplied by roughly six. This evidence, along with a raft of conversations that we've had over the past few weeks, convinces us that there is indeed a glut in long-haul fiber that could take quite some time to absorb.

The bottom panel summarizes the main conclusions of our study. First, we believe there is a capital overhang today. Second, we believe that the overhang disproportionately involves high-tech equipment. Given the faster depreciation of high-tech equipment, this conclusion suggests that today's overhang may have a shorter half-life than would otherwise be the case. Third, for most firms, financial factors seem not to be a major drag on capital expenditures. To be sure, some firms are having more trouble raising money today than a few years ago, but in many cases that seems mainly to reflect the absence of a viable business plan. Finally, with regard to the implications of the overhang for monetary policy, we think there are two main points to be made: First, we think the overhang is only a moderately negative influence on the outlook. Put simply, even if we could somehow take the overhang away immediately, we would still have a weak projection for real activity. Second, we believe that the overhang is not likely to noticeably impair the effectiveness of monetary policy. If monetary policy worked primarily by influencing the demand for equipment, we might think otherwise. But monetary policy works on a wide variety of spending, including housing, PCE, and net exports, through a number of channels in financial markets. Moreover, we never have been able to demonstrate a vigorous channel operating through cost-of-capital effects on investment spending, especially in the short run. Therefore, despite the capital overhang, we believe that monetary policy will be about as effective in the current easing cycle as it has been in previous easing cycles.

Your next chart turns to the broader topic of the outlook for investment. A good deal of concern has focused on the volume of debt that was issued to finance the investment boom of the late 1990s. But, as shown by the black line in the upper left panel, interest expense remained only a moderate source of pressure on cash flow through the first quarter of this year for the nonfinancial corporate sector as a whole. To be sure, as shown by the red line, the telecom service firms, which collectively have seen a doubling of their interest burden in just five years, are a notable exception. Similarly, as shown in the upper right panel, the expected default frequency has increased much more sharply for the telecom service firms than for the nonfinancial corporate sector as a whole. We interpret these data as suggesting that, for most firms, financial considerations will not sharply curtail capital spending.

That said, a sobering reassessment of prospects for the telecom sector may have helped put the spark to the tinder last year, but once the fire was going a traditional accelerator dynamic appears to have taken over, as is illustrated in the middle panel. As the growth of business output slowed in the second half of last year and into the first half of this year, firms cut the growth of their real spending for non-high-tech equipment and software sharply. And while we believe that some of the extraordinary weakness in this sector will abate later this year, a revival in E&S spending may not be on solid footing until sometime next year when it becomes more evident to firms that business output is reaccelerating.

Turning to nonresidential investment, some crosscurrents are influencing the outlook. Activity in drilling and mining has been boosted by the high prices of oil and natural gas, and spending by utilities has been supported by the need for new electricity generating capacity. But as shown in the lower left panel, these two sectors account for only about a fifth of overall nonresidential investment. Moreover, as shown at the lower right, prospects for the sector overall are much dimmer than in the past year or two, reflecting among other factors a widespread notching up in the vacancy rate for office and industrial space.

Your next chart turns to the outlook for inflation. As you know, the growth of structural productivity--shown in the upper left panel--is one of the key building blocks in our thinking about the prospects for inflation. You may be relieved to learn that I plan no further dissertation on that topic today, other than to note that fluctuations in structural productivity growth shape our estimate of the “short-run” or “effective” NAIRU, shown in the upper right panel. Indeed, given our anticipated path for structural productivity, we expect the effective NAIRU to rise to about 5-1/4 percent by the middle of next year. This implies that the projected rise in the unemployment rate puts a bit less downward pressure on inflation than one might otherwise have thought.

In addition to lower resource utilization, a number of other factors influence the contour of the price forecast over the next year and a half. One factor helping to reduce core inflation is a moderation in energy prices, which--as shown in the middle left panel--now seems to be well in train. If it continues as we expect, energy prices should take about 0.2 percentage point off the change in core inflation from this year to next. In addition, as shown in the middle right panel, near-term inflation expectations seem to have held about steady over the last six months, despite the upward pressure on headline inflation. Putting these pieces together, all three measures of core inflation shown in the bottom panel are more or less flat from their current levels.

Your next chart examines the situation in the labor market. The top panel relates the unemployment gap to the GDP gap. By either measure, the pressure on productive resources will be diminishing fairly rapidly over the next few quarters. The middle left panel shows that the more rapid top-line price inflation of the last two years--the gray bars--is likely to contribute to a more rapid rate of growth of compensation this year--the red line. And, as shown in the middle right panel, we believe something similar will occur with respect to productivity growth. Compensation demands appear to reflect productivity developments only with a very long lag. As a result, the rapid growth of productivity during the last few years is likely to still be feeding through into compensation growth at least for the remainder of the forecast period. All told, as shown in the bottom panel, we expect compensation growth as measured by the employment cost index to be about the same this year as last, as the effect of easing resource utilization is about offset by the larger contribution from lagged inflation. Next year, however, we expect the ECI to decelerate as the downturn in energy prices damps the contribution from lagged inflation by 0.4 percentage point.

Karen Johnson will now continue our presentation.

MS. JOHNSON. Your first international chart reviews developments in the foreign exchange value of the dollar and compares interest rate and stock price movements in the euro area and Japan with those in the United States. Despite the slowing of U.S. output growth that has become apparent since January and the downward revisions to prospective earnings for U.S. firms, the dollar has appreciated over the past six months against the euro, the blue line in the top left panel, and the yen, the red line. On balance, the staff's index of the dollar in terms of the other major industrial country currencies, the black line, has risen nearly 7 percent since early January. No doubt part of the explanation of this strength lies in the more negative near-term outlook for growth abroad that has emerged over this same period, to which I will return shortly. But dollar appreciation suggests investors continue to see risk-adjusted returns available on U.S. investments as fundamentally more attractive than opportunities abroad.

Long-term interest rates, in the top right panel, have risen on balance in the United States and Germany since the start of the year but have moved down somewhat in Japan. Three-month rates, the middle left panel, are down in all three areas, but by greatly differing amounts. Monetary policy has been eased only slightly by the ECB, and short-term rates in the euro area have fallen by far less than in the United States. In March, the Bank of Japan effectively returned to its zero interest rate policy, and three-month market rates retraced the rise that had occurred in mid-2000. Current market expectations of policy moves as captured by Eurocurrency futures rates are shown to the right. In comparison with dollar rates, the euro curve, the blue line, looks for somewhat more reduction over the rest of this year followed by a similar-sized tightening next year rather than a rapid return to significantly higher rates. Yen rates suggest that markets see the Bank of Japan maintaining its current easy stance for some time.

Stock prices are presented in the bottom two panels. Equity prices have continued to move in broadly similar patterns this year, although high-tech stocks have generally been hit harder in the United States and Europe than in Japan.

Recent trade developments, the subject of your next chart, reflect the economic weakness abroad and at home. Exports of goods, rows 1 through 6 in the upper left panel, declined in nominal terms in the first quarter and again in April as did imports of goods, lines 9 through 15. Declines were pronounced in the auto sector (lines 4 and 13) in the first quarter. Both imports and exports of computers and semiconductors have dropped so far this year. In April, other items within capital goods were also weak, especially on the import side. The panels to the right indicate that exports have decreased to all of the regions shown except western Europe.

We continue to look for oil prices, shown in the lower left, to move down gradually over the forecast period, in line with futures prices, as increases in non-OPEC supply satisfy demand. We also again expect the appreciation of the dollar to end, as shown in the right panel, but for the dollar to remain strong in real terms over the forecast period.

Our outlook for real GDP growth abroad is summarized at the top of your next chart. Economic expansion in the rest of the world clearly slowed sharply on average in the first quarter and remains weak currently in most areas. In assessing the prospects for a rebound in foreign activity over the forecast period, we had to take into account spillovers from the projected strengthening of U.S. activity, expected developments in the global high-tech industry, and domestic factors, including macroeconomic policy responses, in key foreign economies. Overall, we look for real output growth abroad to accelerate, with average foreign growth reaching about 3-1/2 percent in 2002, in line with the rebound projected in U.S. real output growth. We expect stronger growth next year in each of the three major regions, shown in the panel to the right, but we do not expect a return to the rates observed last year.

In Latin America, U.S. economic developments are especially important for Mexico; Argentina and Brazil are struggling with problems particular to the region. As you can see in the middle left panel, the dollar has depreciated relative to the Mexican peso this year as capital inflows to Mexico have held firm in the context of progress on reforms and the tight stance of policy by the Bank of Mexico. In contrast, the dollar has appreciated sharply recently in terms of the Brazilian real as domestic energy and political problems and financial market spillovers from Argentina have weighed on that currency. Brazilian monetary policy has been tightened in response to the inflation risks posed by the fall in the currency. Brady bond spreads, shown to the right, reflect the recent stresses in Argentina, where spreads rose rapidly until late April. The success of the Argentine debt exchange initiative alleviated near-term financing concerns, and markets reacted positively with lower spreads. However, the latest policy moves in Argentina to tax imports and subsidize exports have heightened uncertainty again and raised questions about policies going forward.

Industrial production, in the bottom left panel, has declined through April this year in both Mexico and Brazil as demand has softened. For Mexico, the reduction in U.S. demand for its exports and the retrenchment in the first quarter of the North American auto sector have been particularly important in explaining the drop in industrial production. In Argentina, production has recovered recently from declines in 2000 but remains below its 1998 peak.

As reported to the right, we are projecting that recovery will be strongest in Mexico; the projected U.S. upturn and some easing of monetary conditions by the Bank of Mexico will provide the stimulus for stronger growth. In Brazil and Argentina, we have forecast some increase in growth. That outlook assumes that financial stresses will continue but not aggregate to the point of triggering a discrete break in access to funding at acceptable terms by either country. However, the debt profiles in both countries pose risks that could threaten the return to higher growth.

Among the Asian emerging market economies, the subject of your next chart, recent experience has differed, depending in part on each economy’s dependence on the high-tech sector. As can be seen in the top left, the dollar has risen with respect to many of the Asian currencies over the past six months, although the Korean won has since retraced some of its depreciation. As can be seen on the right, dollar-denominated yield spreads have been stable in 2001 for Korea and the Philippines. In Thailand, spreads have widened recently owing to changes in market expectations about the direction of policy.

The middle panel compares an aggregate of industrial production in five of the Asian emerging market economies to worldwide semiconductor shipments, which have clearly been an important determinant of industrial output in these countries since 1996. The sharp downturn in semiconductor shipments in late 2000 was a common factor undermining their economic growth. This is not surprising given the large weights shown in the table in the bottom left for the high-tech sector more broadly in their industrial production indexes and the shares of high-tech goods in their total exports. In light of this dependence, revival of economic growth in these economies would seem to hinge on stabilization in the global high-tech sector.

The staff's projections for this region are shown in the box to the right. Reported output growth in China has not fallen with the general global slowdown, and we see steady growth over the forecast period, supported by government expenditure. In Korea, Taiwan, and Singapore, growth dropped sharply in the first half of this year, and we look for moderate recovery going forward. The Korean economy is larger and more diversified than the others in the "high-tech" group, and its recovery may be somewhat less dependent on developments in those industries. The slowdown has been acute in Hong Kong, where the drop in global trade resulted in sluggish activity in recent quarters. Recovery elsewhere in the region, along with lower real interest rates, should benefit Hong Kong.

Your next chart reviews current conditions in the industrial countries and summarizes our outlook. Industrial production, shown in the top left, has been moving down in each of the regions shown from peaks reached in mid- to late 2000. The declines for Japan are severe whereas in both the euro area and Canada domestic factors have offset to some extent the decreases in demand hitting those economies from abroad. Canada is closely integrated with the U.S. economy, including in particular the auto and high-tech sectors; but Canadian domestic demand has proven to be somewhat resilient so far, boosted by monetary and fiscal easing and spending in the energy sector. In the euro area, the global slowdown has had a visible impact only in the most recent data as export growth has slowed. Business confidence, shown to the right, has shifted down in all three regions, however, raising concerns about further cutbacks in investment spending.

Employment gains in Canada and the euro area, the middle left panel, have been important to date in supporting growth of income and consumption. Consumer confidence had been fairly steady at a high level, but the latest observations suggest some erosion. In Japan, employment has given back the increases recorded in 2000. Consumer confidence now appears to be dropping as evidence mounts that the economy is slipping backward again.

Our forecast, reported in the bottom panels, reflects the fact that we remain quite pessimistic about recovery of real GDP growth in Japan over the forecast period. Both real GDP (line 2 on the left) and domestic demand (line 1 on the right) should decline further in the second half of this year as fiscal stimulus runs out and private investment continues to drop back from the high level reached at the end of last year. Next year, a return to some positive growth in private investment and weak consumption growth should result in expansion of activity. The policy agenda just announced by the government does stress some reforms that have the potential to contribute to reviving the economy over time. But it remains uncertain whether Prime Minister Koizumi will be able to implement these reforms aggressively and whether they will, in the short run, cause additional weakening in economic activity. Our forecast assumes no dramatic effect from the reforms in either direction through next year.

In the euro area we look for the decline in oil prices and for fiscal stimulus already in place to support household income and spending later this year and next. Our forecast for Canada depends more directly on the rebound in the U.S. economy and improvement in the high-tech sector, but nevertheless is largely driven by the projected strength in domestic demand.

The external sector of the U.S. economy is the subject of your final international chart. The deep drop in core export growth, the red bars at the top left, can be explained in contribution terms by the slump in global economic activity (represented by the sum of the blue and yellow bars) and by the strength in the dollar (reflected in the green bars). We expect recovery in activity abroad to boost export growth somewhat next year. Core import growth, the red bars in the middle panel, is expected to be even less this year than what would be implied by low U.S. GDP growth (in blue) plus relative price effects (the green bars). This outlook reflects import growth to date this year, which has been negative, whereas U.S. GDP growth has remained positive. Imports of capital goods have been especially weak. The turnaround in U.S. real GDP should boost growth of core imports next year to about 6 percent. The contribution of export growth to GDP, shown on the right, should return to being positive in the second half of this year and increase somewhat next year. We expect the contribution of imports to return to being negative and also to become greater in magnitude next year, by more than that of exports.

Growth of total real exports, line 1 of the middle left panel, is projected to be sharply reduced this year and to rise next year by more than that of core goods (line 4) as exports of semiconductors and computers rebound. Similarly, growth of total real imports (line 1 to the right) is projected to rebound strongly next year.

The slowdown in U.S. activity has resulted in a pause in the deterioration of the U.S. current account balance, shown in the bottom left. With stronger U.S. growth next year, the current account balance should return to its downward trend. A snapshot of U.S. capital flows is presented in the right panel. Purchases by private foreign investors of U.S. securities other than Treasuries continue to be extremely high. Foreign direct investment in U.S. assets diminished noticeably in the first quarter, and U.S. direct investment abroad also fell.

Dave Stockton will now complete our presentation.

MR.STOCKTON. The final chart displays your projections for 2001 and 2002. The central tendency of your projections for the growth of real GDP in 2001 has been revised down from the forecasts made at the time of the February meeting. At the same time, the central tendency of your PCE inflation projections has edged up.

For 2002, growth of real GDP is expected to pick up, while inflation is projected to run close to the pace expected for this year.

Mr. Chairman, that completes our presentation.

CHAIRMAN GREENSPAN. Thank you very much. What I found most interesting in the presentation was the very informative evaluation of the capital overhang, a subject on which a detailed report was sent around to the Committee. Specifically, I thought the elaboration of the situation in the telecommunications industry was really most useful. In that regard, as I recall that report gave a number that indicated that the volume of network type markets doubles every year. What is the source of that number? And what is its definition?

MR. WILCOX. If I'm recalling correctly, I think that was from a conversation we had with one of our business contacts. I believe it was in the context of one of the CEOs remarking that previously he or she had thought that demand would double every three months and now catastrophe had befallen them and it only doubles once a year.

CHAIRMAN GREENSPAN. No, as I remember, the quote was that it had been doubling every year but was going to start to double every three or four months. Then whoever wrote that part of the paper said that indeed it had not changed; it was just doubling every year. Now, the implication is that that means something. If only I knew what it was! It's obviously referring to some digital flow measure and I've seen the quote before. Moore's law I understand because that can actually be documented. But what are people talking about here?

MR. WILCOX. Maybe somebody can help me by finding the reference.

MR. SLIFMAN. It may be the data packets that are being transmitted across the fiber optic network. We get those estimates from a major consulting firm that we have an arrangement with.

CHAIRMAN GREENSPAN. What is the frequency?

MR. SLIFMAN. I suspect it’s semi-occasional, but I’m not sure. [Laughter]

SPEAKER(?). Whenever they have a contract that pays them to do it!

CHAIRMAN GREENSPAN. Yes, okay. [Laughter] Incidentally, on Chart 14, one is obviously struck by the middle panel in that Asian semiconductor production appears to track world shipments data--I mean allowing for playing around with scale.

MS. JOHNSON. Yes, the scale is making that relationship look good.

CHAIRMAN GREENSPAN. Yes, but I'm just curious about that big breakaway at the end of the most recent period. Is that a price or market share issue or just plain statistical noise?

MS. JOHNSON. To be honest, I don't know. Let me just make sure that what we’ve plotted there is understood; it's the whole industrial production index of the Asian semiconductor producer countries that is being averaged.

CHAIRMAN GREENSPAN. It's a physical volume index.

MS. JOHNSON. Right, but it’s of their total industrial production not just their semiconductor production.

VICE CHAIRMAN MCDONOUGH. Total production.

CHAIRMAN GREENSPAN. The chart says Asian semiconductor producers.

MS. JOHNSON. The IP of Asian countries that produce semiconductors is how you should read that.

VICE CHAIRMAN MCDONOUGH. That identifies the countries and it is the average IP for those countries.

CHAIRMAN GREENSPAN. Okay, sorry about that. The chart could benefit from some improvement in the labeling, if I may say so. President Moskow.

MR. MOSKOW. Mr. Chairman, I too thought the capital overhang paper was a very good paper. I was particularly impressed with the fact that the staff did the econometric analysis and then went out and spoke to people in the industry, and essentially those conversations verified the findings in the econometric analysis.

MR. WILCOX. I won't make any comments on our standard errors!

MR. MOSKOW. Well, I was wondering if you had any thoughts as to whether the financial markets actually are reflecting this overhang now, and whether you can relate that in any way to one of the alternative simulations in the Greenbook--the "earnings disappointment" one. Is this already built into market prices or is this an indication that we're going to see a big earnings disappointment relating to that simulation?

MR. WILCOX. I think it's hard to know. It certainly is the case that the telecom sector has been punished incredibly. Stock prices of the telecom service firms and the equipment makers have been beaten down by just astonishing proportions. Whether they've taken on board the full extent of the outlook as we see it, I can't say, though by and large the raw materials of the analysis we've done are in the public sector. In this particular regard I don't think we have any information that is not available to a careful market analyst. That doesn't insure that it's reflected in the current level of prices by any means.

MR. STOCKTON. It's hard to know exactly how closely connected it is to the capital overhang per se. Obviously, what we are trying to communicate in that particular simulation is that we do see some possibility of considerable tension in our outlook for profits, which is weaker than market analysts are currently reporting. Now, that could be resolved in a number of ways. One, earnings could turn out to be weaker than the analysts think. Maybe that is already discounted in the markets, which is part of what you are asking. Two, investors in essence could be more patient in this period of weak earnings if they really foresaw a snapback in activity, even if it's going to be a bit delayed. Three, as in the simulation that we presented in the Greenbook, there could be some considerable downside risk to stock prices going forward. Or four, as in the simulation that we presented in the Bluebook, we could be wrong about productivity; maybe developments on the productivity front will turn out to be better than we are currently anticipating and we'll get a bit better earnings growth than is envisioned in the Greenbook forecast. So, I think there is a wide range of possibilities here, but we do see some tension currently in the financial settings relative to our economic forecast.

MR. MOSKOW. Thank you.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you. David, on Chart 5 labeled "Fiscal Policy," in the lower right-hand corner the unified budget surplus for fiscal year 2001--for this fiscal year, which is three-fourths over--is shown as $185 billion. I recall seeing the other day that the Treasury reported a surplus for the month of April alone of $190 billion. Am I right that from this point forward, the combination of the spending growth that you and others have assumed--the rebates and the lower withholdings--means that outlays will exceed receipts for the balance of the calendar year?

MR. STOCKTON. I'm not sure exactly. You're citing, I suppose, the monthly Treasury statement figures. And if those figures are right, that's exactly what our forecast would be anticipating. We have also heard from the Treasury that receipts are coming in weaker than had been expected, and we've tried to factor that in. But there could be some downside risks even to the receipts forecast going forward as well.

MR. JORDAN. Yes, but from that standpoint--abstracting from the fiscal year and the full calendar year issue--your interpretation would be that at least for the near term there is going to be less fiscal drag and more fiscal stimulus for the balance of the calendar year?

MR. STOCKTON. Probably yes, though I'm not quite sure. To gauge the overall effects on the economy one would want to look at the monthly flow of spending and receipts. So I would be more comfortable looking at a more aggregated level. Another factor that is affecting the pattern of these figures somewhat is a shifting of corporate tax receipts out of the end of this fiscal year into next fiscal year. That was a part of the budget deal in the tax cut proposal in order to give some room to do a little more spending in fiscal 2002. The basic point we want to make is that in recent Greenbooks we have been arguing that there were perhaps more upside risks on the fiscal policy side than we had built into the forecast because we could see these unused, on-budget surpluses out there. And by our current estimates the tail of the distribution in terms of risks for stimulative fiscal policy going forward has been considerably shortened.

MR. KOHN. I would say that the unified budget surplus forecasts in the Greenbook suggest that on a not seasonally adjusted basis the third quarter is about in balance and the fourth quarter is a slight surplus. But the seasonal pattern this year isn't significantly different from other years, aside from the $38 billion outflow. Last year, almost the entire surplus occurred in the second quarter, of course, because that's when the personal tax receipts come in. So, the basic pattern isn't that different this year, aside from the $38 billion going out in rebates in the third quarter.

MR. JORDAN. Part of the reason I'm asking is because the huge tax payments that were made in April by businesses and households, which were coming out of the private economy and into the government side of the economy, are behind us now. From this point forward, at least for the calendar year, we don't have that flow impact.

CHAIRMAN GREENSPAN. Incidentally, do we have a fiscal 2003 unified budget estimate consistent with the current data we have here?

MR. STOCKTON. We don't yet because we have not yet extended our forecast out to 2003, but we will be doing that in the next few months.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Thank you. This is just a clarifying question on Chart 8, the middle panel. In your discussion you suggested, I think, that the spark that created the movement down in investment started with telecommunications and then moved over to real E&S spending other than high-tech. Did I hear you correctly when you were referring to the relationship of the high-tech sector to the decline in other investment spending?

MR. WILCOX. What I was trying to do was to lay out some theory on the timing, or the sequence in which these events might have unfolded.

MR. HOENIG. I ask because activity in the manufacturing sector was probably declining even before the downturn in the high-tech sector. So I had it reversed in a sense. I’m just having a hard time following your theory exactly in terms of this downturn and I wonder whether there are any implications if I disagree with you on that--if I don't think the tech sector had much to do with this perhaps.

MR. WILCOX. I would hate to go to the mat on that issue without having a chance to look at the data first. My sense is that the gist of this channel, as shown in the middle chart, is that by and large a sort of traditional accelerator mechanism seems to have operated here. One element that is unusual, though, is that many people perceive the originating shock to have been one to business investment. And at least a component of that shock seems to have come from the telecom service sector. Those firms themselves account for what is, at least to me, an astonishing fraction of overall investment. I don't have the figure nailed down but it's somewhere between 10 and 15 percent of overall equipment investment. So clearly, the reassessment of the prospects for the telecom service sector was important, but that's not to suggest that developments in the industrial sector were not also an important contributing factor.

MR. STOCKTON. There is no doubt that many manufacturing firms also have been under intense pressure from competition abroad, given the strength of the dollar. We saw that by the declines in a variety of areas outside of the tech area as well. We do think that was also an important element in promulgating this weakness.

MR. HOENIG. I just wanted to make sure I heard it right.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Back on the tax cut issue: You make an assumption--rightly, I think-- about how much of the spending is going to come out of inventories. But I don't see anyone suggesting that any of the spending is going to be used for imports, which in a mathematical sense would be a drag on GDP. How should we think about that? Is that such a small number that we shouldn't worry about it at all? Or has it just not been talked about much and we probably should think about it?

MS. JOHNSON. Well, we've looked at the numbers a bit. We don't have any analysis that would enable us to say that these tax rebates will be spent differently than other consumption dollars are spent. But we did look at the historical track of imports as a percent of consumption and it has been rising. It's not possible to calculate it precisely because the way the imports are reported there are capital goods, there are consumer goods, and autos is a separate category. Autos generally are some of each, so who knows? Putting imports of goods in the numerator and consumption of goods in the denominator produces a ratio of 10, 11, 12 percent or something like that and it has been rising over time. That is one step in the direction of answering the question. That's excluding the autos completely, I think, and it would be a little more if one tried to make some allowance for that by putting in some autos.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. I, too, thought the capital overhang paper was very good. Among other things, it moved my knowledge of fiber optics from 0 to 1 percent, a big increase! But as I look at Chart 7, I’m troubled by something. As best I can tell from drawing lines, the capital overhang began to open up about 18 months ago, right around the start of year 2000. And if one looks closely, it's really not closing at this point, 18 months later. In the Greenbook baseline projection, it appears to me that equipment and software is slack through the fourth quarter of this year and then starts rising at fairly healthy rates. So, we’ve got this overhang that has developed and has been with us for a year and a half, and we know the economy is quite weak. The question is: What is it that turns this around and gets investment growing at seemingly reasonable rates in just six months?

MR. WILCOX. Well, there are a couple of elements that I can throw out. One is, as we tried to emphasize in the report, that these gaps that open up between the estimated target and the actual capital exert some drag on aggregate demand. And at least if you believe the model estimates--though I could give you a long list of reasons why you shouldn’t--these gaps are rather slow to work off. So, for example, in the high-tech graph on that chart we can see that through most of the 1980s there was an alleged gap that didn't get corrected. That's just to say that the overhang in high-tech equipment and in other equipment is a moderate negative on the outlook. But that in and of itself doesn't have a large incremental effect. In his remarks I believe Dave Stockton highlighted the two key factors that we think are going to turn the economy around. One is monetary policy and the other is fiscal policy. All this sort of rolls together; if it becomes apparent that the momentum of the economy is shifting, then through normal accelerator effects other things start to come along with it. But the two key prime movers would be fiscal policy and monetary policy.

MR. FERGUSON. May I jump in? I think one of the other points that has been made in this area--you've made it before but you didn’t make it this time--is that this type of capital tends to depreciate relatively quickly compared to some other types. I assume that's part of your thinking as you consider how this gap might start to close. Is that a fair point?

MR. GRAMLICH. Yes, but that's really only true on the left side, the high-tech side. And there is a big gap in the other than high-tech E&S spending.

MR. FERGUSON. Right.

MR. GRAMLICH. So your story is that the gap may be with us for a while, but that doesn't mean that investment won't be recovering? That's basically it.

MR. STOCKTON. Yes, you can see it in the upper right panel of David’s chart. If those estimates are to be believed, we have had a gap for a decade. We had growth of investment over that period as well. It's always tempting, when we're in a period of extremely slow growth or even a downturn in activity, to wonder how we will ever get back to positive growth again. As David mentioned we see policy, both monetary and fiscal, supporting that. We also see support from just the simple inventory dynamics that we are going through right now where production is well below sales and we have inventory liquidations. When that process ends, we do get a pickup in employment and incomes and that begins to feed sales and sales expectations. So we don't think it's unreasonable to expect that by the middle of next year we'll be returning to more robust growth in investment spending. But in keeping with Governor Ferguson's edict, we would readily admit that there is enormous uncertainty about that.

CHAIRMAN GREENSPAN. May I just ask a question about the regression analysis used in creating your target? In the upper right-hand panel, the target is a calculated number coming off a regression, I presume, fitted to the actual data?

MR. WILCOX. Fitted to the actual data and estimated in a system of four equations involving these two elements of equipment plus nonresidential structures as a third and inventories as a fourth.

CHAIRMAN GREENSPAN. If you take the trend out, which gives you a nice fat correlation, it looks pretty awful to me. How can you be confident that what you have is truly excess? If you were dealing with rates of return or something like that, perhaps you could somehow demonstrate that the rates of return are falling--that you're getting less return per unit of capital. Do you feel comfortable with this sort of relationship? Does it tell you all that much?

MR. WILCOX. I could never plead guilty to feeling comfortable with something as far removed from what ordinary business decision makers see as their reality. If I were to try to defend this as best I could, I'd say that one piece of corroborating evidence is that if we look at average periods over which there has been an overhang--defined by the shaded gray areas--they correspond to periods of slower than average growth. And by contrast, the periods when the actual stock was short of the target stock are ones with faster growth. Now all kinds of things were going on during those periods; the overhang wasn't the only factor by any means. But that's one piece of corroborating evidence. And then, consistent with President Moskow's comment, it does make me feel a little better that when we went out and talked with some real people--

CHAIRMAN GREENSPAN. That I can understand.

MR. WILCOX. I guess I managed to take some comfort in that, maybe more frankly than from these model estimates.

CHAIRMAN GREENSPAN. Is there any way you can back out the excess? Essentially, what we mean by overhang is capital that is not yielding its rate of return in the way President Poole was raising the question. Since we do have profits data by industry and we have capital by industry, isn't there a way to infer whether or not the capital is short? In other words, if capital is short, one would expect the rate of return to be above normal and vice versa. Wouldn't that give you a more sensitive judgment as to where the overhangs are?

MR. WILCOX. I don't think I can answer that on the spot, but I'll certainly think about that. It's an interesting question.

CHAIRMAN GREENSPAN. The reason I raise the issue of looking at it in terms of individual industries, rather than on a macro basis, is that there are five or six major sectors of the economy for which we do have profit margins and, I would think, effective data on capital stock. President Broaddus.

MR. BROADDUS. I have a detail question on Chart 12. Karen, in those panels on the right, exports for Western Europe are bucking the trend. Why is that?

MS JOHNSON. Well, it is the case that for longer than any other region of the global economy Western Europe believed itself to be protected, in a sense, from some of the negative consequences of what was going on. In part that was because--they would allege--the region is a largely self-contained and relatively closed economy and does not have a big high-tech-producing sector. That had been in some sense a shortcoming during the boom years of the late '90s, but suddenly it became a benefit. Other than Nokia and Ericsson, and I suppose Philips, they don't have any major technology firms. In any event, they are certainly less into high-tech than the United States. So they didn't have clear sectors with large employment that were going to lead the charge down. In all honesty, if you look on Chart 15, you'll see that domestic demand in the euro area was actually rather weak in Q1, but their exports to other parts of the world held up and kept up their GDP. Obviously, since that figure is for H1, it incorporates our view on Q2, but you can see that GDP is much stronger than domestic demand in the earlier period on our calculation. That was certainly true in Q1. So their exports held up and they bought from us. And for a long time they asserted that their GDP was at about potential in a level sense--growing at what they thought was an acceptable rate of a robust 2 percent, and they felt they were in good shape. Now, exports fell off after Q1 and the most recent numbers have been weak. But this is sort of a new development from their point of view, and I would assume, therefore, that their import demand for our products will turn out to have weakened in Q2. But through Q1 the picture was different.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. Karen, you mentioned that Japan may be getting to the point of implementing some reforms that might be helpful. Did you see the article in the Wall Street Journal by Jeff Sachs and Paul Krugman?

MS. JOHNSON. That one I missed. I've been reading many in the last two days.

MR. MCTEER. Well, they basically said the patient is so sick that the medicine might kill it, so Japan should be careful. They were making the argument that austerity type measures may be too harsh for Japan and the country may not be able to handle it.

VICE CHAIRMAN MCDONOUGH. It's the same argument they've been making for a year--that the Japanese have to pump up the money supply, however they do it.

MS. JOHNSON. There's a cadre of people within Japan who are arguing that there is a sequencing issue--recovery and reform or reform and recovery. There are reasonable people--and I consider Krugman and Sachs on some days to be reasonable--on the side that says recovery and then reform. The problem with that argument, of course, is that to some extent that is the history of the past 12 years, and look where it has gotten them.

VICE CHAIRMAN MCDONOUGH. The other problem with the argument is that it's wrong.

CHAIRMAN GREENSPAN. Well, it has been tried for 12 years and nothing has happened!

MS. JOHNSON. It hasn't worked yet anyway, but the 13th year might be the charm!

MR. MCTEER. Do they just fritter away their ammunition by doing things on too small a scale for a long period of time?

MS. JOHNSON. Well, there's some possibility of that. The other concern is that it doesn't necessarily answer your question about whether the patient can tolerate the medicine. It does not mean that if they aggressively undertake reform that the patient won't die, in the sense of having some significant negative and socially disruptive sequence of economic events beset them. At this point it's almost an article of faith between these two camps as to what's important. Caught in the middle, of course, is the Bank of Japan; it may have one last arrow in its quiver and it's called "quantitative easing," which means different things to different people. BOJ officials are waiting to shoot that arrow at the point when they think it is most needed and will do the most good. So they are saying do the reforms and if the patient starts to get sicker before he starts to get well, we will step in and do what we can. Others are saying no, use this device now to get the economy stronger so it can withstand the physical therapy a little better. Again, I think it's very hard to be certain, ex ante, which of those arguments is better founded. But the history of the last 12 years suggests that normal recovery steps aren't going to buy them anything.

CHAIRMAN GREENSPAN. Governor Kelley.

MR. KELLEY. Thank you. Let me return for just a minute to the projection for restored growth next year. It's pretty clear that the impetus for that is going to come from fiscal and monetary policy and maybe the cessation of this inventory cycle. You have essentially a trend growth projection for next year of around 3.5 percent growth. Where is this going to manifest itself in the various sectors of the economy? What do you see leading us back out here? Are capital expenditures going to come back and be a leader again? Are we going to see renewed growth in housing and automobiles? What sectors are going lead the return?

MR. STOCKTON. In some sense, Governor Kelley, as we showed in the charts, we do think that in the near-term fiscal policy is going to be providing a boost to an already weak economy.

MR. KELLEY. Right. That's where the impetus comes from but where does it manifest itself?

MR. STOCKTON. As we move through the second half of the year, we are looking for some impetus on the consumer spending side and through the eventual cessation of the inventory correction. We think monetary policy will be providing some support as we go through the year and into next year in helping to maintain the reasonably high level of auto sales and housing starts we have had. Also we expect monetary policy to be providing an environment in which businesses can pump up their balance sheets and then be prepared to take advantage of the opportunities on the investment side that we think are going to be there from the trend productivity we’re projecting. So when that underbrush gets cleared away, there will be an environment in which both consumer spending and business investment are back, in terms of providing important support to growth. For the near term it’s consumption though; we don’t really see much in capital spending until next year.

MR. KELLY. Well, next year will be fairly balanced then, if I'm hearing you correctly in terms of where the growth is going to show up.

MR. STOCKTON. Next year will be fairly balanced. We are still getting some depressing effect on consumption from the wealth effect. It's not pushing growth further down, but it is a factor keeping the growth of consumption running below the growth of income. But yes, by the middle of next year we think growth will look more balanced than it does currently.

CHAIRMAN GREENSPAN. Okay. I think it's about time we recessed. Let me remind you that we have a dinner at the British Embassy this evening. The Board vans will be at the Watergate Hotel at 7:00. Cocktails are scheduled at 7:30. I presume that we can leave our papers here. This room will be made secure, so you don't have to worry about lugging your papers around unless you choose to do so.

[Meeting recessed]

June 27--Morning Session

CHAIRMAN GREENSPAN. Good morning, everyone. We are now at the point on our agenda where the Committee's discussion of the economy begins and I'm looking for volunteers. President Jordan.

MR. JORDAN. Thank you. Now that I have volunteered, all I have to do is find my papers! [Laughter] Sorry, I wasn't quite prepared. I would like to comment first by providing some general impressions about economic activity in the District. As one of our Business Advisory Council members said, we are "bumping along the bottom." Activity is not continuing to decline but it is not rebounding. And except for the steel industry, I think that generally summarizes what directors and Advisory Council members think about the situation in our region.

We had reports from a corrugated box company and separately from a freight delivery company that are both headquartered in the District of a rebound in the second quarter after steep declines in the first quarter. Now, one assertion was that corrugated paper boxes are the best indicator there is, but the Chairman should know better than I whether that's true. A supplier of siding, decking, window materials, and PVC pipe--and this is a company that manufactures and sells nationwide as well as a bit internationally--reported that they had experienced a very recent pickup in orders. Accordingly, they are hopeful that the second half will be better than the first half. A manufacturer of tapes and glue said that demand for industrial uses of their products continued to decline but consumer business was flat or up slightly. A contact from a company that supplies materials for motor vehicle parts said that demand from the U.S. Big Three was down while demand from transplants and from plants in Mexico was up. He also noted that their business in Europe was weaker in the second quarter than it had been in the first quarter.

Reports from important industries in Kentucky were mixed, and some were especially interesting. First, the state's budget is being bailed out in a sense by strong coal severance tax revenue. The complaint in that area is still the lack of coal miners, but other than that business is terrific. Second, it is estimated that 25 percent of this year's crop of thoroughbred colts died or were born dead. Those deaths had something to do with cherry blossoms and spring and caterpillars, and it's a long story. Industry observers estimate that over the next three years that will cost Kentucky thoroughbred farms a half billion dollars. Now that the cause is known, they think this year’s experience will not be repeated. But of course nothing can be done about the losses that have occurred already.

As for retail companies, Federated is headquartered in our District and we have grocery companies and other retailers as well. Federated reports--and this relates to its stores nationwide rather than just in our District--that apparel sales were down sharply and are expected to continue to decline until the first part of next year. But Kroger’s says that grocery store sales are at record levels and they are confident of sustained growth. In fact, a director from a dry goods company said that the only explanation he could come up with is that people must be buying food in stores and cooking it at home. He cited that as a sign of how bad things are.

A major landscaping company, Scott’s, said that its spring sales were the weakest in years. Layoffs continue to be announced in manufacturing but we have had some reports of continued labor shortages in other sectors. A large regional bank noted that it has about 500 jobs open company-wide and that it is especially difficult to hire for its urban area locations. Some hospital health-care organizations report openings in as many as 40 percent of their staff positions, including the housekeeping staff. A company that operates nationally and employs 6,000 workers in the tree-surgery and maintenance business reported that worker turnover is still very high; it sometimes runs as much as 40 percent. They continue to use recruitment, retention, and relocation bonuses in their efforts to fill openings. Our contact said that all segments of their business in all regions are strong except for the California power companies, which are delinquent and refuse to pay their bills. It continues to be hard to recruit and retain long-haul truck drivers. High fuel costs had been affecting those companies but a contact at one firm at least said that they were now getting some relief on earnings because fuel costs have come down a bit.

Let me turn to the national situation. It seems to me that at a time when the problems of some industries and sectors are so clearly due to excess supply--structural kinds of problems, whether domestic or foreign--there is a risk that adding abundant liquidity will cause overheating in those areas such as housing that continue to be strong. But that liquidity is not going to provide any relief to other troubled sectors. Neither the price nor the availability of credit is a problem for the smaller companies, for the truck manufacturers or telecommunications firms, the furniture or textile companies in Al Broaddus's District, or the personal computer and electronics firms in Texas or elsewhere. The excess retail space is not going to be quickly absorbed as a consequence of increased monetary stimulus. And adding further to the already ample liquidity in the financial system is not going to cause apparel sales to rebound suddenly.

We seem to have three sources of stimulus in the works right now. We have monetary stimulus and fiscal stimulus. Moreover, after two years of higher energy prices, those prices are now declining and, from what I hear, they may decline even more than the staff forecast suggests. Certainly, some adverse effects on households and various industries, sectors, and regions--not only in our country but around the world--occurred when energy prices were high, most notably in our own PRC, the People's Republic of California. [Laughter] But the effects were not all adverse either for the United States or elsewhere. The increase in energy prices did effectively communicate the need for greater energy supply as well as the value of innovation in energy conservation. It is gratifying to see that we have had a significant increase in energy production, and a lot more will be coming on stream over the next year or so, especially electric capacity. Also, some truly remarkable efficiencies in energy consumption are being achieved by commercial enterprises, thanks to better management. So we are now in a period of falling energy prices, in large part a reflection of the substantially greater aggregate supply of energy, not declining demand. And that is going to increase both our income and our output. We have monetary stimulus, of course; I don't need to say anything more about that. And finally, we have fiscal stimulus.

American businesses and households are going to get four “postcards” over the next nine months to give them an idea of how permanent the tax reduction is. Starting next week, they will see a reduction in withholding. Quantitatively it may not be large, but it is a message. Sometime in the next two or three months they will get a check in the mail. Whether it's large or not, it will be a message. On January 1st of next year they will see a further withholding reduction, and then next April they will either pay smaller taxes or get a bigger refund than previously. So in nine months’ time people will get four messages that their taxes, state as well as Federal, are going down. Over the prior months, the first four or five months of this year, American people sent a lot of checks to their government--many of them large checks. A lot of those tax payments were on earnings realized in the year 2000, and people may not even have the money anymore. In some cases, they probably had to borrow to pay their taxes. So over the first four months of this year, as my question yesterday was trying to imply, households as well as businesses were feeling the pinch of having to shift a great deal of cash to Uncle Sam and their state and local governments. That period is now over for this calendar year. From this point on, basically we are going to have fiscal stimulus in the pipeline, augmented by monetary stimulus and falling energy prices. We'd better be careful. Thank you.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Thank you, Mr. Chairman. While our Southeast economy is still showing modest growth, it has slowed further since our last meeting. We continue to look for some first signs of a rebound, but have not seen them yet. The economist who led off the regional part of my briefing for this meeting started his presentation with the remark: “It looks like a bummer of a summer.” Retailers seem to have grown more weary with the now sluggish pace of sales. While sales are generally in line with lowered expectations, retailers are pessimistic about the months ahead. For the first time since the disappointing Christmas season, many are expressing concern about inventories being above desirable levels. Manufacturing continues to contract, with weakness now showing up in apparel, textiles, aluminum, steel, petrochemicals, trucks, and luxury boats. On the other hand, despite our general concern about the pace of investment spending, companies in our growing southern auto industry, including Nissan, Toyota, Honda, and Saturn, are proceeding with major new investments and expansions. Should over-investment result or auto sales falter, our expectation is that cutbacks would not be at these new, more efficient facilities but rather would be borne by older plants in other parts of the country.

Reports have also been a little less positive on the outlook for tourism, one sector that has been on my list of positives until now. While bookings are slightly below year-ago levels, the strong dollar and higher fuel prices are both seen as cutting into business. And the fires in

Florida are keeping some people away. Excess capacity is also contributing to tourism's woes, as a host of large new cruise ships and luxury hotels are coming on line at just the wrong time.

Trade in our region depends, more than in other parts of the country, on a healthy and growing Latin America. Karen Johnson has already touched on some of the negatives in that part of the world, but I would like to underscore the observation that developments in the important economies of Argentina and Brazil do not bode well for the short-term outlook in South America. Argentine authorities have de facto begun to devalue the peso and have abandoned their dollar peg under the guise of an export subsidy. In my view, that is unlikely to spur economic growth and may well be the precursor to increased financial instability in the region. In Brazil, the emergence of electric power crises virtually halved the outlook for real economic growth in the short term, and further foreign investment in the region may be threatened. The two largest economies are not the only trouble spots in Latin America, and the deteriorating overall outlook in that region only adds to the potential for a drag on both our Southeast economy and on the U.S. economy more broadly.

One other negative development is the deteriorating fiscal outlook for several of our Southeastern states. Revenue collections are down in Alabama, Louisiana, Florida, and Tennessee, and spending has already been cut.

The bright spots in our region remain the same. In addition to autos, which I have already mentioned, construction is holding up amazingly well. Residential building is about flat on a year-over-year basis but still at a very high level. Commercial construction continues at a respectable pace but we are now seeing some slack develop, as large blocks of office space come back on the market for subleasing and developers become more cautious. While more slack is appearing in our labor markets, employment growth at l-1/2 percent continues to outpace that of the nation by a considerable margin. Loan activity has slackened, and that is only partly due to tighter lending standards. Funds for qualified borrowers continue to be available but credit quality concerns remain. Indeed, information from Visa--passed on by one of our directors who manages a large credit counseling business--indicates that they have raised their estimate of the increase in bankruptcies this year from 12 percent to 26 percent if the bankruptcy reform legislation passes and to 20 percent if it does not. Having highlighted those concerns over credit quality, I would observe that our bank examiners are still expressing confidence in our banks' ability to deal with the present level of stress. Finally, the pockets of significant price increases remain mostly the same--health-care insurance, asphalt, and trucking rates. Lumber prices have joined that list for some special reasons.

At the national level, my sense of where we are and what is likely ahead is not appreciably different from the Greenbook's. The economy continues to stumble along, with little evidence that the 250 basis points of policy easing that we've done this year is yet having much noticeable effect on key sectors of the economy. Although I continue to say both privately and publicly that I do expect to see more encouraging developments by year-end, it's hard at this point to see where a quick shot of broad new momentum is going to come from. Our patience is about to be tested. I share the view that major new investment spending does not seem imminent and that it's not just high-tech firms that are being cautious. The chief financial officer of UPS, whose corporate headquarters are in Atlanta, told us earlier this week that they are holding off on the purchase of new trucks and airplanes until business resumes. The story we hear over and over again is that it's not lower interest rates but rather increased sales that will trigger a new round of investment spending. Consumer spending other than for houses and autos is now more subdued, and the underlying fundamentals other than the expected stimulus from the tax cut do not suggest to me that basic spending is likely to pick up over the near term. The deteriorating employment outlook pushes in the other direction. With corporate earnings and stock prices languishing, there's no wealth kicker at work. And we are not going to get any push from exports or from state and local spending over the near term.

So where do I think this leaves us? As I suggested earlier, I believe we are at a point where we need to grit our teeth, muster up some patience, have some faith in our forecast, and help others to do the same as well. While we are almost certain to get more disappointing data in the months immediately ahead, it is also clear that the adjustments from the excesses that developed earlier are well under way. Furthermore, our aggressive monetary policy easing, with its lags, and the fortunate timing of the tax law changes can reasonably be expected to kick in at about the time the economy gets back on track for its own fundamental reasons.

We'll have our policy discussion in a few minutes, but I have a few broad lead-up thoughts on that. It's my sense that most Fed watchers have come to believe that we will continue easing, perhaps in big 50 basis points steps, until we see concrete evidence that the economy has turned around and has new upward momentum. That is not what I think we intend or want to do. My sense is that it is not still lower interest rates that will cure the remaining ills, but rather some fundamental adjustments that others in the economy need to make and in fact are making. While I recognize that not everyone is a believer at this point in the growing risks of inflation in the outlook, I have to give some weight to those forecasts, including my own Bank's modeling work, that suggest it is time to give those risks more weight. Piling on still more easing is very likely to make our job even more difficult when we need to reverse policy. Substantial downside risks remain. One more smaller easing move now so as not to disrupt market expectations at such a fragile point, along with a clear "all done" message and a reminder of the lagged policy effects, might be our best contribution at this point. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. Economic activity in the Seventh District is much the same as I reported last time--sluggish. Most industry contacts in traditional manufacturing characterize their industries as bumping along the bottom, similar to what Jerry Jordan said about his District. There is a little difference from the situation he described in that some of our contacts report that conditions are still getting worse. Reports from high-tech firms were uniformly dismal. At our last meeting, I noted that an increasing number of firms were delaying investment expenditures, and that trend has continued. Some firms are simply refusing to buy any more computer equipment until conditions improve.

On a more positive note, the latest Chicago Purchasing Managers' Report, to be released this Friday, shows the composite index moving up from 38.7 in May to 44.4 in June. That's its highest level for the year. All components indicated less weakness in June except for inventories, where a sharper decline probably should be reviewed as good news. The report generally suggested both better prospects for growth and lower inflationary pressures. This information, of course, should be kept confidential until Friday morning.

We held our eighth annual Auto Outlook Symposium in Detroit earlier this month. It drew over 100 participants. Like the Greenbook, the consensus of 30 forecasts submitted by that group was that light vehicle sales would be about 16.3 million this year. Those forecasters were more optimistic than the Greenbook for next year, however, in that they saw a slight increase to 16.4 million units versus the Greenbook forecast of 15.7 million. We also had some reports that the steel industry may be nearing bottom. Meanwhile, consumer spending and housing activity still are holding up reasonably well in our District. As is often the case, reports from retailers have been mixed, with weather being an important factor influencing sales of apparel and seasonal items. Furniture sales have been weak, while sales of other home-related items were still said to be relatively strong. Jewelry sales have softened slightly but have not shown the sharp declines that are normally associated with a recession. Housing starts, permits, and sales of existing and new homes in the Midwest all increased from April to May and contacts throughout the District indicate that there has been no noticeable slowing in housing activity in June.

There was an interesting dichotomy in how firms were reacting to looser labor market conditions. On the one hand, many firms employing higher skilled workers appeared to be trying even harder than usual to avoid layoffs. Consulting and law firms were encouraging new hires to take time off before starting and were asking current employees to work part-time or take vacations sooner rather than later. But they generally were not letting people go. We had similar reports about skilled jobs in manufacturing and in certain segments of the building trades. On the other hand, lower skilled workers were being let go at a faster-than-expected pace. One senior executive with many years of experience in the temporary services industry characterized the current period as the worst drop for his industry that he'd seen in his career. Outside the high-tech area, however, he has seen real evidence of lessened wage pressures.

We also held our Academic Advisory Council meeting last week. We had a larger than usual turnout--leading academics plus four business economists. There was a good deal of pessimism about the near-term outlook for investment, especially from the business economists. No one, however, thought the economy would slip into a recession. Participants raised many of the issues covered in yesterday's discussion of the productivity acceleration. The common opinion was that we should be cautious in basing our forecast of productivity trends too heavily on the last several years of excellent performance. The key message, however, was that the Fed should not become complacent about inflation. Many thought we were giving too little attention to inflation, and the academics generally thought we had either adjusted policy enough or had already gone too far.

Turning to the national economy, a great deal of uncertainty remains about the outlook. Clearly, economic growth stalled in the second quarter and significant signs of weakness continue. The high-tech overhang will persist for some time and will be a substantial drag on future investment spending. More generally, the manufacturing sector continues to contract and low rates of capacity utilization will limit further capital investment. As unemployment continues to increase, slower income growth will likely begin to weigh on consumption growth. In the absence of further downward economic shocks, the third and fourth quarters should show improvement over the current quarter, but the downward risks to economic growth this year remain high.

Having said that, there are clearly limits to how effectively the real-side risks facing the U.S. economy today can be addressed by lower short-term interest rates. And I think we're getting close to those limits. So far the core inflation outlook remains reasonably contained. However, with the real fed funds rate well below its equilibrium level, the inflation risks become greater as time passes. We always have to be alert to that danger.

As we said at our last meeting, there is already a lot of stimulus in the pipeline. The aggressive policy actions taken by this Committee earlier this year should soon be having noticeable effects and the tax cut will provide additional stimulus later this year. If the economic turnaround proceeds as quickly as our forecast suggests, the Committee will need to quickly return policy to a less expansionary setting of the funds rate.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, the Twelfth District economy decelerated in recent weeks, with slowing evident in most states and sectors, although the growth rate of California exceeded by a substantial margin the growth rate of Ohio. [Laughter] Job growth in the District in April and May averaged 0.7 percent at an annual rate, for a net addition of less than 30,000 jobs. The slowdown has been especially pronounced in the District's technology sector, where firms are laying off workers, writing off inventories, and delaying construction on planned expansions. Between January and May the District's technology sector has reduced employment by nearly 20,000 net jobs. Because of the prominent role that high-tech firms play in the District, slowing in the tech sector has had a negative effect extending well beyond that sector.

Energy markets in the West have looked almost normal in recent weeks. But the region still faces supply and demand imbalances, high prices, and unresolved financial issues. Wholesale spot electricity prices in mid-June fell below $100 per megawatt hour for the first time in over a year, though that still left prices well above wholesale spot prices in other areas of the country. The decline in wholesale prices can be attributed to several factors. More generation came back on line in California; the price of natural gas in the state dropped close to levels in other markets; and the state got a temporary increase of hydropower from the Northwest as the winter snow pack melted. Also, with the long-term electricity contract signed by the state, much less of California's power is being bought on the spot market.

Perhaps most notable is the decline in energy consumption. Electricity usage in California has been lower in every month this year compared with last year. The state is depending on continued conservation this summer. That is because most of the planned addition of new capacity will come on line slowly over the next several months and the outlook for imports from the Northwest is uncertain. In addition to voluntary and funded conservation programs in California, the substantial increase in electricity rates should curtail demand. It's true that over half of households are exempt from the recent rate increase but others are being hit with marginal increases of 30 percent or more this year. The nonresidential rate increases will affect nearly all businesses and are closer to 50 percent this year. While the higher rates will damp demand, electricity prices in California are now so high that they have neutralized the benefit of the state's temperate climate on energy expenditures. While high relative prices are never popular, getting convergence of wholesale and retail rates may be the only hope for more order in California's energy market. It's also important that the state repay the general fund for the money spent by the California's Department of Water Resources and Electricity. With the $8 billion allocated from the general fund nearly depleted and the issuance of the $12.5 billion in revenue bonds delayed, the Department of Water Resources has secured $4.3 billion in short-term bridge financing which they likely will draw on in July. With tax revenue growth slowing along with the economy, the state is counting on the bond issuance to replenish its general fund.

Turning to the national economy, the economic news, especially for the industrial sector, has continued to be disappointing, even when compared with our modest expectations. We have revised down our forecast for real GDP to little growth this quarter and to around 2 percent for the second half. Despite these recent shortfalls, our best estimate continues to be that economic growth will rebound next year, perhaps to the 3 to 3-1/2 percent range, based on the stimulus from the substantial easing of monetary policy this year and also on the recent changes we've seen in fiscal policy. However, as we all know, there are downside risks. First, there is the obvious risk still in the stock market. The potential effects, I believe, are nicely illustrated in the simulation presented in the Greenbook. Second, we could see a continuation of the pattern that has persisted for some time now in which the dollar keeps rising above expectations and foreign growth keeps weakening more than we expect. With respect to inflation, we anticipate increases in the core PCE index of just over 2 percent this year and of just under 2 percent next year. That is higher than I'd like to see for the long run. However, I don't think we are at the point where the risks of economic weakness and future inflationary pressures are balanced. Thank you.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. The slowing of the Eleventh District economy intensified in April and May. Our regional statistics have finally caught up with the reports we’ve been getting from our directors, Beige Book contacts, and others. The Texas unemployment rate rose to 4-1/2 percent in May and now stands just above the national rate after five straight months of being below the national level, which was a fairly rare occurrence given our demographics, especially near the border. Other labor market indicators confirmed the weakness. Employment declined slightly in April but improved somewhat in May. Mass layoffs in Texas rose sharply in May, reinforcing the upward trend that began about a year ago. Jobless claims of over 30 days continue to rise and are roughly double the levels that prevailed a year ago. In recent news, but not yet in the statistics, Nokia will close a Fort Worth plant and lay off 1,500 workers. Texas Instruments will idle two Dallas plants, affecting 1,800 workers. And Nortel just announced 10,000 additional layoffs, many of which will hit the Dallas area. The Texas slowdown is affecting all the major metropolitan areas. Austin, our boomtown throughout the ’90s because of high-tech, has had no job growth year-to-date and sharply rising unemployment. Weakness is reflected in a declining office market and reduced home sales, especially at the high end. El Paso is dealing with a noticeable slowdown largely stemming from the deep cutbacks in maquiladora production in Juárez. The slowdown in Texas has been compounded by a drop in exports for two successive quarters. Mexico, our largest trading partner, has had two quarters of decline in GDP. The pace of construction has slowed across all categories in the District, but will get a boost from the rebuilding effort in Houston following tropical storm Allison, which caused over $2 billion in damage.

The views on the economy expressed at our June board of directors meeting were probably the weakest since the credit crunch days of the early ’90s. Our director affiliated with Texas Instruments said that the growth of personal computer sales is the lowest in 16 years and the growth of cell phone demand is the lowest and slowest ever. This is reflected in the demand for all types of chips, with the outlook for recovery in that industry being postponed until the second half of next year. Our Enron representative reported a dramatic decline recently in the demand for energy. In recent weeks the price of natural gas and wholesale electricity has fallen much more sharply than weather conditions or conservation measures would suggest, leading to the inference that the economy is slower than would be indicated by other measures.

Our views on the national economy follow the rough contours of the Greenbook forecast. Our internal models are suggesting a slightly negative GDP change this quarter but we're hopeful that the positive impact of monetary and fiscal policy will soon be felt. Our major concern stems from the deteriorating international outlook. Mexico is technically in recession, due largely to the U.S. manufacturing recession. Another concern is Argentina and the games being played with the peso. Argentine citizens have seen several versions of this movie before and they’ve all had unhappy endings. We hope that Cavallo can pull another rabbit out of his hat; otherwise this story will have a familiar crash ending.

In 1996 the Dallas Fed had a conference on the tequila effect and its impact on Argentina. It's my hope that we will not have a conference in 2001 on the tango effect and its impact on Mexico and other Latin America countries. Should such an event occur, it could sidetrack any hopes of a free trade agreement in the Western Hemisphere, not to mention delay, stun, or even stifle a U.S. recovery. I would be less worried on this score were it not for the continued slowing in Europe and the absence of hope for recovery in Japan. New headwinds are being created to replace those that go away.

Growing slack may reduce inflationary pressures but that is not guaranteed if the supply side of the economy contracts faster than demand. Nevertheless, either way, priority must be given to avoiding a deep, cumulative recession. Given the economic outlook and the accumulating risks we face, it seems clear that we need to continue to reduce our target funds rate and remove the incentive for borrowers and spenders to wait for further easing moves.

CHAIRMAN GREENSPAN. President Santomero.

MR. SANTOMERO. Thank you, Mr. Chairman. Since our May meeting the main change in the economic outlook for our region is an improvement in expectations about future economic conditions. Overall, economic activity continues to edge up. News on manufacturing in our District is somewhat better than that for the nation. While manufacturing activity remains weak in our District, conditions have improved steadily since the beginning of the year. Our business outlook survey of manufacturers for June, which was released last week, showed some improvement in the index of general economic activity. Although the indices for new orders and shipments both showed modest declines in June, they too are much improved since earlier in the year. Moreover, survey respondents’ expectations about activity, new orders, and shipments over the next six months moved up sharply. Of course, it remains to be seen if such expectations will be fulfilled. Retail sales remain mostly flat in our region as they do in the nation. Our Beige Book contacts indicate that cool, wet weather hampered sales of summer clothing and other seasonal merchandise. Sales of big ticket items have been slow as well and several store executives said they are prepared to reduce orders if sales do not turn up. Corroboration of this anecdotal evidence is seen in the Pennsylvania sales tax collections, which have shown weakness in recent months. Employment in the retail sector has been flat this year.

The construction sector is holding up fairly well in the region, although recent sales of both existing and new homes have slowed somewhat. The demand for office and commercial space has softened. The office vacancy rate has held steady in the Philadelphia central business district so far this year, but vacancy rates have moved up in some suburban markets, which had been among the fastest growing areas during this expansion. Despite the softening in recent activity, construction employment in our region has increased this year. However, recent data suggest that the overall employment picture for the District has deteriorated somewhat. In April and May, payroll employment declined 0.2 percent in our tri-state area, reversing the first-quarter increase. As in the nation, initial claims for unemployment insurance are up sharply since the beginning of the year.

Price increases in the Philadelphia region appear to have caught up to those in the nation. Over 1999 and 2000, CPI inflation in Philadelphia had been less than that for the nation. So far this year, prices in our region have been rising more sharply, reflecting strong increases in the costs of medical care and housing.

In summary, the economy in our region continues to inch up at a sluggish pace. In our staff's view, the economy is near an inflection point. We expect the regional economy to grow at a moderate pace over the second half of the year, helped by the stimulus from lower interest rates and Federal tax cuts.

We hold a similar view on the national economy. The economy has turned in a weaker performance this year than our staff--and most other forecasters, I might add--expected. The inventory correction has been both deeper and has taken longer than we anticipated, and the slowdown in business investment was sharper than we expected. Our current forecast is similar to that of the Greenbook; however, we incorporate further monetary stimulus in the near term. We expect the stimulative effect of the rate cuts that the Committee has put into place to build during the second half of this year and the first half of next year and then begin to subside. We are more optimistic than the Board staff about inventory corrections, and we see businesses starting to rebuild inventories very slowly later this year and picking up the pace next year. We have stronger GDP growth in the third quarter than does the Greenbook, but somewhat less strength in the fourth quarter. This difference is largely because we expect tax rebates to have a bigger positive effect in the third quarter than does the Board staff forecast. Averaging across the second half of 2001, we project GDP growth to be above 2 percent, which is about 1/2 point faster than the Greenbook forecast. For 2002, our staff forecast and the Greenbook forecast are similar, but we see slightly less acceleration in growth over the year. With rising unemployment, a resumption of fairly strong productivity growth, and flat to slightly lower oil prices, we see somewhat better inflation numbers from mid-2001 through 2002, but we’re not as optimistic on the inflation front as the Greenbook partly because we see smaller increases in unemployment.

Frankly, I'd be content if either the baseline Greenbook forecast or the Philadelphia Fed forecast comes to pass. Unfortunately, as all of us who forecast know, there are risks. Our sense is that these risks, absent any reduction in the fed funds rate, are still biased toward the downside. But there are some upside risks as well.

I believe the most significant risk factor is the timing of the impact of the policy actions we have already taken. On the downside, monetary and fiscal policy stimulus could come too late to offset weakness in the labor market, and that could set in motion a more negative scenario than the forecasts. With corporate profits weak, I'm concerned that the weakness in business fixed investment, especially spending on equipment and software, could continue for longer than the forecasts suggest. But there are also risks that the combined stimulus could be stronger than we currently anticipate. We could be in danger of overdoing it, resulting in a buildup in demand pressures in the future. Thus, going forward I believe it's time to take more measured steps, to remain forward-looking, and to convey the message that the lags in the effect of monetary policy mean that the Committee will have to temper its actions before the data actually reveal a strong resurgence in economic activity. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Thank you, Mr. Chairman. Meetings with our Bank’s directors, our small business advisory council, and members of a local high-tech-heavy quality group, taken together with discussions with area CEOs and reports from our Beige Book contacts provide similar insights about regional economic activity. That is, despite the continuance of relatively good economic data vis-à-vis the rest of the nation, things are beginning to deteriorate in New England.

Current data about regional employment growth and state unemployment levels remain relatively positive. New England grew over twice as fast as the country as a whole from May 2000 to May 2001, and all states except Rhode Island have unemployment rates below the U.S. rate. Connecticut continues to have the lowest unemployment rate in the country. But this relatively benign situation seems poised to change in a negative direction. Initial claims for unemployment insurance continue to rise. Manufacturing production hours dropped closer to the national average. And both print want ads and Internet help-wanted advertising declined sharply this April, with some flattening since then. Manufacturing contacts were considerably more pessimistic than even as recently as six weeks ago. Large high-tech firms like EMC and Teradyne now report layoffs. One CEO said that in his thirty-year experience he has never seen such a sharp fall-off in demand. Small manufacturers report that they are trying to hold onto the skilled employees that were so hard to find just a few months ago but that if things don't pick up in the third quarter, they will have to begin downsizing as well. Some small firms, such as computer servicers and firms that supply seating for arenas and schools, report healthy conditions. But others more directly involved in the high-tech chain as suppliers or outsourcers are dead in the water.

In relative terms, the defense industry in the region seems in better shape than other manufacturers. Contacts report little cyclical variance since defense contracts “move to the beat of a different drummer,” to quote one source. Nationally, defense orders are rising and, with the exception of submarine orders in Connecticut, orders rose in all the other New England states and defense-related employment may be firming. Defense contractors clearly are awaiting the results of the President’s quadrennial review in the fall, which is expected to propose increased budget authority for defense.

Continuing on a bit of an upbeat note, deterioration in the loan portfolios of the region’s largest banks has begun to taper off and remains confined to large syndicated loans in particular industries like telecommunications. Additional downgrades related to the as yet unavailable SNC data remain, but these banks also report strength in middle market and regional credits. How long this will last, given the gloomier regional outlook, is a question, however.

Overall consumer confidence stabilized in May at a level 20 percent below the previous year. New Englanders remain more positive about the present than the average national consumer but have severely downgraded their expectations about the future. Similarly, the business confidence index for Massachusetts dropped to its lowest level in nearly 10 years. Business concerns were more heavily weighted in the present and less negative about the future, though this was widely interpreted as reflecting a general level of increased uncertainty.

Construction continues to be the fastest growing job category. Residential markets remain strong, though the pace of house price increases has abated a bit. Commercial vacancy rates have jumped, though most of the increases are in areas like Boston and Cambridge, where space a few months ago was extremely hard to find. Indeed, one of the Bank's largest tenants who had been poised to move to get more space than we could provide decided to stay put and wait out the uncertainty. Rental rates have fallen as well, though only to levels that are solid versus stratospheric, according to most reports.

In sum, the region seems to be sliding, perhaps rapidly, from its position above the fray several months ago into a downturn that more closely resembles other high-tech oriented areas of the nation. When asked if they see a turnaround, most contacts replied "not yet." Optimists are using this time to train employees and to integrate more fully that last piece of equipment or software they purchased, and many report that their focus on productivity is as keen as ever. Pessimists are not hard to find and they report no light at the end of the tunnel.

Turning to the national data, there's not much to distinguish our forecast for the remainder of the year from the Greenbook's. Next year the rebound to potential is almost immediate in the Greenbook, while our forecast reflects a more gradual return. Both forecasts suggest that unemployment will rise to something like 5-1/2 percent or so in 2002 and that inflation will level off if not decline, depending on the measurement used. One could debate differing NAIRU assumptions, I suppose, and these are important; but for the time period most relevant to today's policy decision, there is little difference between the two forecasts. The question is whether one is satisfied with this projected outcome and what the risks surrounding that forecast seem to be.

I must say that I've been struck by a sense of increasing uncertainty on the downside. This is not simply because New England now seems to be mirroring other areas of the nation. Overall, the data seem increasingly downbeat, particularly as they relate to foreign growth, corporate profits, and business investment. With regard to layoffs, one cannot help but think that the other shoe may be in the process of falling, especially if demand does not strengthen a bit in the third quarter. If so, then the consumer could well stop being the mainstay of the expansion even with the stimulus of the tax cut. If people are losing their jobs, the tax cut may well all go to reduce debt or increase savings, with little immediate impact on consumption. Indeed, I continue to wonder what a full percentage point uptick in unemployment does to spending and whether our models fully capture that and, more importantly, if that outcome is desirable in an environment of moderating inflation. That would be roughly another million and half people or so who want to work but can't find employment, or about double the increase from November 2000 to now. It seems to me that that sort of change in a relatively short period could have spinoff effects that are hard to capture.

On the other hand, monetary policy ease has been aggressive to date and fiscal policy will provide a further impetus earlier than expected. Not everyone works in high-tech and related service and temporary help industries, and continued layoffs by these firms may not have the same broad-based effect as the decline in autos and steel had late last year. In fact, I found the paper yesterday on the capital overhang extremely helpful in thinking about the situation and at least a little reassuring. There may be no “killer apps,” as the phrase goes, on the horizon, but after a year of decline in levels of investment, small changes in technology and increasing final demand could spur further rates of investment over the next six to nine months. Clearly, the Greenbook assumes this will be the case.

Finally, while rates of inflationary growth seem to have moderated a bit and financial markets seem less than accommodative to excess, there’s still a need to consider how much policy ease is enough and when to step back. There may well be headroom now for a bit more ease, but I continue to believe that caution is necessary.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you, Mr. Chairman. I've commented for some time that the District economy has been performing much like the national economy, and that continues to be the case. The weakness and problems are concentrated in the manufacturing and mining sectors where activity is clearly declining. Labor market conditions are easing, although net job creation remains positive. On the other hand, the construction sector, both residential and nonresidential, is healthy. Consumer spending has held up and tourism could probably be described as mediocre--no better, no worse.

The one thing that has changed is attitudes, which clearly have deteriorated according to the anecdotal reports I’m receiving. I think they’ve deteriorated principally because of what has happened in the labor market. The easing conditions in that market, the layoffs and job losses both regionally and nationally, have captured a lot of attention and I think have convinced a lot of participants in the economy that indeed the economy’s performance has stalled or perhaps even worse.

At the national level, my view isn't all that different from the view expressed in the baseline forecast in the Greenbook. I do think the inventory correction process still has some considerable way to go, and as a consequence I expect the reacceleration in growth to occur a little later and initially to be a bit more modest than in the Greenbook forecast. Nevertheless, I am confident that a reacceleration will occur and that next year economic growth will be a good deal better than it is going to turn out to be this year.

I believe the risks at this stage are reasonably symmetric. Of course, it's possible that the contraction in capital spending could be more severe than we currently expect or that consumer spending could weaken as the unemployment rate rises. But it seems to me that monetary policy has largely allowed for this already and, of course, we have fiscal stimulus in train as well. In any event, I think we need to bear in mind, as I’ve said before, the lags between our actions and their effects as well as our responsibility to promote sustained economic progress by keeping inflation and inflationary expectations low.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. Mr. Chairman, I think our District's economy has weakened since the last FOMC meeting. All the information we get on manufacturing suggests that that sector, at least in our region, is continuing to decline and that the decline may have accelerated a bit in recent months. We also conduct a monthly manufacturing survey, as does your Bank, Tony, and I'm struck by the differences between yours and ours. All of the indicators we looked at in our latest survey--shipments, new orders, capacity utilization, and employment--were down sharply in April and May. In addition to the general deceleration in demand, the basic mainline industries in our region, textiles and furniture, are also being negatively affected by increasingly intense competition, especially from China, which I think has been heightened by the strong dollar.

With respect to consumer spending, as elsewhere in the country new car sales have held up surprisingly well, but spending on non-auto durable goods and services has been weaker recently. One of our board members in Richmond is the retired chairman of a large department store chain and he receives a lot of data on department store sales. He gave me some information a few days ago on store sales in the first three weeks of June and indicated that even when corrected for promotional programs and so forth, sales were quite weak in that period.

Housing activity still looks rather good in our District markets. New home sales, as elsewhere in the country, have been strong most recently and new residential permits are almost 10 percent higher than they were a year ago. Commercial real estate activity, on the other hand, has weakened.

District labor markets have loosened further overall. Actually, unemployment rates are down a bit in three of our jurisdictions--D.C., Maryland, and West Virginia. But in the states that have heavy concentrations of manufacturing activity, unemployment is up. That's especially true in North Carolina where the unemployment rate has moved up from 3.6 percent last May to a little over 5 percent this May.

On the national economy, I think the situation we face today is not all that different from what it was at the time of our May meeting. Investment in both high-tech and in more traditional capital goods is quite weak. But household spending still seems to be holding up better than might have been expected. On balance, as the Greenbook put it, there is weakness but it does not yet seem to be cumulating in the way that has characterized previous recessions.

At the May meeting I talked about the current situation in comparison with the 1992-93 period when, at least by some measures, the real funds rate was last at a quite low level. I argued then that if economic activity were currently at a bottom, we probably had enough stimulus in the pipeline. And in fact, the Greenbook point forecast does show real GDP growth at or very near a bottom in the second quarter without any further easing of monetary policy. Of course, as we all know, in the forecast this bottoming seems to result mainly from the monetary stimulus that is already in the pipeline, the anticipated additional fiscal stimulus, and the completion of at least a good bit of the inventory correction by the end of the third quarter. That's the Greenbook point forecast. But clearly, the tone of the Greenbook commentary focused mostly on the downside risks in the outlook. That's entirely appropriate, in my view, since we do have a dramatic weakening in equipment investment which, if anything, could be intensifying currently. Given that downside risk, I think a case clearly can be made for further monetary stimulus. Our actions to date have undoubtedly helped to shore up household spending in interest-sensitive sectors. And that has probably helped to offset some of the cumulating weakness in equipment investment. At this point, again by some measures, the real funds rate is at a very low level. But it's not at zero yet. So there is still some leeway to bring it down a bit further.

But frankly, and this is the main point I would make--it echoes comments that a number of other people have made--I really doubt that additional interest rate cuts at this point are going to do a lot to deal with the critical weakness in equipment investment. What I'm hearing frequently from members of our boards and other business contacts is that a rebound in investment spending is unlikely to occur until investing businesses have some sense that the economy is at a bottom or very, very close to a bottom. So I think the direct stimulative effect of low real short rates on the economy overall may not be very substantial at this point, which might tempt us to move rates even lower. But that could be a mistake because once a bottom is perceived to be reached, very low real short rates may become very stimulative, with businesses poised--as I think many are--to resume investing to profit from opportunities presented by the still rapid pace of technological progress. So the risk, as I see it, is that if a bottom is confidently reached sooner rather than later, labor markets will still be relatively firm and the inflation rate may still be drifting up. I know we can debate that latter point but I don't think we can rule it out. And in that situation it may be very difficult for us to reverse field and tighten policy as quickly as needed to keep both inflation and inflation expectations from moving back up. Thank you.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Mr. Chairman, not a great deal has changed in the Tenth District. Our economy does remain sluggish, as it was at the time of our May meeting. Manufacturing overall remains in the doldrums. Capacity utilization continues to decline and plant managers say that they are still working with inventories that they feel are too high. Firms are delaying some of their expansion plans but the dichotomy among firms is interesting, reflecting somewhat the contrasts mentioned in yesterday's discussion. A Corning plant in Oklahoma, which manufactures optical fiber, has delayed additions to its capacity for obvious reasons. On the other hand, one of our metal fabricators, while saying that the manufacturing industry is still in recession, reports that they are beginning to see light at the end of the tunnel. They are seeing some strengthening of orders, so they are more optimistic. That reflects, I think, a bit of the contrast in the economy.

Consumer spending has held up better than might have been expected, but the outlook obviously remains quite uncertain in these times. While there are some signs of a rebound in consumer confidence within the region, we are still seeing some cutbacks in discretionary spending, especially in the consumption patterns of some of our higher income households.

Residential construction has held steady but the demand for housing, based on recent anecdotal data at least, is showing signs of slowing. Sales are down somewhat from a year ago. In most of our markets the inventory of unsold homes has increased and housing inflation in our cities has slowed, especially in Denver where it had been most prominent. The picture is much the same in commercial real estate. Construction is holding steady but there is some downward pressure on prices and rents. Again, Denver is showing some increased problems, partly reflecting their high-tech orientation, because Level 3, one of the companies building some of these fiber optic networks, has laid off a considerable number of employees.

The energy sector remains a strong factor in our economy. The rig count rose again in May and is at a new eleven-year high, and drilling activity continues to be restrained to some degree by a shortage of labor and equipment for that industry. Our agricultural economy remains mixed; meat producers are doing well and grain producers are doing very poorly.

As for the labor market, firms are finding it easier than it was a year ago to hire workers. From highly trained IT specialists to retail and other lower skilled workers, the market has eased up. The unemployment rate hasn't budged a whole lot, though, especially since our last meeting. The proportion of business contacts reporting labor shortages has been about the same recently as it was in March. Reflecting the sluggishness, wage pressures have eased somewhat in our area and overall price pressures also have remained relatively subdued.

Turning to the national situation, I have marked down my growth projections for the near term but remain fairly optimistic, in line with the Greenbook, in terms of the longer run. I now expect the economy to grow at a sustainable rate approximating the economy’s potential by the end of the forecast horizon. At the same time, I've become more concerned about the inflationary pressures that may follow. Price pressures should be contained for the time being. I recognize that the current stance of policy has the potential to push up the underlying inflation rate as we go forward.

It is not surprising, of course, that the outlook for the U.S. economy remains pessimistic in the near term, which I think still reflects some of the lagged effects of tighter monetary policy and higher energy prices from last year. And as we discussed yesterday, I believe it also reflects a buildup of excess capacity in important sectors such as telecommunications and technology as well as a significant slowdown in foreign economies.

In this environment, Mr. Chairman, our accommodative policy has begun to reverse the effects of our previously tighter policy and has had an impact on certain sectors in terms of increasing demand in those areas. It is not clear, though, that further easing can immediately reverse the effects of some of the other factors that I've just mentioned. Of course, the question we now confront centers on whether we should ease further to better assure recovery or whether in a determined effort to turn things around we may be easing too much and therefore risk overshooting our longer-run goals.

I acknowledge that it is difficult to be patient in an environment of rising employment and slowing growth but that, of course, is what I am suggesting here. I keep coming back to the following logic: By most estimates the real fed funds rate is below the equilibrium long-term rate, and policy is by that definition accommodative; additional fiscal stimulus is in process and will have an impact on the economy later this year and next; monetary policy works with a lag, as others have said here today, which suggests that our recent easing moves have yet to be fully experienced; they will have increasing influence later this year and next. I admit that we don't know if we are being too accommodative, but the risks of that are certainly increasing. I'm concerned that if we follow a policy in which rates are set much below current levels and they remain there over the next year, we risk over-stimulating the economy in 2002 and we risk higher inflation in 2002 and beyond. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Thank you, Mr. Chairman. My conversations with officials at FedEx and UPS lead me to describe the situation as being essentially unchanged since the last time I talked with them. My FedEx contact said that the firm's customers are expecting flat volume for the next three to four months; FedEx sees business as essentially stabilized at the current level. The firm's express volume is down about 7 percent year over year, but ground volume is up by about the same amount. That's essentially the same kind of picture my contact described six or eight weeks ago. International volume is still showing positive growth of 2 to 3 percent year. FedEx business in Europe is doing well while that in Asia is weak.

On the labor market, FedEx is not planning layoffs but has built into its plan an assumption of attrition, not replacing all the workers who leave. But FedEx is finding that turnover is unusually low for the professional ranks of the firm; it's typically 5 to 6 percent and is now about half of that, according to my contact. That suggests that people are developing some concerns about their ability to find new employment should they leave their jobs. Blue-collar turnover is also down. FedEx reports no difficulty in hiring new people to fill positions when that is necessary. As with other contacts, FedEx is concerned about health-care costs. Those costs are back to double-digit rates of increase and that's a noticeable problem for them.

The tone of the story from UPS was a little more pessimistic but roughly the same as the situation at FedEx. UPS is reducing its capacity somewhat by taking some smaller aircraft out of service and also putting some ground delivery trucks into storage. UPS reports that volume in Europe is holding up fairly well and volume in Asia continues to be weak, which echoes the FedEx picture. UPS continues to manage its domestic business quite tightly--holding the line on hiring, using the phone instead of traveling, and that kind of thing.

My contact at Wal-Mart said that the company had seen some slight signs of weaker demand. I thought the firm’s analysis of recent developments was rather interesting. Wal-Mart has a mid-month and a month-end cycle to their business. The month-end cycle is tied to transfer payments that are paid out on a month-end basis. That cycle seems to be a little weaker but a normal pattern continues at mid-month, which typically is the regular paycheck cycle. Wal-Mart has noted a shift in demand toward lower priced merchandise in any given line. In apparel--a line of shirts, let's say--the opening price point, or the lowest priced item in the line, has stronger demand than the higher priced items. The situation is quite atypical. No one there can remember such a large shift of this type under conditions of the sort that we have. Customer traffic is flat to slightly higher and there is a healthy mix between the total traffic and the average size of a sales ticket. That is, people are continuing to spend about as much as they had before, despite this apparent shift toward lower priced items.

My contact was questioning me on what I might know about the likely effects of the tax rebates. I could only talk at a rather abstract level but I did refer him to the 1975 experience, which his people are going to be looking at carefully. Wal-Mart’s inventories are on the lean side and one of the things they’re concerned about is that if a noticeable pickup in consumer demand materializes as a consequence of the tax rebates, their stores are going to be out of stock on some items. So they are debating about whether to step up their orders. My contact said that the retail sector in general is fairly lean on inventories; it's also true of their competitors. He made a big point about medical costs. In his words they are "going through the roof," up 15 to 20 percent this year. The company had expected increases more in the neighborhood of 7 percent but now is expecting the situation to be worse next year. My contact said he is not seeing price pressures from vendors, but he noted what he called a "latent desire" by vendors to raise prices. That is, vendors don't have room to do it now, but with a pickup in demand they would want to put some price increases through. Everyone is faced with cost pressures that they are trying to deal with.

Let me offer a few comments on our current situation. I think the economic situation we face has many unique characteristics. It is decidedly atypical of U.S. business cycle experience. That means that we don't have a lot of the typical patterns that help inform our judgments about it. The downturn has been concentrated to an unusual extent in a particular sector of the economy, manufacturing. I believe that real adjustments are necessary in that area and they are being made. Obviously, a contraction is taking place in the dot-com and telecom industries, and that contraction is going to continue no matter what happens to monetary policy. Expectations by those industries were too buoyant a year ago. Those expectations have not been met and are not going to be met within the next few years. So those firms are going to have to contract and they are contracting.

On a more general basis, I think earnings expectations and the stock market have been too high. The notion that earnings can grow at 12 to 15 percent for an extended period of time when the national economy, at reasonably stable inflation, is going to be growing at 6 or 7 percent, doesn't add up. It doesn't fit. So those earnings expectations are going to have to adjust over time. I'm talking not just about the current year and next year, but about the longer-run earnings expectations. Probably some adjustment is going to have to take place in price-earnings ratios; by conventional measures the stock market is still generously priced. I call that a real adjustment because it reflects attitudes toward the future. It's not fundamentally a nominal phenomenon but relates to attitudes about risks and the likely course of earnings. In my view we probably are going to see a continuing adjustment bringing price-earnings ratios more in line with historical experience. That doesn't mean that P/E ratios will go back to historical averages but rather that they will be more in tune with past experience.

The staff and private sector forecasts of where the economy is going are broadly in agreement. Those point estimates make perfect sense to me. There is no guarantee, of course, that we're going to get exactly that outcome, and we have to be aware of the potential risks on both sides.

Housing continues to do well, as many people have commented. I think that's important, not just because housing investment involves a significant number of dollars but because it is perhaps the best single measure of confidence among those in the household sector. People don't commit themselves to large mortgages--very big financial commitments over a long period of time--if they don't have a significant amount of confidence in the future. I put a lot more weight on the actual performance of the housing market than I do the survey data on consumer confidence.

The monetary policy background, I think, has been very expansionary. Money growth, no matter how measured, has been high for some time--and we’re not talking about a matter of a few weeks or a few tenths of a percentage point. We don't have to quibble about exactly what it is. The staff documents, of course, report M2. I like to add MZM to the mix of money measures; it is the definition that I think most closely corresponds to the Friedman-Schwartz M2 definition that produces a continuous series back to the time of the Civil War. MZM has grown 15 percent in the last year; it has grown in excess of 20 percent at an annual rate in the last six months. We are creating or permitting to be created a very large amount of liquidity. The largest mistakes in U.S. monetary policy history have come, I think, from ignoring money growth, and I believe it would be unfortunate in the extreme if we, too, made that mistake.

As for other measures, certainly credit markets are accommodative. The amount of funds being raised is ample, and firms that are reasonably creditworthy have no difficulty borrowing through intermediaries or directly in the markets. The real federal funds rate is on the low side of estimates of the equilibrium rate. Any way you cut it, it seems to me there is no question that monetary policy is in a very expansionary mode. A number of people have commented about the lags in the process. A lot of the monetary policy ease has come relatively recently. We would not expect to see it show up in real activity right away.

I think the inflation risks are rising. I note that we have been counting on declining energy prices. One of the things I asked my staff to do was to look at what has happened to crude oil futures for the December 2001 and the December 2002 contracts. From them we see that the date when energy price declines will take place keeps getting pushed into the future. I have a chart that goes back to the beginning of 1998, when the December 2001 and the December 2002 crude futures contracts were both trading at about $19 a barrel. Over the course of 1998 they went down a little but they have been increasing steadily since then and actually increased a good bit over the last year. So in terms of where oil prices are going over the next couple of years, what looked like a fairly quick return to a per barrel price in the low $20s is now more likely to be in the neighborhood of the mid-$20s. I think we are in danger of building in some more-or-less permanent increases in oil prices, and in my view we should not just take that out of our price indexes and ignore the fact that it's there.

How the economy is going to evolve in coming months is obviously going to depend on how markets respond to the outcome of this meeting. I think it's interesting to note that the ten-year bond rate today is about the same as it was in December of last year. I don't know of any period in which the federal funds rate has changed by such a large amount and there is nothing to show, really, in the longer rates. This is a very unusual circumstance. Clearly the impetus of monetary policy into investment spending is going to work at least in part through the behavior of long-term rates of interest. And if monetary policy is in fact not pressing those long-term rates of interest down, we're not going to see a quick response in longer-lived kinds of investments. Investment spending is not going to respond to what we do.

I think we've gotten ourselves into something of a bind in terms of the market’s expectations of where we are going. In my view the language in our balance of risks statement has turned out to be a forecast of what we’re going to do at our next meeting. I think the market reads it that way. If we look at the history since we’ve used that language, it has in fact been a perfect or almost perfect forecast of our action at the next meeting. To me, that’s clearly the way the market interprets it. Unfortunately I think we have a problem because if we say the risks are weighted toward economic weakness, the market is going to take that as a forecast of more ease to come. If we choose a neutral balance of risks statement, though, I'm concerned that the market would take that as a forecast of nothing more to come. To me that would also be very unfortunate because whether there is more ease to come or whether we will start to move in the other direction is going to be driven very importantly by the information we get in the coming weeks and months. So I hope that somehow we can get across the idea that the current situation is not typical but has a lot of very unusual aspects. This is a rather unique situation and we are not frozen into a course of continuing to lower rates, which would be my biggest fear. Given my interpretation of how the market is reading that language, I would consider it very undesirable to have a balance of risks statement weighted toward economic weakness. I think that's just a signal to the markets that there are several more steps of ease to come no matter what we do with the funds rate today. That would open us up to a difficult situation if it turns out that we feel compelled to reverse direction as the data come in. So I hope we can give the markets the impression that our best guess is that we are now finished easing, but that we are very open to responding to incoming information that might require rates to be either higher or lower in the future. I think we need to convey that there is no conviction on our part as to the direction in which we will move the funds rate in coming meetings. Thank you.

CHAIRMAN GREENSPAN. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Thank you, Mr. Chairman. Before I comment on the Second District I would like to say that I think that assessment of the market's interpretation of the balance of risks statement is completely wrong. I believe the market looks at incoming data and tries to evaluate what the Federal Reserve will do. That's what the market looks at. To my mind, any notion that what we say about the balance of risks is tied to or determines our next move involves falling into the intellectual trap of *post hoc, ergo propter hoc*. Anybody who has ever studied logic has been taught that that is a great fallacy.

As for the Second District, we apparently should have migrated south slightly to Philadelphia! Whereas the scene of relative prosperity had been centered in New England and the Second District, it appears to have moved away from President Minehan and me. Economic growth in the Second District has shown distinct signs of slowing since the last time this Committee was together. Employment growth in the District has deteriorated sharply. In New York State, private sector job growth slowed from a roughly 2 percent annual rate in the first quarter to a 0.3 percent pace in April and May. In New Jersey, private sector employment, which was virtually flat in the first quarter, declined at a 2 percent pace in April and at a 1 percent rate in May. New York's unemployment rate has held steady recently at 4.3 percent, while New Jersey's has risen from 3.6 to 4.3 percent in just the past three months.

Manufacturing employment has continued to shrink at roughly a 4 percent pace, in line with its trend over the past year. Construction employment is up nearly 5 percent from a year ago, though it has leveled off in recent months. Job growth in services--and that's a leading driver of our regional economy--has decelerated in recent months but remains fairly strong at an annualized 2 percent pace. In the region's key financial services industry employment fell noticeably in both April and May after rising through March. The disarray in the major securities firms is continuing. You no doubt noticed the profits warning from Merrill Lynch. The firms on Wall Street that have a very strong bond trading and underwriting capability have done relatively well, shifting their profit realizations to that area from investment banking and equities.

Consumer spending is holding up reasonably well. Retail sales appear to have picked up in late May and early June with the arrival of warmer weather. But they remain little changed from a year ago and are still okay but a little on the sluggish side. Selling prices and merchandise costs are steady to somewhat lower, and wage pressures in the consumer area appear to be rather subdued. Everybody in the District, as we have been hearing from other Reserve Bank presidents about their Districts, continues to complain about the escalating costs of health benefits and utilities.

We have a shift in the balance of prosperity and lack thereof in New York State. The upstate area, with the partial exception of Buffalo, is actually looking quite good. And the New York City area, because of the financial services industry, is looking relatively weak.

Commercial real estate has deteriorated further since we were last together but home sales and construction have remained robust. The Manhattan office market has slackened substantially in recent months. Asking rents are still up from where they were a year ago, but those rents are usually not being realized; deals are being made at considerably below the asking price. Availability rates in downtown Manhattan have risen from 5.4 to 6 percent and are going to rise further; in midtown they are up from 3.4 to 6.1 percent. So the bloom is definitely off the rose in New York City.

The financial services industry is a major source of tax revenue for both New York City and New York State and, therefore, the fiscal situation of the city and the state will certainly be deteriorating. Inflation levels in the District are about similar to those of the nation. As for the international situation, I think it continues to deteriorate. I believe Karen Johnson’s report yesterday outlined that well, as have certain remarks this morning.

On the national economy, our Bank’s forecast is about the same as the Greenbook’s, so I won't quibble on the details. We have the same view that the risks are very substantially to the downside. I think we have to accept the fact that until we get into next year, business fixed investment will remain very weak. So in my view our role as a central bank is to think of what we can do to keep consumer confidence about as robust as it is, which is very necessary for all of our forecasts. And with that, business confidence will at least not get any worse and will recover with the benefits of monetary policy, fiscal stimulus, and relatively subdued price increases.

At the FOMC meeting in May, when we were last together, I had hoped very much that we would be able to go to a balanced risks statement at this meeting and at least pause in our easing. Unfortunately, I think the downside risk is even greater today than it was at the time of our previous meeting. So I believe we have to continue to offer an accommodative monetary policy. But I do think we have to slow down its pace. If we were to keep easing at the pace of 50 basis points a crack, that would seem to be overdoing it. That amount of monetary stimulus would seem to indicate that we think the economy is even weaker than we in fact think it is. With the combination of monetary stimulus, which in my view should total 275 basis points by the time we leave today, plus the amount of fiscal stimulus that we all anticipate, the likelihood of our forecast being right is improved somewhat. But I think the risks still will be to the downside. Thank you.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Thank you, Mr. Chairman. Six months ago policy was very restrictive, as evidenced in the Bluebook chart on the real funds rate. Given the sharp drop in spending demands, we knew that the stance of policy had to be changed dramatically and quickly. One could quibble about the details, but basically we made this transition and now policy is clearly accommodative. Even a relatively acerbic critic like John Makin is complimenting the Fed for being attuned to reality and doing its job. And he has attributed the strong dollar partly to the fact that we've been more effective than other central banks.

That was then; this is now. It's always tricky to know when and how to stop a prolonged movement in rates, and we are faced with that uncertainty. Our job becomes even more complicated by what seems to be a real schism between the output forecasters and the financial forecasters.

The output forecasters have responded to this steady drumbeat of weak data by lowering their forecasts. Every month as new, weak data arrive, the forecasters write down the near term and push out the date of the bounceback. Dave Stockton pointed out yesterday that revisions to the Blue Chip forecast have been much larger than revisions to the Greenbook forecast, but both sets of forecasters have basically followed this strategy. With the capital deepening link, the Greenbook even writes down long-term growth rates. According to projections made earlier in the year the economy should already be snapping back by now, but of course it is not. And at present, near-term forecasts look roughly as gloomy as they did earlier in the year. This forecasting strategy has also been followed for Europe, Asia, and Latin America. In each of these areas, spending data have been weak, forecasts have been revised down, and recovery dates have been pushed back.

But for the financial forecasters, especially those influencing long-term bond markets, we encounter different behavior. As short rates go down, implied forward rates often go up. Economic theory would attribute these rises in forward rates to expectations of higher inflation. But frankly, I don't see much evidence of such expectations either in direct measures of inflation anticipations or in leading indicators such as commodity prices or producer prices. Moreover, those who feel that anticipated inflation is in some way related to unemployment or output gaps should be looking for reductions in inflation, not increases.

The analysts who make earnings forecasts are somewhere in the middle. When the weak data arrive, they seem to revise their projections downward just like the output forecasters. They also push back their anticipated recovery dates. But while they don't actually have future earnings forecasts rising, they put in pretty strong rebounds, not unlike the bond forecasters.

In some ways these differing forecasting strategies reflect our own quandary. If the output forecasters were right, weak data could be viewed as weak data and we could take appropriate action. But given the behavior of the bond forecasters, there's a reasonable chance that such a move would be met by no change or even increases in long-term rates and in the cost of capital facing those who invest in houses and other capital equipment. We could take action, but our action might not revive the economy much or at least would be strongly diluted.

There are, of course, potential resolutions to this conflict. One is that long-term rates are rising for some other reason--say, the lowered expectations that Treasury debt will vanish. But swap rates should not be much affected by such expectations and those rates have been virtually unchanged throughout the period of our rate reductions in 2001, though they did fall slightly last year before we began lowering short rates.

Another potential resolution is that these forecasters will come together. Either the output forecasters will decide that there is more chance of an early and vigorous recovery or the bond forecasters will decide that forward rates should not be so high. One could think of many other such resolutions. In the end there may be little we can do but pick our horse and ride it. To me the Greenbook baseline forecast seems sensible and there are plenty of downside risks in that. Earnings forecasts might get revised down again and the stock market might weaken. These earnings disappointments and the capital overhang might dampen the rebound in business fixed investment. This Greenbook forecast already describes a rather weak economy, and anecdotal evidence of layoffs, spending plans, and so forth certainly has confirmed that picture. In this view, even though monetary policy has already emphatically switched to a posture of accommodation, a bit more can be done to help revive the economy. Bond traders may dilute the effects of our actions but they may also fall into line. Thank you.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. Since our last meeting, the incoming data have indicated to me at least that it is still too early to declare that the economy has bottomed. While we knew that the data would be weak, in fact they have been weaker than we expected. The gradual erosion of the national economy appears to be unabated.

The manufacturing sector continues to face a daunting environment. With capacity utilization at a level nearly matching the lows of the 1990-91 period, this sector could legitimately be described as being in recession. More importantly for the longer term, production of high-tech goods fell sharply in May and April, and industry contacts suggest that inventories remained bloated in both the semiconductor and communications equipment industries. And while computers may have hit bottom, that industry is unlikely to reverse its relatively flat production pattern quickly. Yesterday’s orders and shipments data, while a surprise to the market, are quite consistent with this general sense of relative weakness in the high-tech sector, as Dave Stockton has indicated. Importantly, while manufacturing has been the center of this cyclical episode, the NAPM nonmanufacturing index suggests the possibility that this weakness may well be spreading.

Evidence from the labor markets similarly suggests continued weakness. The most recent employment report indicates that businesses are still either shedding workers in some cases or adding workers at a much more gradual pace. In addition, businesses are maintaining hours of production and nonsupervisory workers at a level below that of the first quarter. Weekly initial claims data point toward ongoing labor market weakness and, at the mid-400,000 range, initial claims are at levels not too dissimilar from those seen in 1991.

To be sure, there has been some good news. The housing sector continues to hold up well and consumer confidence appears to be firmer. But these are exceptions in the face of mainly negative news. As Dave Stockton noted and Governor Gramlich just reiterated, forecasters in both the Federal Reserve and the private sector have trimmed their near-term outlooks. While most have faith that the economy will not have even one quarter of negative growth, I think confidence in that relatively favorable outcome, at least for me, has been tested with almost every new piece of data. However, as many have indicated, policy works with a lag and hence we must try to discern the future. Unfortunately, the future is distinctly murky and some factors are likely to weigh on the economy more than the baseline forecast envisions.

In the business sector, analysts expect a rapid rebound in earnings. But given the ongoing weakness of the economy, it's hard to have any certainty that these observers are correct. Should earnings disappoint, as seems likely, the appetite of businesses for new investments may well be slower to rebound than many currently assume. And investors would see some further erosion of wealth as well, which could weigh on consumer spending.

Another imponderable is the effect of the tax cut. It certainly will add stimulus in the second half of this year and going forward. The question is how much, I think, and that is subject to some uncertainty. We can make assumptions about the marginal propensity to consume out of tax cuts and how that consumption will be divided across imported goods, goods coming out of inventories, and new production. But we must also recognize that while confidence appears to be holding against a backdrop of rising unemployment and in the face of high household indebtedness, consumers may be reluctant to spend according to any pre-existing model.

Finally, in addition to the uncertainties inherent in our own evolving situation, we should be mindful that our trading partners might also be headed for a period of subpar growth. Just as with the domestic forecast, weaker-than-expected incoming data in many countries have forced some marking down of foreign growth prospects. Slower growth abroad in combination with a strong dollar is likely to continue to limit export opportunities. Therefore, in my judgment, the risks remain distinctly to the downside.

Against this backdrop of a very slow economy, I believe that inflation is unlikely to be an important factor in the near to intermediate term, and that does give us some policy flexibility. While we have been aggressive in our actions to date, I think our challenge is to decide how to respond at this point. And given the ongoing weakness, I believe that we are likely to find that our work has not yet been completed. As I said at our last meeting, our goal is not to try to speed up an investment accelerator, which policy cannot do. Nor should our goal be to stop a redressing of imbalances, which policy should not do. Our goal, I think, should be to cushion the household sector and interest-sensitive sectors as much as possible in order to give businesses a chance to work through their inventories and to return to a period of growth in investment spending. Should the bond market optimists, as Governor Gramlich has described them, turn out to be prescient, then we may have to retrace our steps very quickly; and we should be aware of that as a possibility. But for today, at least, I think a bit more easing does seem to be the better course.

CHAIRMAN GREENSPAN. Governor Kelley.

MR. KELLEY. Thank you, Mr. Chairman. The condition of our economy has been thoroughly examined by the other Committee members. There's little I can add to their comments, and in the next segment of the meeting we will decide what all this implies for policy. So let me take a minute of the Committee's time to comment on a concern that I believe bears on our policy strategy going forward.

I think it's important in today's situation to be mindful of the distinction between the level of economic activity and the momentum in its rate of change. Momentum has been lost, but the economy continues to operate at a very high level. To be sure, our measure of capacity utilization is at a near-recession level, unemployment is rising, and manufacturing is very weak.

However, the volatile light vehicle and homebuilding industries are holding near their very strong recent highs. Personal consumption expenditures continue to rise, albeit more slowly. And while we have seen small net job losses in the past several months, they are but a small fraction of the very strong gains made over the past several years, and most of those people are still at work. While unemployment is rising from its recent historically low level, there is a very good chance that it will not rise above what many would consider to be the long-run NAIRU, implying that the labor force would still be quite fully utilized when this cycle bottoms out. The stock market, despite a vicious shakeout in some of its segments, remains quite elevated overall.

In sum, one hopes that this is the worst economy we'll ever experience. And it would not be so terrible if it were just to rest here for a while. But it will not do that, which raises the question of momentum. The powerful upward thrust of the economy broke in the third quarter of last year when GDP growth came in at 2.2 percent and it has been sliding downhill ever since. That quarter followed a year--from the third quarter of 1999 through the second quarter of 2000--when growth was 6.1 percent. The decompression of this decline has been painful and frightening. Without having done any research to verify it, I suspect that this fall has been about as steep as that which occurs in a substantial recession. Yet GDP isn't falling; it just isn't rising. Momentum is our problem, not the level of activity. Will the economy regain momentum? Its ongoing strength, bolstered among other things by Fed easing, the tax cut, and the conclusion of the inventory correction, makes recovery the most likely bet. But fragile confidence, fragile financial markets, stalled capital expenditures, and many other threats could readily kick us into a new further and possibly severe down cycle. So far the expected upturn is not in clear view and this ongoing weakness must be appropriately addressed in the near term.

As for myself, I remain confident that we will successfully deal with the loss of momentum. But I worry that if we are too successful in doing so, we could quickly rotate into an overheating problem initiated by the high level of activity from which the regained momentum arose. That would be most unfortunate, in my view, if it were to occur. In the past 2-3/4 years we have been through one major tightening and two major easing cycles, totaling some 500 basis points in policy moves, disregarding sign. While there were good and sufficient reasons for all this, in my view that is more than a desirable amount of policy volatility over so short a period of time. I am convinced that the economy does best in an era of small and infrequent policy changes, just as it does best with low and stable inflation. I hope the Committee will seek to find ways to dampen this volatility over time. When policy needs to change, of course, we must change it. But let's work very hard to do much less, in the interest of making sure that we do not unduly whipsaw our economy and thereby perhaps inhibit rather than enhance our efforts to achieve maximum sustainable growth over time.

One further cheery word on this subject: To any others who, like me, worry about overdoing this easing cycle, we may as well relax because if we are going to sow the seeds of a future inflation, I fear that we've probably already done that. [Laughter]

CHAIRMAN GREENSPAN. Governor Meyer.

MR. MEYER. Thank you, Mr. Chairman. I want to start by identifying three themes that summarize my interpretation of the outlook context for today's policy decision. First, growth appears to be at or below 1 percent for the third consecutive quarter and there are few signs in the incoming data of an imminent rebound. This weakness reflects a combination of a negative wealth effect on consumption, a sharp retrenchment in high-tech investment, the continued drag from an incomplete process of inventory correction, and the sharper-than-expected weakening in foreign economic activity.

Second, several forces are in train that should collectively contribute to a gradual improvement in the second half and a return to near-trend growth by early or mid next year. These include the considerable degree of monetary easing already in place, the fiscal stimulus on the way--the checks are literally almost in the mail--and the prospects for a period of declining energy prices. In addition, a continued elevated rate of structural productivity growth, mirroring the continued rapid pace of innovation and rapid decline in the relative price of high-tech equipment, should rekindle the appetite for high-tech investment.

Third, this cyclical episode is unique in an important respect. In my judgment the slowdown in growth began with output above potential. As a result, if the consensus and Greenbook forecasts are in the ballpark, when growth returns to near trend in 2002, the economy will be operating close to full employment. This point is very closely related to Governor Kelley's discussion that the economy, though it has lost momentum, remains at a high level of output. To be sure, there remains a high degree of uncertainty about both the sustainable unemployment rate and the rate of trend growth, as well as about the timing and vigor of the prospective strengthening in demand. But it seems to me that an important implication of the Greenbook forecast is that the upturn in economic growth may begin in 2002 without the usual slack present at the start of expansions. Indeed, we may begin 2002 where we usually find ourselves late in an expansion--close to capacity, and at a place where we have to be particularly alert to inflation pressures. Chart 10 used in the staff's presentation on the outlook yesterday illustrates this third theme. It shows that the unemployment gap was about 2 percentage points early in this expansion. The staff projects the gap to be near zero as we enter 2002.

Now, the first theme evokes a concern about the downside risk relative to the baseline and keeps on the table consideration of further easing, at least as an insurance move. On the other hand, the second and third themes are more forward-looking and suggest upside risks, specifically the potential for overshooting. These themes point to a more cautious approach to further easing.

Some have dismissed concerns about overshooting by noting that any risk could be countered by our quickly moving to tighter policy once the economy shows more tangible signs of revival. That logic does not entirely relax me for two reasons. First, I suspect that a quick reversal of monetary policy is a lot easier when an easing is called for to partially undo an earlier tightening rather than the reverse. In addition, while our job is to stabilize inflation and output, not interest rates, there is some value in avoiding a pattern of excessively sharp movements up and down in interest rates.

Let me comment now on how the excellent staff analysis of the capital overhang, in my view, fits into the story. It seems to me that the capital overhang story contributes to both the first and second themes--the prevailing weakness and the promise of a rebound. The main source of the overhang, according to the staff, is a reassessment of the profitability of producing high-tech capital. This lowered the target relative to the actual capital stock, potentially resulting in a capital overhang. The paper suggests, however, that a rapid response of investment and hence of the actual capital stock to the decline in its target value has helped to prevent a serious overhang. The story does not diminish the importance of the retrenchment in high-tech investment in the current period of economic weakness. A sharp decline in investment that has prevented a more serious overhang and the effects of the modest overhang that nevertheless have resulted appear to be important sources of the prevailing weakness in demand. But the analysis does suggest that any capital overhang is likely to be modest and short-lived and, therefore, unlikely to be an obstacle to the projected strengthening of the economy in the Greenbook forecast.

From the productivity papers, I took two conclusions that help shape the forecast. First, both the Board staff and the Boston Fed believe that structural productivity growth will remain elevated relative to the experience from the early ’70s to the mid-’90s. This contributes to confidence in a rebound of high-tech investment next year. Second, and perhaps more controversial, the Board staff believes that structural productivity growth may now have decelerated. At first I thought the projected partial reversal of the earlier acceleration in structural productivity might be just a small wrinkle in the outlook. However, it appears that this may be a more important part of the story, at least if the staff is correct about the dimension of the deceleration. The effects of accelerations and decelerations in productivity are, I would expect, symmetrical. All the good news that comes with an acceleration turns into bad news during a deceleration. So whether or not there has been overshooting, and if so by how much, would have an important influence on demand, equity prices, and inflation. In addition, the effect of a possible deceleration of structural productivity growth on the equilibrium real rate highlights one of the challenges perhaps faced by monetary policy in the recent slowdown. If there has been a deceleration in structural productivity growth, monetary policy has had to ease enough to lower the real funds rate relative to the declining equilibrium rate. The aggressive easing has achieved this. But if the economy moves to full employment and trend growth in 2002 as projected in the consensus and Greenbook forecasts, the challenge to monetary policy soon will be to return to neutrality. The extended Bluebook simulations confirm this view.

Two considerations significantly enhance the prospects of maintaining inflation under control as we move toward neutrality: the projected decline in energy prices and the still-low capacity utilization rate projected to 2002. Still, how we set policy over coming months will also be important in determining just how big a challenge the return to neutrality will be and what the inflation rate will be when we get there.

CHAIRMAN GREENSPAN. Thank you. That completes the Committee discussion and I turn to Don Kohn.

> MR. KOHN. Thank you, Mr. Chairman. I'll be referring to the charts in the "Longer-Term Strategies" section of the Bluebook. In the current circumstances, the question of what the Committee should do today may seem more tightly linked than usual to some of the issues discussed in that section. The Committee has eased substantially in a relatively short period of time, leaving the stance of policy by some measures at its most accommodative since the early 1990s, when the unemployment rate was much higher. And financial market participants believe your most likely policy going forward will entail further reductions in interest rates followed not long after by a reversal of a substantial portion of your easing--not a common pattern of market expectations for policy.
>
> The baseline simulation, shown on chart 4 following page 6, highlights several important implications of the staff forecast for policy strategy. First, given the staff's assessment of the longer-run attributes of the economy, the stance of policy <u>is</u> now accommodative, in the sense that if the real and nominal federal funds rates are held indefinitely at current levels the economy will eventually produce beyond its potential and inflation will rise. As a consequence, although there is slack in the economy at the end of the Greenbook forecast horizon, it would disappear quickly, and policy would have to be tightened at some point, on the order of 1-1/2 percentage points, to avoid having prices accelerate. The temporary forces restraining demand in the near term, though, are so strong and persistent that the tightening can be delayed for some time without resulting in inflation rising from recent levels.
>
> As you can see from chart 5 after page 7, the properties of the economy embedded in the staff forecast and model are such that, to hold PCE inflation around its recent rates, a path similar in contour to the baseline is delivered both by simple policy rules, such as the Taylor rule plotted in blue, and by a more complicated process, such as what we have dubbed "perfect foresight," shown by the dotted red line. That latter policy is constructed on the assumption that the policymaker has full information about prospective economic tendencies, as given in the Greenbook and its extension, and full knowledge of the dynamics of the economy. Given the current forecast, the policymaker responds actively and forcefully to near-term economic

weakness, even in the knowledge that the funds rate is being reduced to well below equilibrium values and will need to be raised substantially in the future. In the context of this simulation, lowering and then raising that rate in a short period isn't "overshooting." It's a rational response to the circumstances--a response that takes full account of the forecast and, on the assumption that the forecast embodies a correct evaluation of the economy, will work better than other policies to stabilize economic activity while keeping inflation low. This policy both rationalizes the prompt action we have already seen and produces a substantial reversal beginning next year, although nowhere near as pronounced as currently anticipated in financial market prices.

Of course, these implications are sensitive to a number of judgments that form the basis for the staff forecast. Charts 6 and 7 focus on a key judgment related to your discussion yesterday--the rate of growth of structural productivity. Chart 6, following page 8, examines the consequences of a prompt return to the rate of structural productivity growth of the last few years--in effect assuming that the recent slowdown is quite temporary. Interestingly, such an assumption produces results for interest rates that look closer to those embedded in financial markets than does the staff forecast, particularly so with the "perfect foresight" policy. With aggregate demand boosted by the more rapid expansion of earnings and income, the rise in interest rates needs to begin sooner and to be larger than in the baseline to avoid longer-run inflationary instabilities, even though inflation would be restrained in the short term by better-behaved unit labor costs than in the baseline.

In the experiment run for chart 7, structural productivity growth falls another 3/4 percentage point, leading to growth in potential output at a rate only modestly above its average of the 1970s and '80s. This is the reverse of the experience of the late 1990s and is accompanied not only by slower growth, but also by a much more unfavorable short-run relationship between the unemployment rate and inflation. The Taylor rule and the perfect foresight policies, putting some weight on both output and inflation stabilization, allow unemployment to run above its long-run NAIRU and inflation above its implicit target. Just as real and nominal federal funds rates had to rise in the higher productivity growth scenario, with lower productivity growth they have to fall to achieve a short-run balance between these adverse outcomes.

As these simulations illustrate, your decision about the funds rate today will depend on your assessments of the underlying trends in the economy, the extent of the shocks causing the economy to deviate from those trends, and the strength of the countervailing force of expansionary monetary and fiscal policies.

Suppose you see underlying productivity trends as likely to be quite strong but not accelerating and the unemployment rate therefore as needing to rise appreciably to get to a more sustainable level. If in addition you see the restraining effects of inventory, capital stock, and household saving rate adjustments as leveling out soon and beginning to dissipate on balance before long and you view policy as already sufficiently accommodative to counteract the effects of these restraints on demand, you might want to consider holding the stance of policy steady at this meeting. In the staff's forecast, at the present federal funds rate, the economic adjustments in train result in a rise in the unemployment rate that neutralizes the intensifying cost pressures inherent in the cessation of productivity acceleration. Core PCE inflation is capped, though at a level in 2002 that is a bit above its average from 1997 through 2000. With expected inflation perhaps already near the upper bound of what many members might consider acceptable, and policy needing to be tightened at some point to keep it from rising further, the Committee might see additional easing as tipping the balance away from risks of near-term weakness toward longer-term inflation. Concerns on this score might be accentuated if the Committee felt that reversing policy direction in an environment of moderate growth and higher unemployment rates would not turn out to be nearly as frictionless as in the statistical rules and models.

However, keeping policy unchanged would seem to require a degree of confidence that interest rates are low enough to foster an adequate rebound in economic growth before very long, or at least that the risks around such an outcome are reasonably balanced. In that regard, the experience of the recent intermeeting period of disappointing data on demand and downward revisions to forecasts may suggest that the risks to these forecasts are still substantially weighted to the downside. Soft economic data and reductions in expected corporate earnings also have eroded the market optimism that seemed to be taking hold over the previous intermeeting period, resulting in declines in equity prices and bond yields. And the downward revisions in expectations and their effects on asset prices have not been confined to the United States, raising the possibility that a weakening global outlook will impinge on U.S. exports, especially with dollar strength persisting. Against this background, the considerable surprise that would result in markets were the Committee to leave policy unchanged could have quite a negative effect on attitudes and asset prices, damping the rebound in economic activity.

The revisions in economic forecasts and market expectations may imply that, in effect, policy is not as stimulative or the forces restraining spending are somewhat stronger than you--and financial market participants--had anticipated at your last meeting. The gap between the actual real federal funds rate and the range of equilibrium real rates shown in the Bluebook may overstate the degree of accommodation now implied by the stance of policy. For one, if the NAIRU is lower than embedded in the staff forecast, the equilibrium rate will also be lower, and the economy will be able to accommodate a stronger rebound to a high level of production without generating inflation. In the staff model, the effects of alternative NAIRU assumptions are not trivial--about 1/2 percentage point on r* for every percentage point on NAIRU. For another, the federal funds rate in this exercise serves as a proxy for a broad array of interest rates and asset prices along the transmission channels. In fact, in this episode the dollar has firmed and stock prices have declined appreciably since last fall. With some of the traditional financial transmission channels blocked, the real funds rate may be overstating the amount of monetary stimulus "in the pipeline."

In addition, many bond rates, while dropping substantially last fall in anticipation of policy easing, have risen slightly on balance since late March. The behavior of these rates appears to stem largely from the market's view that the economy is poised to snap back sufficiently strongly to require a firming of policy next year. While you may want to give some weight in your decision to the possibility that these expectations are correct, the potential for a backup in bond yields should you ease does not imply that reducing the federal funds rate would be ineffective or counter-productive and should not deter you from taking an action you otherwise thought necessary. For one, a failure to ease would probably produce substantial declines in equity prices and increases in interest rates, tightening financial conditions considerably. In addition, were the economy to turn out to be much less robust than market participants seem to expect, long-term rates would ultimately adjust to the easier stance of policy. In these circumstances, waiting until economic weakness showed through into lower long-term rates and created apparently more receptive market conditions for policy ease would only accentuate the economic weakness your easing would be designed to address.

If you thought that resource utilization was likely to be on a considerably lower track than needed to contain inflation, you might consider a 50 basis point reduction in the target federal funds rate at this meeting. Such a judgment might follow from perceptions of downside risks to the staff forecast of demand, arising for example from the possibility of a substantial decline in equity prices, as earnings disappoint further. Or that judgment might follow from a sense that the staff has underestimated the contribution of added flexibility in labor markets to reducing the long-run NAIRU and containing cost pressure. A 50 basis point reduction would be a little more than is now incorporated in financial market prices. The best bet is that equity prices would rise, but the reaction of long-term interest rates is harder to predict. Even if they should increase, the net effect on financial conditions of your action is likely to be stimulative. Any rise in real long-term rates would probably be a response to an outsized gain in equity prices. If the economy turned out as weak and price pressures as damped as the expectations that led the Committee to choose this option, any increase in long-term nominal rates from higher inflation expectations should be short-lived.

If, however, you thought that after your previous actions this year the risks on economic growth and inflation were not so one-sided and you suspected that policy was already close to sufficiently accommodative to foster an adequate pickup in growth, a 25 basis point easing would be more appropriate. In light of the uncertainties, such an action would give you greater assurance that financial conditions were supportive of a satisfactory strengthening in demand late this year and early 2002. Even if you thought more easing might well be needed at some point, with real interest rates already relatively low, the Committee might see substantial gains from shifting to a more gradual pace to allow more time to calibrate policy to the emerging effects of earlier monetary and fiscal actions, as well as the evolution of demands for capital goods and pressures on costs and prices. A 25 basis point easing would be less than the markets are anticipating. Declines in stock prices and increases in bond rates are likely, but such movements would be limited to the extent that market participants did not see you making major shifts in your reactions and intentions, but only changing the trajectory of easing and becoming a bit more cautious. If the action and its accompanying announcement, however, is seen as signaling your intent to end the easing cycle at this time and to respond considerably less forcefully to unexpected economic weakness in the future, the decline in asset prices could be substantial.

Whatever your policy choice for the federal funds rate, market reactions will be affected also by your choice of balance of risks language in the announcement. At your last meeting, several of you remarked that this meeting might be time to consider shifting that language to indicate the risks were balanced. In the Bluebook, however, we assumed that you would retain language indicating that the balance of risks was weighted toward economic weakness. With incoming information still quite soft and suggesting that economic growth stalled in recent months, and with forecasts inside and outside the Federal Reserve being revised down, the balance of risks seems to us still to be weighted in that direction. In those circumstances, short-term risks of weakness may still seem to be a potentially more important influence on policy, at least for now, than longer-term concerns about inflation.

CHAIRMAN GREENSPAN. Questions for Don?

MR. HOENIG. Don, in terms of the press statement that you talked about at the end of your remarks: What do you think the market's reaction would be to a statement that noted the downside risks but also indicated that we might be finished easing, depending on the data that accumulate over the next several weeks? I don't want to put words in Bill Poole's mouth but I'm thinking about his suggestion that we say we're inclined to wait with regard to judgments about our future policy course.

MR. KOHN. I think there would be a considerable reaction for the following reasons. Markets, although they have an eventual upturn in rates built in, also have 50 or more basis points of further ease built in. Assuming you accompany that statement with, say, a 25 basis point cut, they would be taking out that other 25 plus basis points of ease. And I think they would also see you as tying your hands to a certain extent--as indeed it would be your intent to do--in terms of your response to incoming data. You would be saying that the data could be weak and you might not respond to that--that you intend to be less active in your responses. In my view, that would affect not only asset prices, bond yields, and equity prices, but expectations as new data came in. How markets will respond to new data on employment and sales and output would be affected because they would see you as responding less to those data. So I think there would be some immediate effect as well as a continuing effect over time.

MR. HOENIG. But don't you think there's a possibility that the message is that if the incoming data were weak, we would evaluate that, especially if we had a balance of risk statement weighted to the downside? Isn't that just as likely--or perhaps more likely, I think--to be the real message?

MR. KOHN. The balance of risk statement toward weakness would help take away from the reaction I described to a certain extent. You've raised a complicated thought in terms of how the Committee might want to try to nuance its posture to the markets. To make the markets understand that you are changing your posture is going to be very, very difficult to convey in the press statement, particularly one that we've attempted to shorten this time in response to the

Committee's request last time. This is something that perhaps the Chairman might address in his testimony, but I think it would be very hard to do in today's announcement. I believe the immediate market reaction would be fairly strong to a statement that rather explicitly indicates that you thought you've done all the easing you needed to do.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. I have two questions, Don. But first let me follow up on the exchange between you and Tom Hoenig. At some point we have to back up our confidence in the future with action or lack thereof, not just our words.

MR. KOHN. Right.

MR. JORDAN. The Bluebook does a remarkable job of putting together a lot of options for us to consider depending on the assumptions we want to make. I know you can't put in 17 alternatives to satisfy all 17 of us, but you are getting close. If I want to be a productivity optimist as in Chart 6, then, of course, I take seriously the kind of caution that suggests. That by itself, on the basis of partial analysis at least, says that we might have to consider going in the other direction sooner and by more than under other assumptions. But I also believe that the labor markets have been influenced in a fundamental way by a sustained low inflation environment and by a pickup in productivity in technology. So if I also want to be a long-run NAIRU optimist and believe that the downward move in the natural rate is permanent and not just transient, do those two offset?

MR. KOHN. Well, yes, though it depends on how much you would lower the natural rate. They wouldn't offset entirely. If I may, I'd like to amend my remarks to President Broaddus yesterday, when I said that the tradeoff might be a little more than one-for-one. In checking with the modeling folks this morning, they said it was about one-for-one in terms of a percentage point of productivity growth and a percentage point on r* over a longer term--five to ten years--from where r* is now. So it depends on how you mix and match this. And, as I just noted, in terms of the NAIRU it's about one-half point for one point. The long-run NAIRU embedded in these forecasts is 5-1/2 percent. So if you thought the NAIRU was 5 percent, you could take 1/4 point off the equilibrium real rate, and that would offset to a certain extent the 3/4 point increase that we have in productivity growth. But you would have to have a rather low NAIRU--I haven't done the exact arithmetic, but a NAIRU of about 4 percent, I guess--to offset entirely the effects of the higher productivity growth.

MR. JORDAN. My other question relates to the fact that I share the concerns Bill Poole cited about growth in the various money and credit aggregates being extraordinarily rapid. And, of course, history suggests--whether it's relevant to the future or not--that to ignore money growth is at our peril. Are you comfortable in looking at and understanding those money numbers in a way that says they are not a risk?

MR. KOHN. The money and credit aggregates tell me that we are not facing blockages in the financial markets. As President Poole noted, credit is freely available to creditworthy corporations. Now the spreads, certainly on junk bonds and on marginally investment-grade credits, are very, very high by historical standards. So money is available, but it's costly. The cost of capital has been raised for those borrowers, but the money is there. And I think the Committee's easing this year has certainly facilitated a restructuring of balance sheets. The volume of bond issuance has been huge. Corporations that can access the markets have been able to strengthen their balance sheets, and that's obviously a positive element going forward.

On the money side, money growth has been very, very strong. Some of it we can explain just by the usual responses to declines in interest rates, the usual fluctuations in velocity as opportunity costs change. But money growth is much stronger than that. In our analysis we thought some special factors were at work, such as mortgage refinancing and a few things like that. In addition, our view is that the volatility and less favorable performance of the equity markets has probably led households to shift away a bit from equity investments and into M2. So there has been a shift in the demand for money. That shift by itself wouldn't suggest strength going forward; it's a shift in the demand curve. But once again, like the credit flows, I think it suggests that there is ample liquidity out there, so financial concerns and liquidity concerns shouldn't be holding the economy back. Whether there will be a stimulus going forward more than is indicated by the interest rates, I don’t know. I have some questions about whether demand for money is stable enough to draw that conclusion. But I think it's supportive; it's helpful for sure.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Don, if I followed Governor Gramlich's comments, he was trying to reconcile the apparent inconsistency between the expectation in financial markets of a very prompt, quick, and fairly substantial reversal of policy early next year and the consensus forecast for the economy.

MR. KOHN. Right.

MR. GUYNN. If I interpret Chart 1 following page 1 in the Bluebook correctly, the markets expect a reversal in short rates of about 75 or 100 basis points beginning early next year. That expectation is overlaid with a consensus forecast that growth will still be picking up--and might not even be at potential--unemployment may still be increasing, and inflation, if it comes, may not yet have shown itself. Are financial markets trying to tell us that they see that degree of inflationary pressure out there and that they think we would respond that preemptively to that kind of phenomenon?

MR. KOHN. Whether they're seeing inflationary pressure or real pressure I think is a very difficult question. As some of you have remarked and as we noted in our briefing yesterday, it's very hard to parse the recent rise in rates between inflation and real rates. Although the TIPS market tends to suggest that on balance since the end of March there has been a bit of a rise in inflation expectations, there's very little corroborating evidence of that. Governor Gramlich himself noted that there's no such evidence in commodity prices, surveys, or in the behavior of the dollar. After all, if there were an increase in inflation expectations, one would think that would not be a favorable environment for dollar assets. That should be causing some pulling back from investments into the United States. But the continued strength in the dollar--though that's relative to the really poor performance in other countries perhaps--does suggest that people haven't lost confidence in the ability of the Federal Reserve to keep inflation contained at reasonable levels despite what the TIPS spreads might be doing.

So, the markets may well be expecting a little more inflation--a bit more than they were anticipating a few months ago when they expected it to decline--but they probably reflect more a sense that activity is going to bounce back and that real rates will be rising. And I think markets do expect the Federal Reserve to respond promptly. You've responded very promptly--and "forcefully" as you like to say--with a decline in rates. And, gratifyingly, they've built in a certain symmetry to that. Obviously, as a number of you remarked, they seem to have a more optimistic view of the situation than economists do both inside and outside this building. But I do believe they expect you to begin to tighten and cut off inflationary impulses pretty quickly.

MR. GUYNN. That's helpful, thanks.

CHAIRMAN GREENSPAN. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, I just have a comment, which is very similar to what Don just said. Financial market participants do have a view of this Committee, and it is reflected both in rates and in commentary. Living in New York, one sees a lot of these people and talks to them. They believe that this Committee has great courage of its convictions. The degree of credibility of the Committee is extremely high. The markets believe that what we've been doing so far this year has been front-loading an easing of monetary policy. And they're absolutely convinced that when the time comes to reverse that, we will front-load the correction. I think that's very complimentary to the Committee. I share Governor Kelley's view in that I wish we could get out of all this activism, and over time I think it would be good if we could. But in my view what you're reading in the markets is a combination of the fact that they're a little more optimistic about the recovery but very convinced that when the time comes to move rates up, we will front-load our actions.

MR. GUYNN. I hope they're right.

CHAIRMAN GREENSPAN. Shall we break for coffee?

[Coffee break]

CHAIRMAN GREENSPAN. It is clear that the economy and general expectations eroded further after the May meeting, but in the last week or so there appears to have been some movement away from the unmitigated weakness that characterized a goodly part of the new information earlier in the intermeeting period. For example, the most recent data suggest that motor vehicle sales were holding up in June, at least through the first half, even though a significant part of that may reflect General Motors' recent efforts to get customers to turn in their leased vehicles early and buy new cars. Even aside from that, it seems clear that the auto market has been holding up, I think to the surprise of the motor vehicle manufacturers. We know that home sales are doing reasonably well and consumer confidence, although down sharply, seems to be stabilizing at least temporarily. I want to emphasize, however, that these recent developments are not inconsistent with a new wave of economic weakness. They are types of developments that are short term in nature. We do have the Chicago and Philadelphia purchasing managers' numbers, which suggest that the rate of decline in manufacturing is slowing. It is true that there was evidence of that earlier, although our numbers did not show it and indeed they still don't. The overall climate does seem to be a little better after a period in recent weeks when absolutely everything was negative, but there is no doubt that the overall picture is still quite weak.

We are observing an important decline in energy prices that I think is going to reduce some of the pressure on profit margins. Prices in the gasoline futures market are off more than 4 cents per gallon today. Crude is down, depending on which contract one is looking at, some 75 cents to a dollar per barrel. So we are seeing the demand for energy beginning to ease in various parts of the economy, and that is having a salutary effect not only on energy prices but it is probably spilling over into inflation expectations. The yield spread between nominal ten-year Treasuries--I should say our synthetic version of the Treasury yield calculated to obtain the same degree of liquidity as in TIPS--and TIPS itself has come down a good deal recently, and indeed the decline in that spread has pretty much reversed the previous rise. Core PCE as estimated by the staff for May is unchanged. The most recent price trends are very soft. There is very little in the way of pricing power in the economy.

The major problem that I think still exists for us is essentially the one I mentioned at the last meeting. We have seen very dramatic capital losses. These losses are weighing on the system, and as best I can judge the effects have not fully worked their way through the economy. Indeed, they probably have only partially worked their way through on the demand side. The crucial concern in that regard is the fact that, sitting right on the edge of the third quarter, security analysts have earnings per share estimates for the S&P 500 that seasonally adjusted reflect a double-digit rise for the third quarter. That is not at an annual rate. Now that just doesn't square with what I have heard from a number of people whose firms and earnings numbers are in the S&P 500. This leads me to question whether the SEC’s financial disclosure requirement, which as you know has prohibited the chief financial officers from giving out information selectively, may have had a major inhibiting effect on the ability of corporate executives to communicate to security analysts. As I have mentioned before, since these are not security analysts in the old sense of the term who really looked at the company and made their own judgments rather than relying on company reports, it may be that we are getting some short-circuiting here. It's going to be very interesting to watch developments over the next several weeks if we get some very dramatic declines in earnings expectations or, to put it more exactly, when we get very dramatic downward revisions in the security analysts’ estimates. I’m not sure at this stage whether that will have a market or economic effect, largely because it's hard to know what impact this SEC rule is having on the system.

The problem that we have is not that the economy is going to be a shade weaker or a shade stronger than the Greenbook forecast. That's not what any policy in this regard should be or is all about. It's basically the issue that I raised at the last meeting. There is a low probability, I would say 10 to 20 percent or maybe less, that we may get a significantly weaker outcome than the Greenbook forecast. Mike Kelley points out that economic activity is still at a high level and that the glass is half full. In the other half of the glass there is potentially a very long drop on the downside, especially in the capital goods area. Remember, orders and shipments of capital equipment are just back to where they were in early 1999, when the reaction was euphoric. They are well above where they were, say, five years ago. And if the current economic weakness feeds on itself, the cutback in capital spending could proceed a long way on the downside. I think the probability of that outcome is actually less than it was in January. If we look back at what was happening then, we see that the expansion was weakening very quickly. The Greenbook forecast has the economy as a whole stabilizing. That probability may have gone down some, but it's still out there. As best I can judge in any event, it's still a fairly significant probability.

As Bill Poole mentioned in a slightly different context, we are in a type of business cycle that we have not seen before, and it might be useful to think of it in terms of its unusual characteristics. In 1999 and early 2000 we experienced a plain old-fashioned investment boom, the likes of which we had not observed for a very long time. What we are seeing now is an economy that is coming off that boom, hopefully in a manner that will gradually lead to stabilization. My best judgment is that business investment will come down in tranches. That is, it may drop, stabilize, and fall further at a later date but not by as much. The basic issue here is that we don't in fact know what the distribution of probabilities is, and I think that we face a degree of risk that we are not able to assess fully. If the data continue to show signs of stabilization, then I think the Greenbook forecast is the most likely outcome. Indeed, I actually think that it has the highest probability.

As I noted, I believe that discussions of whether GDP will be marginally higher or lower are beside the point. I do think that if the economy begins to stabilize, the current funds rate could be too low. I don't think that is the case, but that's certainly a credible view. The fact that we are below our estimate of the equilibrium rate is exactly where we ought to be in my view. We ought to be below it. The issue is not whether we want to be at an equilibrium rate in a context such as this. I think the answer is “no.” But the problem of having had this big surge in capital investment raises the question of whether we can maintain, as Mike Kelley I think quite appropriately observed, a more stable regime with respect to the funds rate as indeed was the case in much of the period from early 1996 until the early fall of 1998. If we believe that monetary policy can stabilize the economy when confronted with the types of forces we are seeing, the implication is a highly volatile federal funds rate that moves against those forces on the upside and in the other direction on the downside. It may very well be that before this economy stabilizes we will get a pickup next year and in that case I think we will have to raise the funds rate. I don't think there's anything wrong with moving the funds rate up provided we're dealing with an economy that has not stabilized. When we were dealing with economic conditions in 1996 and 1997, for example, and we were keeping the funds rate remarkably stable, I thought at that time that we had found the right equilibrium because there was no seeming tendency for anything to veer off. The problem as we learned is that the longer we maintain a degree of stability, the lower the risk premiums become. So there is a question of whether we have an internal problem in policymaking, namely that if we indeed stabilize the system for too long, risk premiums fall, speculation tends to emerge, and we face the type of problem that we ran into. That may be, and I suspect it is an inevitable consequence of any form of discretionary monetary policy. Unless we go back to the gold standard or adopt some automatic mechanism, or conduct a black box type of monetary policy, I don't see how we can get around this problem. I would prefer that we keep the funds rate stable as long as we can, but there are risks. So I don't think that moving the rate up and down in and of itself is necessarily bad.

I had hoped at the last meeting that we could hold at a 4 percent funds rate if the May Greenbook forecast held. In the event, the forecast was not on target; things began to deteriorate. Specifically, with inflation expectations if anything falling at this point, I think we can afford to reduce the rate another 25 basis points. I would hope that will be the end of it. And indeed it should be the end of it if the Greenbook forecast were to materialize as we have been hoping. The reasons why economic conditions should stabilize have been articulated around the room, and I agree fully with them. I think that's the correct way to look at this economy.

The chances of the economy accelerating very fast, more so than in the Greenbook forecast, are very low in my view. I think such acceleration would require capital goods markets to turn and move up relatively quickly. I thought the anecdotal discussions relating to the capital overhang presentation yesterday were very useful and informative. As I indicated yesterday, I didn't find the econometrics very persuasive. Indeed, it seemed to me, especially with regard to the non-high-tech area, that if the target capital stock was calculated that way, somebody put wrong data into the equation. It doesn't work that way. And as I indicated, unless we make the calculation in a rate-of-return context, I'm not sure we can readily estimate, at least econometrically, what the optimum capital stock is. I believe it is quite conceivable that we have a much larger overhang here than the business community knows. The point is that there are very great uncertainties out there.

I would say that it's too soon at this stage to change the balance of risks statement largely for reasons that Don Kohn elaborated upon, I thought eloquently, because of the risks that the economy could get awfully weak. I have no way of knowing this, but we may end up with a very significant increase in the unemployment rate for June when it comes out next week. We may be looking at a second phase of this weakening economy, which would be a little more troubling than the one we have been through. I think that is a low probability event, but it is by no means a zero probability.

What I would like to put on the table is a 25 basis point reduction in the federal funds rate, and if we were to do that I would expect the Federal Reserve Board to follow with a similar reduction in the discount rate. I would retain the statement of risks toward expectations of further weakness. If we move 25 basis points we will signal to the market that we are now in the process of completing our easing actions. If we then do nothing at the next meeting, I don't think we would have a particular market reaction. At some point we will have to stop easing. What is going to happen as far as I can see is that if these latent data or signals we're getting that the economy is stabilizing actually materialize, the federal funds futures market will adjust automatically. In other words, we can go into the next meeting with the expectation of no change in the market. That frankly is my best estimate of what is likely to happen. Forecasting in periods like this is a very high-risk undertaking anyway. I do think, as was suggested at the last meeting, that if we move the rate down 25 basis points, we ought to indicate in our press statement that we have reduced the rate by 275 basis points since the beginning of the year. That will signal that we think we're at the end of our easing actions or close to it. I don't deny that the markets may react negatively because we didn't move 50 basis points, but I think if we were to do 50 basis points today it would put us in a position where we would not be able to stabilize this side of a 2 percent funds rate. As I see it, that gets a little scary frankly. Anyway, 25 basis points is my recommendation. Vice Chair.

VICE CHAIRMAN MCDONOUGH. Mr. Chairman, to synopsize what you just said: We would ease by 25 basis points and we would have a balance of risks statement that indicates continuing concern about economic weakness. I completely agree with that conclusion. And I share the hope, probably best described as a fond hope, that by the next meeting we can issue a statement that the risks have evened out.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. I think your recommendation is just right, Mr. Chairman. While I believe it is too early to stop the easing process altogether, I think it is important to send a signal that we are not continuing on the path that we have been on. And in my view this proposal balances these considerations just about exactly right.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. I, too, agree with your proposal. This is exactly what I had hoped would come out of this meeting. In my view a move of 25 basis points, as you have noted, is a signal. To me it also indicates a measure of confidence on the part of the Committee that the central tendency of forecasts--that is, a bounceback by year-end and into early next year--is something with which we had some level of agreement. There was a lot of discussion about economic forecasts and the financial market's forecast, but I think what the markets are telling us is that they expect us to be forward-looking. And in that regard, as you mentioned, we could well see data in the near future that are weaker than they have been, though perhaps not weaker than we expected in our forecast. We just have to live with that and have some level of confidence that the forces we think will foster a pickup by the end of the year actually will operate. So I think this is exactly the right move.

CHAIRMAN GREENSPAN. Governor Kelley.

MR. KELLEY. Mr. Chairman, I agree with your suggestion. I must say I do so reluctantly in one respect because I would really like to stop lowering the funds rate at the level where it is right now. But the downside uncertainty is still too high and the psychology is still too fragile, so I think another, smaller easing move is the best way to go today.

CHAIRMAN GREENSPAN. President Parry

MR. PARRY. Mr. Chairman, I support a further cut in the funds rate to provide a bit more insurance against additional downside surprises. Therefore, I would support your recommendation of 25 basis points. I also support retaining the balance of risks statement weighted toward economic weakness. You mentioned that it would be desirable to indicate in the statement something about the amount of easing to date. It seems to me that in addition to that we should make the point that those cuts will have a significant cumulative impact that extends beyond the near term.

CHAIRMAN GREENSPAN. I don't think we actually have to say that because everybody in the market knows exactly what such a statement means.

VICE CHAIRMAN MCDONOUGH. I think it is more powerful if we let them draw the conclusion than if we draw it for them.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Mr. Chairman, I support both parts of your recommendation as well. On Governor Kelley's point, I don't like volatility in the funds rate either. I would point out that if we were following a hard-line monetarist regime and the demand either for money or for goods were bouncing around, the funds rate would too. That doesn't mean that funds rate volatility is desirable but I think as you said, Mr. Chairman, sometimes that is necessary when conditions change a lot. Also, I would note that if we follow your recommendation, it would be very close to what the Bluebook labels the “perfect foresight policy.” And how can we get any better than that!

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you, Mr. Chairman. I guess the best way for me to put it is that I do not disagree strongly with your recommendation. I am concerned that we're making a little too much of the incoming short-run data on the economy. Early in the year, as you know, there was a debate about whether the economy was going to follow a "V" shaped versus a "U" shaped pattern of reacceleration. I think what we've learned is that the "U" shaped proponents have turned out to be correct, at least so far. And if we are honest, we have to admit that we don't know how long the bottom of that "U" is going to last. As I said at the last meeting, some patience is going to be called for along the way here, especially because the logic of our policy is that we've been easing fairly aggressively because we think it matters. So we've got to give it some chance to see whether in fact that's going to work or not. Thank you.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. I agree with your recommendation for the 25 basis point cut and for the balance of risks toward weaker economic growth and I, too, hope this is our last move. I do have two major concerns and they are on both sides of this issue. One is that I, too, am concerned, as you are, that there may be a second phase to this down cycle. I think it is a low probability but in my view this action gives us some flexibility and keeps our options open going forward. My second concern relates to the long-term impact on inflation and inflation expectations. And I think this is a somewhat higher probability. In light of the discussion we had, as you said, we must be willing to move rates up when appropriate, when this downturn stabilizes. As someone said in our discussion--I forget who it was--the markets are expecting us to move promptly and forcibly when that time comes.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Mr. Chairman, I do not support the recommendation because I believe that the balance of risks statement will be read by the market as a forecast of more ease to come. As I read the balance of risks language, I think it is correct that over the next month or two the balance of risks is genuinely weighted toward economic weakness and higher unemployment. But the relevant policy horizon is more 6 to 12 months out and over that horizon I believe that the risks are truly evenly balanced. In my view that's the right sort of policy horizon. If the incoming data are weak, and that's not my forecast but I certainly don't rule it out--none of us can rule that out--I think there's ample room for the markets to bring long-term rates down. As I noted, those rates have not come down since December. Looking at long-term rates, if it appears that the economy is much weaker than we now see, long-term rates easily would have room to come down 100 or 150 basis points with the funds rate where it is. I'm concerned that we are building in a problem for the future by indicating to the markets, in accordance with my view of how the market will read our press statement, that there is more ease to come. This is an empirical judgment. It's not a matter of logic. It's my judgment or forecast of how the market is going to react to the statement. I suspect that the market will have another 25 basis point decline bid into the September futures, and that's a testable proposition. In fact we're going to test it very soon, I suspect.

On the issue of inflation expectations, I think it is important to understand--it's very fortunate, of course--that inflation expectations are holding steady. That's a vote of confidence in the Committee. It is not a reading on whether we have policy tuned correctly. It's a vote of confidence that we will do what is necessary to create that outcome--stable inflation--in the future. And I'm concerned, taking account of the lags that are inherent in these monetary processes, that policy is on an excessively expansionary course.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. I concur with your recommendation. With respect to the issue that President Stern raised, when incoming data are weaker than we expect--particularly when the economy is as weak as this one is or is growing as slowly as this one is--I think it's not unreasonable to react to them. If the data came in exactly as we expected, I don't think that would call for reaction. What has happened is that they have been weaker. And if the economy continues to weaken, we may find ourselves having to act again. With respect to the language, I happen to believe that over the foreseeable future the balance of risks is toward economic weakness, and our language reflects that. Whether or not the futures market builds in anything I think depends very much on the data between now and the next meeting.

CHAIRMAN GREENSPAN. President Santomero.

MR. SANTOMERO. Thank you, Mr. Chairman. Given my view of the economy and the risks, I concur with your recommendations on both sides. I think it's the right thing to do to respond to the weaker data that we have been seeing and to recognize that there is a downside risk. I also like the notion of recognizing what we have already done so that the market understands we are cognizant of the fact that in our policy actions we have been front-loading, if you will, and they should expect us to take that into account going forward.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Mr. Chairman, if I had my preference, I would have stopped the easing process by now. I would not go the quarter point. But, given your recommendation, including the third part of your recommendation on signaling that we are most likely done, as I understand it, unless there is significant new information, I can accept your recommendation. I would add that I would like to see more of an explanation in our press statement, but since I argued last time for a shorter statement, I will not push that point here today. [Laughter]

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Mr. Chairman, I support the recommendation. I wish I could be more comfortable with the balance of risks statement. I hesitate to reopen that issue even a crack. I hope that the signaling effects of your statement will work. I find myself a good bit in Bill Poole's camp in having the sense that the market and many of us perhaps are reading the time dimension in the statement as a very short-term horizon. And if market participants translate that into the view that more weak data will mean more cuts in the funds rate until the data turn around, I don't think that's the outcome we're looking for. I think we are going to have to come back at some point and talk about the time dimension of the balance of risks statement. But for the moment I support your recommendation and I hope it has the effect that you think it will.

CHAIRMAN GREENSPAN. President Jordan.

MR. JORDAN. Thank you, Mr. Chairman. A year ago at this time when we came into the meeting we had the hope from the prior meeting that we would not need to move again. We had made a 50 basis point increase in May last year and by the time of our June meeting people expected that we would move the rate up more. We hoped that we wouldn't have to do that when we came to that meeting. The outside pressures and expectations on us were that we were going to do considerably more tightening, and we disappointed those expectations. So, I was hoping for a repeat--a mirror image of that--in that after the May action our approach would be symmetrical to the one we followed last year and we wouldn't have to move again at this meeting. But maybe the risks are not symmetrical or the economy; I don't know. I do agree that we have to be as vigilant to lean against booms as we do the subsequent inevitable busts. When we discuss the balance of risks for the press statement, we make some remarks that can have no possible bearing on a statement that's already been drafted. Nevertheless, the risks that we see on the downside are fairly narrow and we have to worry about the risks spreading. Not all sectors, industries, and regions of this economy are in fact showing weakness; some are showing remarkable robustness. And I think we have to try to be a little clearer in the statements that some of us make--perhaps you can do so in your testimony, Mr. Chairman--that what we have seen, as you and Bill Poole have said, is fairly unique. There is no weakness in the auto sector or the housing sector--areas that have been associated in the past with a weak economy and recessions. Therefore, our ability to respond to this type of weakness and the risks involved is different. Moreover, we are not the only game in town. We do have fiscal stimulus and we do have declining energy prices. So there is a lot of easing in the pipeline.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. I agree with reducing the fed funds target by 25 basis points and with putting the bias toward economic weakness because I think that's where it is. I do think, though, that having to vote on the risk statement and then announcing it is not serving us well. I think it's making our decisionmaking process much more complicated. So, I would hope that sooner rather than later we might consider not voting on a bias. If we just limit our vote to the funds rate decision, we wouldn't have to announce our assessment of the balance of risks. I realize we can't stop announcing it while we continue to vote on it. But if at some point you could just say that this is not working as well as we had hoped and henceforth we are not going to have a formal vote on a bias, I think that would serve us well.

CHAIRMAN GREENSPAN. Governor Meyer.

MR. MEYER. I believe that we may be at an important inflection point for monetary policy. It's important today, in my view, that we at least decelerate the pace of easing and signal that the considerable degree of monetary easing in train is likely to contribute to improvement in the pace of economic activity. Mr. Chairman, I believe your recommendation for a 25 basis point easing and a statement of unbalanced risks moves in this direction. A case could be made based on the Greenbook forecast for holding the funds rate constant today and recognizing the downside risks with a statement that the risks were unbalanced toward economic weakness. You wouldn't have to twist my arm too much to get me to support that. But your proposed policy recognizes the clear downside risks that remain, while at least signaling a more cautious approach to further easing. It alerts markets that we may be at or near the end of an easing cycle. It makes it easier for us to hold the funds rate constant at the next meeting, while also retaining the flexibility to ease further should the incoming data point in that direction.

CHAIRMAN GREENSPAN. Okay. Would you read the appropriate statement for that policy?

MR. BERNARD. This is on page 16 of the Bluebook: "The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee in the immediate future seeks conditions in reserve markets consistent with reducing the federal funds rate to an average of around 3-3/4 percent." And the balance of risks sentence for the press statement: "Against the background of its long-run goals of price stability and sustainable economic growth and of the information currently available, the Committee believes that the risks continue to be weighted mainly toward conditions that may generate economic weakness in the foreseeable future."

CHAIRMAN GREENSPAN. Call the roll, please.

MR. BERNARD.

Chairman Greenspan	Yes
Vice Chairman McDonough	Yes
Governor Ferguson	Yes
Governor Gramlich	Yes
President Hoenig	Yes
Governor Kelley	Yes
Governor Meyer	Yes
President Minehan	Yes
President Moskow	Yes
President Poole	No

CHAIRMAN GREENSPAN. Can we distribute the draft statement consonant with this? Do we have copies? This statement is written on the premise that the Board of Governors will move on the discount action. Obviously, should that prove to be incorrect, we'd have to revise this.

MR. KOHN. Do you want me to say a few words about the statement?

CHAIRMAN GREENSPAN. Go ahead, why don't you.

MR. KOHN. In response to the discussion at the last meeting, Chairman Greenspan thought it might be wise to make a few changes with regard to the statement released after Committee meetings. One is to have a little more structured discussion by having me introduce the statement and the thinking behind its wording. Second, we wanted to give all of you a little more time to read it and react. Third, in response to your request at the last meeting, it has been shortened substantially. We did so primarily by referring to a continuation of recent patterns, which meant that we didn't have to refer to all the pieces of those patterns, just the main parts. That was our thinking behind the second full paragraph. The statement does refer to the 275 basis points of easing to date, which was intended to send the message that the Committee recognizes that it has eased a great deal so far. There is no reference to "monitoring carefully," wording some market participants are looking for as a signal that over this eight-week intermeeting period the Committee will be on high alert to respond to incoming data. So, that is not in there. And finally, we tied the productivity trends and their implications for the longer-run outlook to the statement about the balance of risks in the foreseeable future. So there is a bit of a contrast between the longer-term prospects for productivity growth in the economy and the shorter-term risks for the foreseeable future.

VICE CHAIRMAN MCDONOUGH. I guess the silence could be replaced by applause. The silence is pretty pleasant.

MR. KOHN. I'm not so bold as to make that interpretation.

CHAIRMAN GREENSPAN. Did we make it short enough so that there is nothing to be said about it?

MR. STERN. Well, I hate to depart [laughter] from this general satisfaction, but I would take out that reference to profitability and just say "declining business capital spending." My guess is, given the trend in labor costs and so forth, that declining profitability may be with us for a while. I don't know why we'd want to single that out.

CHAIRMAN GREENSPAN. No, I think that's precisely the reason we do. In fact it's a crucial element in the--

MR. STERN. Well, but there are some interesting issues involved, having to do with profit share and labor share, and so on. You know, it may be that all we're seeing is a return to more normality. I guess that is my thought.

CHAIRMAN GREENSPAN. Yes, but even if that's true, if that argument were valid today, it would have been valid at the last meeting and the meeting before.

MR. STERN. Well, I was going to raise it at our last meeting. [Laughter]

CHAIRMAN GREENSPAN. There’s a statute of limitations! [Laughter]

MR. STERN. Well, I don't know. Is there a law that says once profitability is in here it has to stay forever?

CHAIRMAN GREENSPAN. No. Frankly, taking it out at this particular stage I think creates more potential problems than leaving it does because this wording is almost identical to what we’ve said in the past.

MR. STERN. Okay, I will find that a compelling argument. But I would also hope that at some point we can find an excuse to get it out of there.

CHAIRMAN GREENSPAN. Yes, when profits start going up. [Laughter]

MR. STERN. Maybe even before then.

CHAIRMAN GREENSPAN. Is that all right with everybody? Can we go into recess and have the Board of Governors meet in my office? We will be back to report on that deliberation.

[Recess]

CHAIRMAN GREENSPAN. The Board of Governors voted to lower the discount rate by 1/4 percentage point. We will continue by convening a Board of Governors meeting to discuss the Lombard rate, but everybody here is going to be participating in that discussion and we will do it over lunch. So why don't we adjourn, get our lunch, and then Brian Madigan will start us off with a briefing on the Lombard rate issue. The next FOMC meeting, incidentally, is August 21.

MR. KOHN. Let me remind you that any revisions to your individual forecasts should be submitted to Dave Stockton by July 6.

CHAIRMAN GREENSPAN. Let’s adjourn, get our lunch, and come back into this meeting room.

END OF MEETING