Minutes of the Federal Open Market Committee Meeting on June 24-25, 2003

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., starting on Tuesday, June 24, 2003, at 2:30 p.m., and continuing on Wednesday, June 25, 2003, at 9:00 a.m. Those present were the following:

Mr. Greenspan, Chairman
Mr. Bernanke
Ms. Bies
Mr. Broaddus
Mr. Ferguson
Mr. Gramlich
Mr. Guynn
Mr. Kohn
Mr. Moskow
Mr. Olson
Mr. Parry

Mr. Hoenig, Mses. Minehan and Pianalto, Messrs. Poole and Stewart, Alternate Members of the Federal Open Market Committee

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

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

Mr. Connors, Ms. Cumming, Messrs. Eisenbeis, Goodfriend, Howard, Judd, Lindsey, Struckmeyer, and Wilcox, Associate Economists

Mr. Kos, Manager, System Open Market Account

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

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

Messrs. Clouse and Whitesell, Deputy Associate Directors, Division of Monetary Affairs, Board of Governors

Mr. Reifschneider,[2] Assistant Director, Division of Research and Statistics, Board of Governors

Mr. Orphanides,[1] Adviser, Division of Monetary Affairs, Board of Governors

Mr. Elmendorf,[2] Section Chief, Division of Research and Statistics, Board of Governors

Ms. Kusko,[2] Senior Economist, Division of Research and Statistics, Board of Governors

Messrs. Bassett[2] and Wood,[2] Economists, Divisions of Monetary Affairs and International Finance respectively, Board of Governors

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

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

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

Mr. Barron, First Vice President, Federal Reserve Bank of Atlanta

Messrs. Fuhrer and Hakkio, Ms. Mester, Messrs. Rasche, Rolnick, Rosenblum, and Sniderman, Senior Vice Presidents, Federal Reserve Banks of Boston, Kansas City, Philadelphia, St. Louis, Minneapolis, Dallas, and Cleveland respectively

Messrs. Evans, Hilton, and Kuttner,[1] Vice Presidents, Federal Reserve Banks of Chicago, New York, and New York respectively

---

[1]Attended portion of meeting relating to the discussion of the conduct of monetary policy in a period of very low interest rates.

[2]Attended portion of meeting relating to the discussion of economic developments.

Transcript of the Federal Open Market Committee Meeting on June 24-25, 2003

June 24, 2003—Afternoon Session

CHAIRMAN GREENSPAN. Good afternoon, everybody. Today, as many of you know, is Dave Lindsey's last meeting before he retires in August. David has been attending Federal Open Market Committee meetings regularly since 1981. Really! That doesn't show good judgment! [Laughter] And he has been a member of the Board's staff going all the way back to 1974. Dave has just completed a study entitled "A Modern History of FOMC Communication," which is at your places. It is dated as of today so it takes us right to the present. I'm anxious to know whether we've become clearer communicators as time has gone on, David. Anyway, we all thank you very much for your extraordinary service to this institution and we wish you well in your future endeavors. [Applause]

MR. POOLE. Mr. Chairman, I have a question. After he leaves are we allowed to talk to him about this paper? [Laughter]

CHAIRMAN GREENSPAN. After one year! Would somebody like to move approval of the minutes of the May 6 meeting?

MR. GUYNN. So move.

CHAIRMAN GREENSPAN. Without objection they are approved. We turn now to Mr. Reinhart and Mr. Kos.

> MR. REINHART.[1] Thank you, Mr. Chairman. I'll be referring to the material called "Conducting Monetary Policy at Very Low Short-term Interest Rates" which was on the table when you came in. It's the same as the material I sent to you electronically last week. I'd like to start on a personal note, though. I was in line at midnight on Friday with my 11-year-old son to purchase *Harry Potter and the Order of the Phoenix.* At 870 pages it is somewhat longer than the briefing documents the Committee has received. But it, too, considers an alternative world filled with uncertainty and great perils!

[1] The materials used by Mr. Reinhart are appended to this transcript (appendix 1).

As the top panel of your first exhibit makes clear, the current nominal federal funds rate of 1¼ percent places the Committee in a region it has not been in a half century. In our briefings this afternoon, Dino and I will try to provide some background to help you map a route across that unfamiliar terrain. I shall address aspects of the conduct of monetary policy at very low short-term interest rates, emphasizing the options available to you through open market operations and communication policy. Toward the end of my briefing, I shall also touch upon a broader range of policy possibilities, including the aggressive use of the discount window. Dino will then discuss specific options as to how the Domestic Desk might implement policy should you decide to move away from the current approach of setting a target exclusively for the overnight federal funds rate. I will close out the staff presentation by asking a series of questions to get some guidance from the Committee about priorities going forward. How much urgency you attach to the issue depends on the interaction of your views on the likelihood and costs of deflation, where the federal funds rate will be over the next few months, and the costs in terms of market functioning attached to very low short rates. We decided to cut this Gordian knot in the following way: As to the first in the list, the Division of Research and Statistics forwarded a memo to the Committee last week on the subject of deflation, and aspects of that will be discussed in the chart show by David Wilcox later this afternoon. We suggest that you put off to the greatest extent possible any discussion of the appropriate setting of the current short rate until tomorrow.

The middle panel of your first exhibit opens my briefing with the issue of the direct costs associated with a low overnight nominal interest rate viewed from the perspective of the functioning of financial markets. This was also the subject of a memo that the Committee received last week, but I'd like to start from a different perspective than in that document because I am afraid that cognitive dissonance may have set in already. According to a very influential paper that Milton Friedman published in 1969, a low nominal interest rate imposes no costs but only benefits. In Friedman's framework, an overnight interest rate of zero is optimal because it implies that society does not wastefully devote resources to economizing on transactions balances. While the example of Japan strongly suggests that a zero-rate environment creates other difficulties, his perspective is instructive in that what many people call costs of low short rates are actually related to the unwinding of schemes designed to make holding transactions balances less burdensome. That said, it is important to remember that the economy would bear adjustment costs twice—once as interest rates fall and these schemes are unwound and then when they are built up again as short-term interest rates ultimately revert to more normal levels.

With that in mind, the first of the three costs listed is the problem of compressing rates. By that I mean that the overnight federal funds rate regularly exceeds some other money market rates, including those on liquid deposits, many money market mutual funds, and collateralized financing in the RP market. Were the overnight federal funds rate to fall, those other instruments would have less room to preserve their typical spreads. In addition, the incentive for sharp-penciled reserve managers to trade funds in the market would diminish as the overnight rate falls, probably

thinning brokering in the market. Two opposing points are worth noting. First, the high-cost providers of intermediation services in the money fund industry will be the ones feeling the initial pinch. Perhaps those are the firms that should appropriately lose out in the Darwinian competition for scarce resources. Second, there was an active federal funds market in the 1920s; but after the subsequent two decades of low overnight rates, it withered away and was not to revive until the early 1950s. Overall, my reading of the staff memo is that these two costs are inflicted on only narrow segments of financial markets. Still, trouble in even a narrow segment of the market can get quite a lot of attention in the media, potentially elevating the concern of the broader public about the economy and financial intermediaries. A more serious concern, also one about perceptions, is that a central bank that eased policy to the point that short rates were very low might be seen by the public as having run out of ammunition—that is, low rates risk fostering the mis-impression that monetary policy is ineffective. To ward off this risk, the Committee may want to communicate to the public going forward that there is a contingency plan and that it does not envision monetary policy becoming impotent.

The remainder of my briefing will examine policy alternatives that may help to ensure that monetary policy remains potent, beginning with the discussion of the implementation of policy in exhibit 2. To start with the most obvious point, monetary policy actions are put in place by altering the Federal Reserve System's balance sheet, a simplified form of which is presented in the shaded area. Over the years, the Federal Reserve has acquired a significant volume of Treasury securities, about two-fifths of which is held in bills and three-fifths in notes and bonds. (Our relatively small holdings of indexed debt are not shown separately.) Also note that we're not currently much in the lending business, as discount window credit typically runs under $100 million. In principle, the Federal Reserve can spur economic activity by increasing the overall size of its balance sheet—that is, by blowing up its liabilities through some combination of open market purchases of securities and discount window lending. Such changes are reflected directly in the overnight federal funds rate until it is driven to zero. At that point, the quantity of reserves can still be increased, but any effects will have to show up in places other than the price of overnight reserves. Additionally, changes in the composition of the balance sheet—the mix of long-tem and short-term assets held—potentially could influence risk premiums. Policies regarding both the size and composition of the System's balance sheet could also influence expectations about the future path of policy—that is, expectations about how the size and composition of the balance sheet will change over time.

Equally as important as how the Committee changes its policy is how that impetus is transmitted through the economy, the subject of exhibit 3. In particular, as outlined in the green box, the principal channel of transmission of monetary policy to spending is through the prices and returns of long-lived assets. In turn, those returns depend on the current and expected future path of short-term interest rates as well as risk premiums. Monetary policy would have an additional lever on spending if, as some economists argue, the quantity of liquidity has an effect on spending

independent of its influence on the current overnight interest rate. Three somewhat overlapping forms of monetary policy stimulus are implied from this general principle as listed below. The Federal Reserve can provide impetus to the economy at an unchanged current short-term interest rate by encouraging investors to expect short rates to be lower in the future than they currently anticipate and by shifting relative supplies to affect risk premiums. If the overnight rate is already zero, the Federal Reserve may be able to provide additional impetus to the economy by oversupplying reserves at the zero funds rate.

I'll now give a bit more detail about such policies in turn, but it will become very evident that any individual policy shares elements of these three mechanisms. I term the first policy "shaping interest rate expectations," as at the top of exhibit 4. Because the pricing of long-lived assets depends on the current and expected future short-term interest rate, if the Federal Reserve could encourage investors to lower their interest rate expectations, the economy might receive a boost. But how can the Federal Reserve encourage lower interest rate expectations? One possible approach would be to offer some form of commitment to the public. An example of an unconditional commitment is pledging to hold short-term rates at a low level for *x* period of time. In an environment where investors were expecting tighter monetary policy, stimulus would take the form of lengthening *x* and would presumably pass through the yield curve and other asset prices. The middle panels show how that might work. The solid blue line at the left plots the path of the expected short-term interest rate derived from a two-factor model fit to the swap yield curve as of two weeks ago. (Note that this views policy over a much longer period than the futures-based measures we usually show the Committee.) The corresponding swap yield curve is plotted in a similar manner in the right panel. The long blue and short red dashed lines at the left contravene the dynamics of this model to hold the expected short rate at its current level for the next one and three years, respectively, after which it returns to that predicted by the model. The consequences for swap yields are shown at the right. The convincing promise to keep the short rate at its current level for the next year only nudges the term structure lower, probably because policy rate expectations are already subdued for the immediate future. A three-year standstill on rate hikes has a more dramatic effect on yields, pulling swap rates in the three-to-five-year sector 2 percentage points to 1 percentage point lower. While such effects may be significant, the reality of policymaking is that a promise would not likely be conveyed as starkly as an explicit commitment to keep rates low as measured in *x* years. Rather, through the Committee's statements and the speeches and testimonies of members, the message could be sent that the policy rate would be kept low for a while barring some major unanticipated shock. Even then, given the variety of shocks that have hit the U.S. economy over the past few years and the imponderables critical to the outlook, the Committee might be reluctant to tie its hands by making an unconditional promise about its future actions potentially far into the future, no matter how vague and nuanced.

An alternative would be to make a promise linked not to the calendar but to some economic event. Under a conditional commitment, the Committee could pledge to

hold short rates at a low level until some event *y* happens. Possible triggering events would include posting sustained economic growth, making progress in trimming economic slack, and recording inflation above a specified floor. The yellow warning sign along the road to a commitment strategy is that words ultimately have to be matched by deeds for the public to believe the Committee—that is, shaping expectations does not introduce another policy instrument in the long run. Moreover, the Committee might be concerned about its credibility in delivering on its promise. As one example, you might be concerned about establishing a target range above the current rate of inflation if you thought there was a reasonable risk that the actual outcomes for inflation will move lower for the next few years. As another example, the Committee might be worried about its credibility in the other direction if a focus on a backward-looking indicator of economic progress induced overshooting.

The next exhibit examines policies aimed at altering the composition of the Federal Reserve balance sheet. As is evident in the chart, the Federal Reserve already participates in all segments of the Treasury market. As the focus of that participation has shifted over the years, the average maturity of the System's holdings has varied since 1955 from as short as about one year to as long as four years. Stepping up our purchases of notes and bonds might be a way of lowering risk premiums on Treasury securities. Simply put, when a large purchaser shifts its demand, relative prices change. Lengthening the maturity of the portfolio may also convey the sense that the Federal Reserve sees little likelihood that it would put policy on a tighter path than currently expected. That's because, if the policy rate turns out to be firmer than anticipated, the value of those longer-term securities would decline. The Committee might pursue such a policy relatively indirectly—say, by instructing the Desk to tilt its purchases toward longer-term issues. A more formal scheme might be to target both the overnight rate and the average maturity of the System Open Market Account. The extreme example of a policy keyed to the composition of the balance sheet would be to announce a ceiling on a longer-term yield below the prevailing rate, signaling both dissatisfaction with current expectations about policy and a willingness to put our capital at risk if the Committee doesn't follow through by keeping short rates low.

The caveats to manipulating the balance sheet are numerous. As to affecting relative returns, empirical evidence suggests that relative supplies do not matter much for risk premiums, at least within the limited range of variation in the U.S. experience. Moreover, purchases of securities might have to be massive to enforce a ceiling if investors came to doubt that rates would be kept low. At that point, you might have the concern that the security would become disconnected from the rest of the yield curve and from private rates. As to underscoring a commitment to keeping rates low, it is not obvious why a central bank issuing a fiat currency should care about capital gains or losses. If that is the case, then shifting the composition of the portfolio would not do much to reassure investors. Such a policy would also have to be closely coordinated with the Treasury to ensure that debt-management changes do not simply offset the effect that the Committee desires on the composition of the stock of debt held by the public.

Another form of policy stimulus could possibly be put in place by expanding the Federal Reserve's balance sheet even beyond the size required to drive the funds rate to zero, the subject of exhibit 6. In general, a central bank eases monetary policy by expanding the stock of reserves. These days, most central banks choose to calibrate that easing by targeting the price of reserves—that is, the overnight federal funds rate in our case. The Federal Reserve could switch its focus from the price of reserves to the quantity of reserves (or the growth of reserves). If it so desired, the Committee could then set a reserve growth target designed to drive the funds rate to zero and subsequently provide further monetary stimulus by oversupplying reserves at that zero rate. As related in the box, over-supplying reserves—some might call it quantitative easing—could affect the economy by lowering the returns on the assets purchased to supply those extra reserves, by convincing market participants that the overnight interest rate will be kept low in the future, and by working though a quantitative channel, if it exists. It is noteworthy, as detailed in the memo the Committee received on policy in the 1930s, that there were distinct business-cycle fluctuations that decade even as the overnight rate hugged close to its zero bound. Moreover, those changes in economic activity were preceded by changes in the size of the Federal Reserve balance sheet.

The basic logic that more reserves have to do some good relies on the observation that boosting reserves by enough ultimately must lead to rising prices. However, as in the yellow-warning box, a long-run association between the monetary base and prices does not provide much guidance about the short-run performance of the economy, implying that it would be difficult to gauge policy effects and that it risks confusing market participants. Most important, the long-run association observed in the data is that a permanent increase in the money stock is associated with a permanent increase in the general price level. For oversupplying reserves to have an effect, the public has to be convinced that the increase in reserves will stick around as long as needed, so there still will be a communication challenge that might include a role for some form of commitment.

Although I have spoken about these policies in relatively abstract terms, they are part of our history, as shown in exhibit 7. The Federal Reserve has always appreciated the importance of correctly aligning market expectations about the economy. In that regard, and as shown in the top left, one of the more sizable reactions in financial markets in the past few years to an FOMC decision followed the decision on May 6 not to change the overnight rate. The System has also been willing to put its balance sheet at risk to encourage appropriate expectations about interest rates or to calm fears about funds availability. As plotted at the top right, the Desk sold options on RPs for the weeks around the century date change that totaled nearly $0.5 trillion of notional value. Given that the Desk already operates in all segments of the Treasury market, we wouldn't have to move up a learning curve if instructed to increase purchases of longer-dated issues. Indeed, from 1942 to 1951, the Federal Reserve enforced a ceiling on the Treasury yield curve, the subject of another staff memo sent to you last week. As shown in the middle left panel, our holdings of Treasury securities scaled by net debt outstanding did rise over that

period, but that uptick was dwarfed by the one that occurred during the inflationary excesses of the late 1960s and early 1970s. Within that total and as shown at the right, by 1946 the System owned almost nine-tenths of the outstanding (relatively small) stock of bills, suggesting that at the short end, the ceiling on the bill rate was a binding constraint. Policy expectations looking over a longer period in the 1940s must have been more consistent with the ceiling on the long end of the yield curve, as our relative holdings of notes and bonds fell over the decade. That episode also highlights a concern that you might have about an explicit ceiling on yields—that of how to unwind such a program when it was no longer needed. Concerns about the financial health of commercial banks that were heavily invested in long-term securities that had their rates caps for nearly a decade led the Treasury to create a bond conversion program after the Accord was signed in 1951. As for policy geared toward quantities not prices, the Federal Reserve targeted nonborrowed reserves from 1979 to 1982. That experience teaches that the demand for reserves is sufficiently erratic that such a procedure would be a blunt instrument—perhaps appropriate if the Committee had already driven or wanted to drive the federal funds rate to zero.

This brings up the general issue of sequencing, which is addressed at the top of your final exhibit. The forms of monetary stimulus that I have been speaking about can be used once the overnight rate has already been driven to zero or as a way of driving the overnight rate to zero. Alternatively, the Committee might desire to keep the funds rate above zero and rely on its ability to shape expectations or alter the composition of the balance sheet as means of providing stimulus. In principle, for example, the Desk could be given targets for both the overnight rate and a longer maturity yield. In such a scheme, monetary stimulus could take the form of gradually marching out the maturity structure to pull the yield on a slightly longer-term issue down toward—but not necessarily to—its zero bound. To enforce those targets, though, if the Committee wanted to keep short rates above zero, the Desk might have to add reserves in one segment of the Treasury market and to drain them out of another.

I have focused on policy alternatives that rely on conventional open market operations—perhaps of large scale or directed to a different end than done currently. There are other alternatives if the policymakers believed that deflationary forces were severe. In particular, as outlined in the bottom panel, the Federal Reserve could rely more on the discount window by lowering the primary credit rate or perhaps by establishing a special program to provide funds on concessionary terms and for a maturity longer than overnight. The Committee could also instruct the Desk to purchase a wider set of assets in open market operations, potentially including foreign exchange to foster currency depreciation. If the menu of permissible assets is viewed as too short to provide sufficient stimulus, we could seek legislation to expand that authority—presumably to include corporate debt and even equities. There is another weapon in the Board's arsenal: It could cut reserve requirements. True, the available base is narrow (transactions deposits) and the amount limited by law (at most from the current 10 percent to the 8 percent floor), but such an action would signal a willingness of the Federal Reserve to use all means at its disposal to revive the

economy. Finally, the Federal Reserve could coordinate its policy with the Administration and the Congress to encourage, say, tax cuts that would be directly financed by money creation. You can see why I put this list last. These options would change how we are viewed in financial markets, involve credit judgments of a form we are not used to, perhaps smack of desperation, and pull us into a tighter relationship with other parts of the government. But they are available if you felt the other, more traditional forms of monetary stimulus would be inadequate to the situation.

In general, the appropriate sequencing of policy action depends on the costs associated with low overnight interest rates as compared with the benefit of additional macroeconomic stimulus. Complicating matters, considerable uncertainty surrounds the timing and magnitude of the effects of any of these policies on the economy. The Committee might also be concerned that the public would take a switch in regime as evidence that the economic situation had turned especially adverse. At this point, I would be the first to admit that predicting market psychology in response to an unprecedented event is a losing game. It is also possible that the public would come to the view that the Federal Reserve was "jumping into the breach" with seldom-used policy tactics and be reassured that policymakers would go to any length necessary to support satisfactory economic performance. The uncertainties attached to such actions may well counsel taking insurance to avoid being put into the position to have to rely upon them—but I suggest that that should be a subject for tomorrow. As for now, if the Committee believes that such action may be required, much work is needed to be done in advance.

MR. KOS.[2] Vincent has outlined the strategic aspects to the conduct of monetary policy at very low short-term interest rates. I will be reviewing some of the tactical issues the Desk might confront in implementing policy if the funds rate target either could not fall any further or if the Committee chose not to let it fall beyond a certain point. Some of the approaches that I'll review would require a change in the composition of the Federal Reserve's balance sheet, whereas others would lead to an expansion of the balance sheet. The Fed's consolidated balance sheet is reproduced in my exhibit 1. The "domestic financial portfolio" includes our outright holdings of Treasury securities in the domestic SOMA as well as temporary operations—both RPs and reverse RPs—that are arranged in the market. I will restrict my remarks to operations in assets and liabilities in which the Desk is currently authorized to transact. In particular, I will be focusing on the outright holdings in our domestic SOMA. Some of the operational methods I discuss, however, would require a change in the domestic authorization. A broad historical perspective on the size and distribution of our Treasury holdings by maturity buckets is presented in exhibit 2. Virtually all the increase in the total size of the SOMA has been a byproduct of the growth in currency notes outstanding. The longstanding concentration of our holdings in bills and short-term coupon securities reflects the importance the Committee has attached to having a relatively liquid portfolio to meet unforeseen contingencies. The bottom panel in exhibit 2 demonstrates how the composition of

[2] The materials used by Mr. Kos are appended to this transcript (appendix 2).

SOMA can change and has changed over time. In reviewing the alternative tactical approaches the Desk could adopt, I will also be distinguishing between (1) operating methods that are associated with the simultaneous pursuit of a positive federal funds rate target and (2) methods in which this rate is allowed to fall to its lowest attainable level consistent with lending risks and transactions costs in the market. So I'll start with a little background on what targeting the funds rate implies for our domestic financial portfolio.

We keep the federal funds rate close to its target by providing a supply of bank reserves—or "deposits of depositories," as it's more accurately labeled—on our balance sheet, at a level consistent with demands. This relation between the target level of the funds rate and the level of excess reserves is portrayed in exhibit 3. Historically, the period-average level of excess reserves demanded has been fairly stable within a narrow range between $1 billion and $2 billion over a wide range of target rates. When the level of excess reserves supplied over an entire maintenance period deviates from demand, even by relatively minor amounts, it can cause very sharp swings in the funds rate, although daily swings in excess levels within a maintenance period can be wide. In order to target the funds rate at any positive level, the net size of our domestic portfolio—SOMA holdings plus RPs less any reverse RPs—must be adjusted to provide a level of excess reserves that falls within a very narrow band around this level of demand. The size of the portfolio is also determined by the level of banks' requirements to hold reserves and by the level of autonomous factors on the balance sheet, most notably our currency liabilities. The composition of our portfolio is not really important for this purpose, so long as we have the necessary flexibility to offset volatility from day-to-day factor movements. The chart also conveys our sense that just getting the funds rate down to its lowest attainable level would not require a significant expansion in the size of our portfolio, although the increase in the level of excess reserves might be large on a relative basis. This would be true even if there were considerably more elasticity in the relation between the funds target and excess reserves at very low rate levels. Vincent mentioned a possible strategy of committing to maintain short-term rates at low levels for a long period of time. Such a strategy, by itself, would not require any changes to the Desk's operational approach for policy implementation. We would continue to target the federal funds rate from day to day just as we do now, though some of the tactical approaches I'll discuss could be used to support such a strategy.

The alternative approaches that would involve changes to how the Desk operates are summarized in exhibit 4. The alternatives that could be adopted while changing only the composition of the balance sheet are listed in the top panel. These include (1) extending the average maturity of the outright holdings in the SOMA, (2) setting explicit ceilings on longer-term Treasury yields, and (3) using derivative instruments. Because only the composition of the balance sheet changes, excess reserves can be kept at low levels and under the Desk's control, allowing the Desk to continue targeting a positive funds rate. The bottom panel lists a number of methods that entail expanding the size of the balance sheet. Most of these are just variations on the three approaches I just mentioned. In one case they are combined with the use of reverse

RPs and higher requirements. These tools could be used to sterilize the impact of an expanding portfolio on excess reserves, and thus still allowing us to target the funds rate. Alternatively, the impact on excess reserves could be left unsterilized by choice, so long as the consequence of short-term rates falling to zero were acceptable. Finally, there is the option of setting an explicit quantitative objective for a high level of excess reserves.

The top of exhibit 5 summarizes the issues that I will touch on when presenting these alternative methods. These include the operating objective that would be associated with each approach, which is not always self-evident. I will discuss the instruments and means of market intervention, highlighting where these differ from current practices. I'll try to identify the circumstances under which we could expect to be successful in achieving our objectives. Some approaches may pose particular problems for arriving at a clean exit strategy, and others would require a need to closely coordinate our operations with Treasury debt-management policy. Finally, some carry a greater potential for realized capital losses on our balance sheet.

Approaches that change the composition of the portfolio but not its net size. The first option the Committee might consider involving a change to just the composition of the portfolio is to lengthen the average maturity of our outright holdings, with no explicit objectives for yields. Historical movements in the average maturity of the SOMA and of the public's holdings of Treasury securities are shown in the bottom portion of exhibit 5. The Committee could, for example, instruct the Desk to lengthen the average maturity of the portfolio, as one way for the Desk to "move out the curve" and attempt to influence longer-term yields. Or the Committee could set more-detailed objectives for the distribution of our holdings by specific maturity buckets. Either way, the objectives would be pursued using traditional operating techniques. Purchases could be preplanned and arranged in an orderly fashion at a time and of a size of our choosing. We would likely want to be very open with the market about our objectives for the restructuring of the portfolio rather than try to gain some tactical advantage through the element of surprise in our purchases.

Exhibit 6 presents a simple example of how an objective to extend the average maturity of the portfolio might be aggressively pursued while still maintaining control over of the size of the balance sheet. In this example, which holds other autonomous factors constant, we redeem $200 billion of our maturing bill holdings over a six-month period—that's about $8 billion per week—to make room for a similar amount of coupon purchases each week. These are distributed evenly over the three-to-ten-year sector of the curve in this example. At the end of this period, the average maturity of the SOMA will have risen from forty-two months to sixty-four months, which would represent a significant increase above our historical norms. Our holdings of securities in this maturity range would grow to about one-third of the total outstanding. However, our holdings of bills would drop to just under $40 billion, exhausting much of the liquidity that exists in the domestic SOMA, and leaving us vulnerable to circumstances that could call for a large and quick reduction in the portfolio.

The initial announcement of a portfolio shift of this magnitude and the commencement of operations could have a profound, even tumultuous, impact on trading and rates. Recall that the announcements by the Treasury to institute the buyback program in early 2000 and the plan to eliminate the long bond in October 2001 had sizable short-term price effects. However, after the dramatic announcement effects, it is unclear what effect either change had in subsequent quarters and years. In fact, as Vincent noted, beyond the short term, empirical evidence does not provide much confidence that this type of operation would have a significant sustained effect on relative premiums. I'm hesitant to put forward an estimate for the yield effect in that sector of the curve where purchases in this example were concentrated. But a range around a 25 basis point decline—or perhaps even as high as 50 basis points—seems consistent with empirical estimates, though again it is likely that the immediate announcement would generate more-pronounced reactions. The reason for such modest estimates is the observed high degree of substitutability across maturities. A larger and more durable effect on yields probably would require a greater degree of segmentation in the Treasury market than exists.

An operating objective that entails shifting the composition of our portfolio probably stands a chance of being successful only if the Treasury's debt management were neutral in terms of the maturity distribution of net new issuance. Certainly, any change in the pattern of debt issuance that takes advantage of an incipient flattening in the yield curve induced by a concentration of Desk purchases in longer maturities could reduce the effect of such a strategy.

The prospect of setting explicit ceilings on Treasury yields raises a host of issues, shown in exhibit 7, regarding the design and coverage of the ceilings themselves, the structure of open market operations to enforce them, and their possible coordination with other tools as part of a broader policy strategy. As for the design features, ceilings, rather than pegs, would make the most sense given the objective, except possibly at the very short-end of the curve, where rates would be so closely linked to the target funds rate that the distinction might not matter. Ceilings could be set to cover either the entire yield curve or just discrete portions. The initial ceilings might remain fixed over particular maturity segments, or they could roll down the curve with time so as to always apply to the same specific issues. Presumably ceilings would be announced. If not, market observers would soon come to recognize their existence and infer their levels. Conventional outright purchases of Treasury securities would be the primary operational mechanism to back-up ceilings. To maintain simultaneous control over the funds rate, purchases would need to be closely coordinated with any redemptions of securities, with our temporary operations, and with any needed outright sales.

Outright purchases might be arranged in one of two ways, corresponding to what one might refer to as "hard" ceilings or "soft" ceilings. These are meant to characterize our tolerance for deviations in rates from the ceilings. A hard ceiling would require immediate purchases of whatever size was necessary, whenever rates

drifted above their ceilings. It would be a virtual standing facility if not a literal one. With a soft ceiling, if rates drifted higher, the Desk would arrange a more limited quantity of purchases each day, but it would be prepared to continue such purchases day after day for as long as necessary. This approach would permit closer coordination with sterilizing operations needed to target the funds rate. The tradeoff is to allow some deviation in yields from their ceilings for a short period of time in order to keep the funds rate close to its target. As yields drifted up to the ceiling, the Desk would purchase Treasuries. One important question about design is whether the Desk would begin to sell and thereby lighten the SOMA's inventory if and when yields fell beyond some defined threshold under the ceilings. Being symmetric in this way would prevent the SOMA from acquiring successively larger portions of Treasury debt. On the other hand, a successful program of purchases and sales would, in effect, create a yield corridor that would damp two-way risk and potentially undermine market forces even more than just ceilings would.

Perhaps the most critical feature of ceilings on longer-term Treasury yields is how they would fit into a broader policy strategy. Notwithstanding the scale of adjustments that could be made to our portfolio and the tactical finesse the Desk would bring to enforcement operations, it is doubtful that ceilings could be enforced over time if they were inconsistent with market expectations for the path of future short-term rates. Success in enforcing ceilings that were not consistent with these expectations would hinge on there being a high degree of market segmentation in the sectors covered by ceilings. By the same token, this segmentation might also suggest that success in holding down Treasury yields by force of operations may not translate into equal success in bringing down corresponding private-sector rates.

The need for coordination with Treasury debt management would be even more crucial than if we were just extending the maturity of the portfolio. And there is no clean exit strategy. The market would no doubt test our resolve to maintain the ceilings. With each successful "defense," the credibility of the ceilings would increase, and the scale of carry trades would rise. Ironically, the likely scale of this positioning across all money market and fixed-income classes means that we very likely could not hold back the speculative pressures that would be unleashed at the first hint that the ceilings might be abandoned. If the imposition of ceilings were linked to stated intentions about the future path of policy rates, the need for supporting open market operations would be reduced and possibly even eliminated, so long as the structure of ceilings were closely coordinated with the commitment. Moreover, the existence of ceilings might reinforce the credibility the market attached to any policy commitment. But it could be difficult to translate a commitment on short-term policy rates into a structure for ceilings on longer-term Treasury yields. Could the announcement of the ceilings themselves, not linked to any clear commitment, generate the kind of expectations in the market necessary to ensure their own success, without the need for massive Desk intervention? An affirmative answer would seem to require one of two conditions. Either the market would have to read into the announcement an unspoken commitment or at least a strong expectation within the Committee about future policy actions on short-term rates, or the market

must be so intimidated by the Desk's perceived firepower that it does not dare challenge rate ceilings. The likelihood that either support mechanism will endure for very long is one I think unlikely.

The Committee could sanction the use of various derivative instruments on conventional Desk operations as a way to influence longer-term yields, which is outlined in exhibit 8. Options of some form are a possibility, as are forward operations. For example, we could sell a sequence of options on term RPs, covering interlocking time segments that collectively extend as far into the future as desired. In this way, longer-term yields could be influenced and a visible signal of the Fed's desired path of interest rates could be demonstrated. Forward operations in term RPs could be structured in a similar fashion. Alternatively, we could sell put options on longer-term Treasury securities at strike prices associated with desired longer-term yields. Of course, the operating objectives set for the sale of derivative instruments would determine their proper structure and should be carefully formulated first. I'll come back to this subject after going through some of the logistical issues. I'm also going to focus primarily on options for RPs specifically, as these have certain advantages over forward operations for the kinds of policy purposes under consideration.

The sale of any options, or forwards for that matter, would not affect the domestic portfolio immediately and, in the case of options, may never do so. Auctioning derivatives is something we already have experience doing. In the event that options were ever exercised, the impact on the portfolio would be profound, assuming that more than just a symbolic amount of contracts were sold. Simultaneously controlling the funds rate means that any reserve effect would need to be immediately sterilized. The volume of options sold might be limited because of this concern. Alternatively, options contracts might be configured to make a net cash payout if exercised, perhaps by structuring them as interest rate caplets or pairing them with offsetting trades with the Desk at then-current market prices. This would insulate the size and composition of the balance sheet, but the payouts would appear very visibly as losses on the income statement.

Of course, a successful program would be one in which any options sold would never be exercised. Achieving this result, just as with interest rate ceilings, would depend on how well the characteristics of the options—the strike price and the expiration dates—corresponded to market expectations for future rates. In this regard, options on RPs with the Desk have a strong advantage over, say, options on Treasury yields because the policy rate over which the Committee has direct influence could be more directly linked to shorter term RPs than to longer-term Treasury yields. For these same reasons, options on Desk RPs could be structured to correspond directly with a policy commitment on the path of future short-term rates, and they could be effective through one of several channels. First, even a relatively small program would undoubtedly add symbolic weight. Second, they would represent a monetary cost to the Federal Reserve of deviating from the implied path of future short-term rates, which might be seen as further binding the Committee to

that path. For this effect, the more options sold the better. Third, a large volume of options sold could reduce risk premiums embedded in longer-term rates, independent of the level of credibility about any policy commitment. Here too, the more sold the more effective. As with interest rate ceilings, the question could be asked how effective the sale of options, either on Desk RPs or Treasury securities, would by itself be in reducing longer-term yields. No doubt, an initial impact would be felt. But ultimate success would hinge on the quantity of options sold—that is, how big a bet the Federal Reserve were willing to make. The more options sold, the greater the chance they would have the desired effect on longer-term rates even if not associated with any policy commitment, either by raising the costs to the Fed associated with options being exercised, or by lowering risk premiums on longer-term rates. But of course the risks to the portfolio, to reserve levels, and of capital losses would rise in equal measure. And an exit strategy for options may not be as straightforward as it seems, even apart from the possibility of their being exercised. Of course, the Desk could stop auctioning new options at any time. But a decision to stop selling more options or not to issue new contracts with later expiration dates as time passes likely would be interpreted in the market as a statement about future policy intentions. The resulting rush to unwind market positions would likely be very disruptive and send yields sharply higher.

Approaches that change the size of the portfolio. Let me now move on to approaches that involve an expansion of the balance sheet. Reverse RPs or higher reserve requirements could be combined with any of the options already described—extending the maturity of the portfolio, setting ceilings, or use of derivatives—to sterilize the effect on excess reserves of these alternative approaches. Some of the issues surrounding use of these additional tools are presented in exhibit 9. These might be seen as being preferable to redemptions of bills or outright sales. Using these tools would expand the scale upon which these alternative approaches could be pursued, perhaps thereby improving the prospects for their success while still allowing us to keep tight control over the level of excess reserves and to target a positive funds rate. However, there are serious questions as to whether use of either would be effective or even plausible. Large-scale use of reverse RPs would require careful structuring of operations to ensure adequate participation, given our dealer counterparties' natural position as borrowers in financing markets. A regular and predictable auction cycle and use of term operations would probably be needed. Even so, having to finance through dealers' balance sheets could constrain our ability to secure the necessary level of funding without considerable upward pressure on the rates dealers show to us. There is also some question as to whether the Treasury collateral we would deliver back out on these reverse RPs would partially negate any price effect of our original purchases. There is ample historical precedent for adjusting the level of reserve requirements to absorb excess liquidity in the market. In the current environment, however, raising requirements might be costly to banks because interest is not remunerated, might prove ineffective because of sweep programs, or might be undesirable because of its effects on the volume of bank lending.

Exhibit 10 shows the different approaches that would involve an expansion in the level of excess reserves. Objectives for extending the average maturity of the portfolio, rate ceilings, or use of derivatives could all be pursued when any effect on excess reserves were left unsterilized. The operational flexibility available to pursue any of these other objectives would be increased considerably, just as with the use of reverse RPs or higher requirements. Of course, the higher excess levels associated with any expansion in the balance sheet would quickly push short-term rates toward zero. In theory, short of meeting one's operating objective or acquiring the total available supply of Treasury debt in the process, there is no clear limit to the potential growth in excess reserves. Alternatively, setting a quantitative target for excess reserves far above the level needed to bring short rates to zero could be its own objective. Operationally, this objective probably could be achieved with little trouble, through an orderly purchase of Treasury securities in the secondary market. This objective could also be easily paired with a secondary objective for an extension in the average maturity of the portfolio or even some specific distribution for the SOMA. Alternatively, a preference might still be given to holding bills to preserve the liquidity of the portfolio. The economic effects of replacing Treasury debt in the hands of the public with higher excess levels, and of zero short-term rates in general, might not depend on whether there were an explicit target for higher excess levels or whether high excess were a byproduct of other operating objectives. A quick exit strategy—the ability to resume implementing monetary policy with a positive federal funds rate target—could be very difficult to achieve operationally in any scenario in which excess had built up to sizable proportions. The more short-term bills acquired to achieve the expansion of the reserve base, the faster excess could be brought back down relatively quickly and painlessly simply by letting maturing bills roll off. A temporary expedient could be to raise the level of reserve requirements, which raises the same issues discussed before.

I'll conclude by making a few summary observations, which are outlined in exhibit 11. In terms of our being able to achieve the narrow operating objectives that might be set for us, there seems little doubt that we could be successful, with the possible exception of explicit ceilings on longer-term Treasury yields. But many of these alternative approaches would have as an implicit intermediate objective a reduction in longer-term Treasury yields; and in the case of rate ceilings, this would be the explicit operating target. While our ability to change the composition and size of our domestic portfolio measured in absolute terms is undoubtedly huge, it is still questionable how sizable and durable an effect Desk operations alone would have on relative market-determined rates. As Vincent noted, however, changes in market expectations about future short-term policy rates can have a profound effect on longer-term yields without any adjustment to the central bank's balance sheet. Such changes could be induced by a communications strategy to shape interest rate expectations. The tactical approaches I have described could very effectively reinforce some form of communication about the future stance of policy. For purposes of shaping market expectations about future short-term rates, however, it is unlikely that the adoption of any of these alternative operating approaches by themselves would be an adequate substitute for some clear communication coming

from the Committee. Finally, all the approaches that I have described raise issues about exit strategies, coordination with Treasury debt management, and potential for capital losses, some of which I have mentioned. But in general, it seems that concerns associated with these issues would be greater if we were relying on changes in the composition and size of SOMA holdings to be the primary channel through which we were trying to influence longer-term yields. Thank you.

MR. REINHART. At this point, the staff is seeking guidance from the Committee on how to proceed. In particular, we will be listening especially intently to your discussion this afternoon for answers to the four questions highlighted in exhibit 9, the very last chart in my package. First, are there any alternatives that the Committee particularly favors for additional study? Second, are there any alternatives that should be dropped immediately from consideration? Third, how does the Committee assess the costs of very low nominal overnight interest rates, and are they such that an alternative policy should be put in place at a funds rate above zero? Finally, how should the Committee's assessment of these policy alternatives be conveyed to the public in the months ahead?

CHAIRMAN GREENSPAN. Let me just say first that, combined with the supplemental memorandums you gentlemen have given us, you have covered the ground in an exceptionally comprehensive way. We have to be careful, though, not to try to lock in any particular strategy, largely because we don't know how events will transpire under a number of different scenarios. If these become the types of policies that we must implement, I think we're going to find that we will have to do a significant amount of decisionmaking as we go along. We cannot possibly identify and develop plans to deal with all the potential outcomes of a situation and environment to which we have never been exposed. If we try to cover everything, we likely will find that we covered nothing in sufficient detail.

I'm reminded of the several study groups that were set up prior to the 1987 stock market crash to examine what would happen and what we would do in the event of a financial crisis such as a market crash. The members spent a good deal of time thinking about that and looking at potential outcomes and made all sorts of suggestions regarding what the Federal Reserve should do. I do not deny that that was a very useful exercise to keep our minds functioning. But

in the event, our response was wholly different. We did in fact, quite effectively, put together an ongoing program as events unfolded, rapidly responding to them with the experience we had in many different areas. Looking back on that episode, I think the Federal Reserve did an exceptionally good job in coordinating not only with the Treasury, obviously, but also with the SEC. We had a significant amount of contact with the various exchanges. I don't know if you remember this, but more time was spent on communications between Washington and Chicago than one could have even remotely imagined beforehand because of the problems associated with the options exchanges and a variety of other problems that emerged in Chicago. The reason I mention this is that the body of detail that has been adduced today is, in my judgment, primarily for the purpose of bringing our education up to a level that will enable us in the event—and I trust it is a very small probability event—at least to understand the system sufficiently well to respond to the situation.

I'd also like to note in closing that there are a few very interesting issues in the supplemental materials. I must say that as I was reading Mr. Orphanides's memorandum on the liquidity trap—in which he demonstrated, as most modern economists now conclude, that in any meaningful way there was no such thing as a liquidity trap—some other thoughts came to mind. As I read through it, if I substituted "deflation" for "inflation" and the word "Japan" for "the ghosts of 1929," I found I could replicate many of the discussions on the issue of deflation that have occurred around this table at recent FOMC meetings.

It is really quite remarkable how our predecessors struggled during the 1930s with the fear that inflation would emerge. As a consequence, they leaned over backwards to prevent inflation from occurring and created a significant economic retrenchment, especially in 1938, that arguably was unnecessary. I thought the parallels to the Japanese situation were eerie.

Athanasios didn't mention it in his paper, and it wasn't relevant to his analysis. But for all of us, I think, it serves as a warning that we have to be very careful about talking ourselves into the inevitability of events that would lead to a potential deflationary catastrophe. If such events occur, we will move to fight deflation, and in my view our discussion today is very helpful in preparing ourselves to do that successfully. But let's keep in the back of our minds that history is waving a few flags to make sure we reserve judgment as to how convinced we are that certain events will occur. So my general response to the four questions Vincent asked is that I believe it's premature to answer any of them. That's my judgment. Who would like to follow up? [Laughter]

MR. FERGUSON. In lieu of following up directly, I'd like to ask a question. The Chairman mentioned the word "Japan." Prior to his remarks, we heard two briefings that lasted about forty-five minutes to an hour, and the issue of Japan did not come up. I'd like to know, recognizing that Japan has severe problems with its banking system that we do not have in this country, what mistakes you think the Japanese have made. They've executed some of these policies we're talking about. Perhaps they started too late, perhaps their communication wasn't sufficiently clear and robust, or perhaps they didn't aggressively stay with any of the policies long enough. All of us around the table have thought about the situation in Japan for a long period of time. As you've reviewed and examined it, what lessons do you think we need to learn from Japan about the mistakes that can be made in executing some of these nontraditional policies?

MS. JOHNSON. Well—. [Laughter] The staff, as you know, did a paper that received some attention in which we came to the conclusion that the Japanese started too late.

MR. FERGUSON. Right.

MS. JOHNSON. That's an easy answer to give after the fact, and I hope we conveyed in the paper the thought that as we witnessed that period in real time we, too, did not perceive that Japan was sliding into the difficult situation that subsequently developed. So, that's meant to be a red flag. But it's also meant not to trivialize the problem of our inability to see the future with any great clarity.

Relative to the kinds of options that these gentlemen have put on the table today, I think there would be a lot of agreement that there was one thing the Bank of Japan did that was very wrong. Namely, at each step along the way they portrayed the situation as abnormal and an emergency, and they indicated that the actions they were taking made them uncomfortable and that it was their intent to return to more-normal operations absolutely as soon as possible. That certainly characterized their first steps in the direction of zero interest rates, and I think they've probably learned from that mistake. One doesn't hear Japanese officials use that kind of language any longer. But in the earlier stages there was always a tone that they grudgingly were going to do a little more if they had to and were going to take it back just as soon as they could. Admittedly, some of the things that made them uncomfortable are the very problems that have been identified here. And those are real problems. But I think the Japanese limited the effectiveness of their actions by this overtone they used to characterize the steps they were taking as they announced them.

MR. FERGUSON. So it was a weakness in the commitment part of it?

MS. JOHNSON. Right, and a failure to perceive the expectations part of it. I think they were counting on their statements to help a lot because of what otherwise isn't available to policymakers at zero interest rates. I don't think they really embraced the concept of

expectations enough at the time, even intellectually, in terms of the importance of getting expectations to work with the policymakers instead of working against them.

MR. KOS. Governor Ferguson, if I could just add a comment. I think your first point is the one that I would have started with, namely the problems in the financial system and the inability to intermediate credit, which have shown up in so many ways. We are fortunate that at least right now we don't have those kinds of problems in the United States, so Vincent and I did not have to delve into that issue in our presentation. It would certainly complicate matters if we were facing a situation in which the banking system was having problems like the ones that the Japanese have had.

CHAIRMAN GREENSPAN. Yet they really have only one means of financial intermediation, which is commercial banking. But we demonstrated in 1990, when our banking system froze up, that there were alternate means of intermediation, which carried us through and enabled the economy to recover until the banking system came back. They don't have that option. They have a broken banking system, and they are dealing with an economy without other essential financial intermediation. We're going to learn a good deal about how that economy functions in the future. President Hoenig.

MR. HOENIG. Thank you, Mr. Chairman. Having just heard you say that these aren't necessarily options we want to talk about, I still would like to get a reaction from the staff about some of them—perhaps for the sake of discussion. Independent of what we may do tomorrow, we are at historically low interest rates, and people are wondering how the Federal Open Market Committee might conduct itself in the future. Given that situation, it gives me pause to think about being asked a question and telling people that as one method we could target a rate out on the yield curve. I'd feel much more comfortable saying that we can expand reserves regardless.

I'd feel more comfortable doing that than talking about targeting long-term interest rates because, with our banking industry in good shape, the expansion of reserves would cause some mechanisms to kick in that would tend to stimulate the economy. How do you or other members of the Committee feel with regard to our talking about these issues, given that the questions will inevitably be asked?

CHAIRMAN GREENSPAN. Do you mean in the event that we are forced to move to a point where we can no longer function using the federal funds rate? Are you referring to what we say at that point, or are you talking about now?

MR. HOENIG. I'm talking about now, Mr. Chairman, depending on where we move the funds rate. People are saying, even in these memos, that the effective zero rate is 50 basis points or that the money market funds would be affected if the funds rate gets to 75 basis points or lower. Therefore, questions are going to arise as to how we should conduct policy or how we plan to conduct it.

CHAIRMAN GREENSPAN. I would suggest—and this is jumping the gun a bit on tomorrow's conversation—that if we move the funds rate down by 25 basis points tomorrow or if we make no change, you don't have to have that discussion.

MR. HOENIG. Right.

CHAIRMAN GREENSPAN. I don't think anybody is of the opinion that a federal funds rate of 1 percent will cause the money market mutual funds, for example, to dissolve into non-existence. If we go 50 basis points, then the issue arises that anything we do beyond that may have to involve so-called nontraditional operating techniques and, indeed, the questions will come up. My own judgment is that, if we actually tried to target interest rates anywhere along the curve, we would be courting remarkable uncertainties. It was perhaps possible to do it back

in the 1930s or '40s or even in the '50s when financial markets and market participants didn't have the degree of sophistication they have today. Also, the ability to get around rate ceilings was much less than it is today.

So my suggestion is that, if you get asked those questions, just say we are examining nontraditional methods and there are many different ways in which we can address the issue. I would be as nonspecific as you know how to be. The general point that we can move out on the yield curve is, of course, something we need to say. In other words, we are not by statute or practice restricted to affecting only the overnight rate, which would obviously mean that, when that rate gets to zero, we're out of business.

MR. HOENIG. Right.

CHAIRMAN GREENSPAN. But as for what that means beyond that, I would be very vague. The major reason is that I don't think we will know until we start to address the issue. As we do so, we're going to learn far more about how the markets are functioning than we can anticipate. I have in mind that this would work in very much the same way that the events of October 19, 1987, rendered obsolete all the working papers that the group studying the risks in the U.S. financial system had put together. We did have the foresight to say that we thought there was a possibility of a stock market crash, and we were able to say that we had done advance thinking about how we might react. But it didn't do us much good.

MR. HOENIG. One thing you're saying that I appreciate hearing—because I would feel very uncomfortable talking about it—is to stay away from specific discussions about targeting rates out the yield curve. I want to endorse that. I also understand the need for vagueness, given that we can't anticipate what the future will hold for us.

CHAIRMAN GREENSPAN. Yes, we have a whole set of tools that in principle could be used and should address this issue effectively. We know in the abstract which combinations of tools would be the best and how they would interact with the economy in a way that we would consider satisfactory. I don't think we can know in advance, however, which combination of tools we actually would use, and I think it's foolish to even suppose that we can. But to go through an abstract analysis can be a very useful exercise. For example, I thought the analysis in the supplemental papers on the various potential effects of moving the funds rate down was instructive.

Incidentally, as for those potential effects, the only one I disagree with is the notion that, if the money market mutual funds start to dissolve and we get a switch from mutual fund holdings to deposits in the commercial banking system, bank capital ratios will become a problem. Such a switch would indeed build up both the liability and the asset sides of the balance sheet, so statistically it is obviously the case that the capital ratios would become an issue, but economically that can't be. Here we have two types of institutions that are financial intermediaries—money market mutual funds with assets and liabilities and little capital and a commercial banking system. If the money market mutual funds are squeezed out of business, effectively what you're arguing is that those two sets of institutions are consolidated in a sense—to the extent, for example, that those who are borrowing in the commercial paper market will be back in the bank market. The whole notion of merely consolidating the two sets of institutions and then finding that there must be a problem, if there wasn't one before, may make statistical sense, but it doesn't make economic sense.

What that situation would suggest to me, if indeed we get a very major escalation in bank deposits, is that the problem that may arise relates to what we should do with bank capital ratios

because we're dealing with a huge industry. Yet if all that occurs, which is what one would think will occur, the asset side of the banking system will be loaded up with short-term Treasury bills and other such assets or even commercial paper. In that situation, we might be inclined to think that we're seeing capital deficiencies in the banking system and that we have a crisis. That can't make any sense. That's shooting ourselves in the foot. So if you're asking for a specific recommendation regarding what we should do under those conditions, the answer is this: We ought to re-examine our process of determining capital adequacy in the context of consolidating the two types of financial institutions, with the full recognition that there cannot be increased financial risk on the basis of whether two intermediaries are acting by themselves or as a consolidated institution. Yet that's what we would have statistically. President Minehan.

MS. MINEHAN. I, too, was impressed, in the context of Athanasios's paper and the paper on Japan that Karen talked about, by the idea that in the periods of deflation under review the monetary authorities had been focused on some different objective and not on avoiding deflation. In the case of the 1930s, the concern was about inflation; and in the Japanese situation, there was no understanding of the need to move quickly. Obviously, the paper emphasized that the Japanese waited too long to act. It also emphasized that in the Japanese situation a better job of coordination could have been done in terms of working together with the fiscal authorities to segue when it was appropriate for monetary policy and when it was appropriate for the Treasury to be involved.

I agree that one can never foresee the particularities of a crisis situation before it happens. But I'm wondering whether we're at zero or close to zero interest rates because of a truly problematic deflation—not simply a numerical deflation but one that involves very weak economic activity and the prospects for continued weak economic activity. Given the feedback

effects that occur with deflation, I wonder whether it wouldn't serve us well to have two or three policy options that we've explored in some detail. I don't think you mean to preclude that, Mr. Chairman. In my view it might help us to have a few potential courses of action that we have investigated thoroughly. I say that because what we're really worried about is not a situation that occurs in a flash but one that builds up and gets worse over a period of time. In at least the two periods of deflation on which we have papers in front of us, the analysis suggests that such situations could be handled better if the monetary authority made more effort to anticipate the potential deflationary developments and work against them.

I agree that the material in these papers that we've talked about today and that Dino threw into the mix is complicated. It feels as if we're looking at a huge multidimensional matrix containing a lot of little boxes and a number of potential outcomes, and it's very, very hard to get one's mind around all of it. But I'd be interested in looking more extensively at the two or three steps that would seem most likely to be necessary if we thought we actually were going to get into a downward-spiraling deflationary period. I really don't think we are. I have a high degree of optimism that we will not, but I would like to take out a bit of intellectual insurance, if you will. I'd like to know that there are one or two courses of action that we could proceed with and have some confidence that we were doing something useful if in fact the possibility of that corrosive deflationary spiral seems to be growing more than it is now.

When I look at the analyses that give us probabilities of deflation, I'm not sure that I believe the numbers. I'm sure they're mathematically accurate; I'm confident of that. But I'm not sure the 20 percent probability of deflation in 2005, which is the figure shown in one or another of these papers, refers to the type of corrosive downward spiral that is our primary concern here. I would attach a lower probability to such an outcome. But that kind of deflation,

even if it's a very low probability event, would have such enormous consequences for us and the world that I think we do need to have one or two tools at hand that we think we could use over the longer term.

That said, I'm not sure which of these tools has the greatest potential. There are some avenues I wouldn't pursue. I wouldn't go to the markets and say we're going to keep interest rates at X for so many months or so many years and we're confident that we are going to do that. I personally wouldn't do that. But some level of commitment and communication has to be a part of any of the courses of action that have been mentioned. I'll stop there since I've probably said enough on a subject about which I know too little.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Let me try to link the discussion about our situation with the point that Roger was raising about Japan because I think the Japanese experience does provide some important lessons. I don't have the data in front of me, but in the early '90s the money stock actually fell in Japan for several years running. Japan made the same mistake at that time that we did in the early 1930s, when the Federal Reserve and many others thought that policy was becoming easier because interest rates were going down but when, in fact, the central bank was pulling liquidity out of the system. Certainly one important lesson from both the early '30s in the United States and elsewhere and from the early '90s in Japan is to pay some attention to the aggregates in these extreme circumstances.

Second, another key feature of the Japanese environment, although not so much in recent months, has been a very important and binding exchange rate constraint. Japan has never felt comfortable pursuing a policy to provide liquidity that might have the consequence of allowing the yen to depreciate substantially against the dollar. I think that was widely understood in

Japanese society, and there are probably a lot of informal ways in Japan of ensuring that their currency does not depreciate that are not so applicable in our environment. But that's a type of a price constraint, if you will, that prevented the Japanese from going as far as they might otherwise have gone in pursuing a quantitative target.

I think it's very important to realize the very basic point that we can't fix both the price and the quantity. If the price—the federal funds rate—gets down to zero, in my view we really don't have any choice but to concentrate on the quantity and to force a lot of liquidity into the system. In fact, there's a rather interesting symmetry in the situation. When the inflation rate is relatively high, it also turns out that interest rates can give misleading indications because of the confusion as to how much rates are being driven by changes in inflation expectations. Countries that have gotten into inflationary problems can have great difficulty running policy in terms of interest rates; the central bank really has to control the amount of liquidity it is creating. Interest rates, as I think we've learned through a lot of experience, work well as a policy instrument in the broad intermediate range. But when a country has an inflation problem or a deflation problem, the central bank had better pay a great deal of attention to the quantity of money.

As for the problems in the markets as they relate to the viability of money market mutual funds and so forth—if we have to choose, I don't have any doubt as to what I'd choose, and that would be to let the money market funds go. It would be inappropriate to try to save the money market funds and pursue a monetary policy that doesn't fit the needs of the aggregate economy. That doesn't make any sense at all. I think we need to say very openly that we're not going to try to save an institution or industry if that action produces or could potentially produce substantial damage to the economy as a whole.

CHAIRMAN GREENSPAN. Let me interrupt. I suggest that you say that around this table only, unless you want to get very prominent headlines in the press. The size of these institutions is very large, but you're quite right in suggesting that they are ephemeral. We could expand and collapse what is essentially overnight short-term intermediation almost at will. It is possible to create a multi-hundred-billion dollar money market mutual fund almost overnight and we can subsequently collapse it. But if we were to try to communicate to the public that we're willing to do that, the knowledge in the marketplace about what is involved is such that people would not understand it. And if you were to say it publicly, I'm certain that you'd get more press than you want.

MR. POOLE. That sometimes happens, yes. [Laughter] But I think the danger of a very quick collapse, if you want to use that term, is easy to overestimate. I believe there's likely to be a lot more continuity in the process. First of all, we'd probably find that there's a range of money market mutual funds with different expense ratios, and it would not be too hard to imagine that some of the management companies would absorb some of those costs for a while. Others might institute fees for processing checks. So there would be continuity. The banks have the same situation, of course, with deposit accounts that in most cases don't have any service charges. The banks are going to need to start charging monthly service fees to handle deposit accounts if rates remain very low for a long period of time.

I thought that the staff discussion of the importance of the exit strategy was extremely important. If we do something, we'd better figure out how we're going to get out of it and what the issues involved in that process are. That's part of the problem with a policy that simply says we're going to peg the funds rate for some relatively long period of time or that we're going to move out the term structure and hold the one-year rate at zero or at 35 basis points or whatever.

It’s very hard to get out of that. The more we get into targeting longer-term rates, the more directly responsible we are for capital gains and losses that people realize when we change the rate that we peg. What we want in my view is for the market essentially to be responsible for making those judgments and not the central bank.

So it seems to me that the best way to go if we get into this situation—and I agree with Cathy that it’s not likely—is to focus on quantities, making sure that we force a lot of liquidity into the system, and let rates go where they will. That will mean that the federal funds rate frequently will trade right down at zero. That’s a consequence, and if we’re not willing to accept that consequence, then we’re not going to be able to carry through on a policy that’s oriented toward forcing liquidity into the system and targeting some quantities. That’s where I come out. I believe it’s very important before we get too deeply into the institutional detail to start with the very simple proposition that we can’t fix both the price and the quantity. At some point we may have to choose.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you, Mr. Chairman. I came out pretty much where you did with regard to the four questions—so I’ll attenuate my remarks—but let me briefly explain why. We’re having this conversation, at least from my perspective, because of our concerns about the possibility of deflation. If I ask myself why I might be concerned about deflation, exhibit 1 is one answer—the Depression. While there may not be a consensus as to the causes of the Great Depression, people usually cite a crisis in banking, inappropriate monetary policy, wage stickiness and collusion in the labor market, and maybe the Smoot-Hawley Act. None of those conditions seems to be particularly prevalent or relevant today in my judgment. Another answer, exhibit 2, is Japan. There again people cite serious problems in the banking industry, stop-and-

go policies, and serious resource misallocations having to do with trying to preserve dying or uncompetitive industries, and so forth. Again, as in the case of our own Depression, those conditions seem to be largely absent in our economy today.

The third possible reason I come up with for our concern today has to do with disappointment about the rate of growth in the economy. Depending on what time period one selects, the economy has been growing at 1½ to 2½ or 3 percent over the last group of quarters. My suspicion is that, if it were growing at 4 or 5 percent or more, we wouldn't be very concerned—even with price indexes going up at a rate of 1 percent or so, plus or minus—about the possibility of deflation. If that judgment is right, then what we're really concerned about is the pace of economic growth. So what it seems we should be involved in, at least for the moment, is a fairly traditional exercise of economic stimulus in an effort to further boost aggregate demand. That suggests to me that for now our primary focus should be on our incremental policy changes, if any.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Thank you, Mr. Chairman. I would agree with you that, if we were thinking about answering the four questions in order to come up with a tactical plan, the exercise wouldn't be very productive. But it seems to me, based upon the information provided by Vincent and his colleagues, that there's a lot of information that could prove to be useful under certain future circumstances. That leads me to believe that it is worth studying some of the issues raised in these papers. For example, there was a question asked by Vincent about alternative instruments. I'd like to know a lot more about some of these alternatives—clearly the use of the discount window and also longer-term Treasury securities. One concept that I thought was extremely interesting was the issue raised about changing expectations. I think it would be

very interesting to find out a little more about the effect on expectations of making clearer to the public our views on what rates of inflation we would find desirable. Those kinds of studies are not in my view part of any tactical plan that we might implement in the future, but they may contribute to our understanding of how we might want to react to certain events. I've tried to talk about the desirability of making our views clearer on inflation rates without using the "T" word. [Laughter]

MR. MOSKOW. Thank you, Bob!

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. Thank you, Mr. Chairman. I agree with you that the presentations we've heard and the three background memos that were prepared for this discussion were all excellent. I enjoyed reading the papers and I took a lot away from them. To Vincent, Dino, and David, I want to say that I think the memo you did with your colleagues really fleshed out the issues.

I took away three main points from the background memos. First, for money markets to adapt to very low interest rates involves some costs, and those costs have a bearing on how far we should push rates down before we contemplate other approaches to deal with persistent disinflation, if in fact we get something like that. Second, the evidence from the 1930s presented in Athanasios's excellent memo I think clearly suggested that we should not construe that evidence as an indication that monetary policy is ineffective at the zero bound on nominal interest rates. Third, in the 1940s we did succeed in enforcing a 2½ percent ceiling on government bond yields partly by a commitment to keeping expected short rates very low before 1947 and then with large-scale purchases of long bonds thereafter. These were all interesting points, and I enjoyed reading the memorandums.

With respect to our strategy and tactics going forward—trying to apply some of the lessons from history and even looking beyond them—I recognize that we may be able to address further disinflation by inducing significant additional reductions in long-term interest rates whether we explicitly target them or not. That's what most people seem to be thinking about as the next step. But I'd like to add a new dimension to this discussion because bond rates, like short rates, are also subject to a zero bound at some point, which ultimately would put a limit on this policy channel if disinflation persisted or deflation began to threaten us. So I'd like to talk about what I'll refer to as the "what next" issue for a couple of minutes. That issue is, How should we think about further monetary stimulus if we get to the point where both long- and short-term interest rate policies essentially have been immobilized?

Now, I agree with a lot of other people—although I'm not sure how many people around the table here—that the odds we will face this situation are small and may be exceedingly small. Because of that, it's tempting to conclude that we have plenty of time and really don't need to think about this or discuss it yet. In other words, we'll cross that bridge when we get to it. But I would argue that it's not only useful but actually urgent that we think about these kinds of options now. I'm building on the point you were making, Cathy, because confronting deflation just like confronting inflation involves a credibility problem. That's the essence of it for me. Moreover, unlike inflation, the credibility problem in dealing with deflation is compounded by the zero bound on nominal interest rates. That raises at least the possibility that interest rate policy alone can't deter deflation even if we're willing to drive both short- and long-term interest rates to zero.

In the current situation—I'm not going to talk about current policy but use that as a framework in this situation—if the funds rate were to get closer to zero, the possibility of

deflation has the potential to create deflation expectations and actual deflation simply because people may doubt that we can and will use monetary policy to combat deflation effectively at the zero bound. My concern is that waiting to say or think about how we would deliver further monetary stimulus if rates were to fall to zero could in some circumstances lead the public to conclude that we can't do it. If people think we can't deliver, that would risk creating a credibility deficit that could make it much more difficult to deal with this situation if in fact it arises and we try to use different types of policies to deal with it. So that's why I think it's essential that we begin to talk about this and consider it now. I'm not talking about developing a detailed strategy but at least putting something on the table.

So, what next? Well, common sense tells us, and this has been pointed out already, that at some point a determined expansion of the monetary base has to be effective against deflation at the zero bound. If that were not the case, we could eliminate all taxes, and the government could permanently finance its operations with money creation alone. So the next step is that we use what are being referred to as quantitative policies in this discussion. In principle, I think it can't be denied that they would work. In practice, though, there are a lot of obstacles to creating credibility for these kinds of policies. Let me mention a few of them.

In particular, the bang for the buck of quantitative policy at the zero bound at this point is anybody's guess. It could be quite weak in practice. We just don't know. So there is at least the possibility that we might have to expand our balance sheet enormously—well beyond its normal steady-state size—to be effective. Further, since short-term government securities are perfect substitutes for the base at the zero bound, we probably would have to accomplish any such expansion through purchases of longer-term securities, first government securities and then private securities. But that, as has already been mentioned, would require us to have an exit

strategy for draining large quantities of the monetary base once the deflation has been broken—if in fact earlier we had to increase the base substantially. Since we would be selling long-term bonds back to the public in volume at more normal 3 or 4 percent rates, after having purchased them at rates near zero, we could face a substantial capital loss. Conceivably, in a really unusual situation, we could have insufficient assets in our portfolio to bring the base back down. In that latter situation, we would presumably have to have some arrangement with the Treasury to recapitalize us with short-term government debt to allow us to complete the draining operations.

Let me quickly recapitulate the key points I've tried to make here. The first is that, until we work through this "what next" scenario and communicate a credible strategy, addressing it to the public at some point, I think our contingency plans for confronting deflation will be incomplete. In my view, that would be a serious omission. We do a lot of contingency planning at the Fed, and I believe we should do some comprehensive contingency planning on this kind of scenario even if its probability is low. And I would say the sooner the better. We don't have a stash of credibility as deflation fighters yet. If we delay thinking about and developing a strategy for dealing with further disinflation and it continues—and especially if it accelerates—we could wind up with a sizable credibility deficit. That could make it very difficult for us to employ successfully any strategy that we might be forced to come up with in this kind of situation. So I would just put that view on the table, too.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. I, too, want to congratulate the authors of these papers. I think they did some very fine work, and I believe it has been extremely helpful for all of us who are trying to think through these very difficult issues. I just have a few comments. I would at this point clearly stay away from targeting interest rates at other than the

short-term fed funds rate that we now target. I would avoid targeting longer-term interest rates for a lot of the reasons that have been mentioned already. Of course, that brings us to the quantity side, which we've been talking about, of trying to inject reserves into the system. There is a lot about that that I don't understand, and I would like to know more about it before we ever have to go down that path, though I certainly agree that it is a very unlikely possibility at this point. But I think we should have some sense as to how we would go about doing it and how we would address some of the very important issues that Al Broaddus raised.

There is one question that immediately came to my mind in the course of Vincent's presentation, and I think Dino talked about it, too. On page 12 of Vincent's material he talked about targeting the short-term rate at 1 percent, say, but lowering other rates. So we'd have to add reserves in one segment of the Treasury market and drain them out of the other. I was just wondering if we could do that without undermining the effectiveness of what we were really trying to accomplish, given the way that the arbitrage operates and people move along the curve, substituting assets all the time. Could we really implement this without adversely affecting our objective which, of course, is to add liquidity to the system?

MR. REINHART. I think the short answer is that I have every confidence in Dino, [laughter] but he may have to do transactions in very large size. One could imagine, for instance, the Committee calling out a ceiling on the five-year note yield—one would hope that would be consistent with the expectations it was trying to engender through other statements—but also calling out a 1 percentage point federal funds target. What that would mean is that Dino would be buying five-year notes to enforce the ceiling if expectations called for that. That is, if prices started falling and pushing the yields up to that ceiling, he would inject a lot of reserves. He'd

have to offset those reserves by doing reverses—in effect using the securities just bought as collateral to pull reserves back out of the banking system.

MR. KOS. We wouldn't be changing dramatically what we do now in the sense that the operating target would still be the fed funds rate. We would still be targeting—in your example, let's say, a 1 percent fed funds rate—and we'd have a secondary objective of enforcing a ceiling. But at that point, as Vincent says, we would be operating with both levers, so to speak—on the one hand, pulling money in and, on the other, putting money out. So it could get rather busy for Spence and his colleagues on the Desk, who would be buying and selling at the same time. In a sense it's a lot like sterilized foreign exchange intervention in which the Desk is offsetting with the right hand what the left hand is doing. So there is a question about the effectiveness of that and what it would mean for other, broader policy objectives.

MR. REINHART. The other important concern you identified, President Moskow, is that the more two points on the yield curve had to be enforced by large-scale transactions, the more likely the targeted longer-term security would be disconnected from the rest of its neighbors on the yield curve and then from private rates. That could happen if we wound up purchasing the five-year note, say, and doing large reverses. I think the goal would be more to encourage expectations consistent with a low five-year yield, which would be priced into all assets. If we get involved in a corner solution where we own a lot of the five-year note issues, it's less likely to be transmitted to other market prices.

MR. MOSKOW. Yes, we couldn't target just the five-year note. It would involve the six-year and the four-year notes and so forth; it would have to be a smooth curve, I assume.

MR. REINHART. I think that, in principle, we could set the price of any point on the yield curve. There'd be obvious questions about why we'd want to do that if our goal was to

affect private rates. More likely than not, the operations would involve, as was the case in the experience of 1942 to 1951, targets all along the yield curve.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Thank you, Mr. Chairman. This discussion is going to be impossible for anybody to make sense out of because we're all throwing our wisdom, or lack of it, out there! I will do likewise, and let somebody else worry about where it goes.

My first point is that I agree with you that the uncertainties about this are so imponderable, as somebody said about the Iraq war, that I don't see how we could ever hope to settle on a contingency plan. I do think it is very good discipline for us to start thinking about this problem and talking about it and maybe rejecting some ideas and some approaches. So I think it's a good discussion to have. But I don't see how we could ever come up with a firm contingency plan.

I also tend to agree with Bill Poole about the money–interest rate issue—that while interest rates might be a useful guide for policy when they're in the middle range, they are not very useful when they get to the extremes. Obviously, the funds rate isn't an appropriate policy instrument when it starts bumping against the zero bound, and I think he's also right that it probably is not very useful when it's on the high side. So in such circumstances we might naturally go to a more quantitative target. My instinct, for reasons I'll discuss in a minute, would be to do that in a relatively neutral way in terms of the composition of our assets. But it does raise a question that I don't feel I can make any progress on, which is, If we started doing more quantitative targeting, how would we do it? That is, do we want 5, 6, or 7 percent money growth, and over what time period do we want that growth—for three months or six months? There are a lot of issues involved, and I don't know how to sort through them.

It strikes me that targeting the rate structure is a losing game. Six or seven people have spoken against that already. If we want to focus our staff's effort, I would propose that they spend less time on that. I just don't see how we could ever target the entire rate structure. Staff time would be better spent focusing on what we might conceivably do.

I would like to say a few things about the issue addressed in exhibit 4 in Vincent's paper, which is managing interest rate expectations. One, it strikes me that we ought not to do it so we can say, "Well, we should never try to do that." I don't see how we can avoid doing it when we conduct monetary policy. So it might make sense to think about it a little more seriously. If we can do it at all, then I don't think we have to get into the term structure issues because I believe that expectations are going to dominate anything else we do in terms of the composition of our purchases or anything like that. If we do try to shape interest rate expectations, in my view pledging to hold short-term rates at a certain level for *X* period of time is again a losing game. There is no way we can see the future well enough to make that kind of judgment. Possibly we could say we will do it until *Y* happens, in the way shown at the bottom of exhibit 4. But I would like to be in charge of defining *Y* and not commit to holding short-term rates at a particular level until some kind of numerical standard is achieved—until we see GDP rise at, say, 4 percent for two quarters or until inflation turns up, or whatever. I would like to do it until *Y* happens, where we have defined *Y* vaguely in a way that we control—that is, until we see signs of some particular development. I think we'd have to be quite vague here, but one thing that gives me some optimism about this is that when it comes to vagueness I think this group is hard to beat. [Laughter]

CHAIRMAN GREENSPAN. Let me suggest that we break for coffee. The list of those who want to speak on this subject is very long, so it is going to consume a large part of today's session—and I think for good purpose.

MR. FERGUSON. We need coffee to get through it?

CHAIRMAN GREENSPAN. We do. Let's keep the break to ten minutes.

[Coffee break]

CHAIRMAN GREENSPAN. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. Let me try to react to some of what I've heard today. I certainly agree with you and the many others who say that we don't need to make decisions or announce anything immediately. Among other things, reading the materials and listening to this discussion have changed my mind. So what I would have said a week ago differs from what I would say today. We're all learning in this process, and I think the process needs to go on.

One lesson that I drew from Japan was that not only did the Japanese get down to zero on the interest rate and not only did they try each new policy and say they were going to take it back, they didn't give any sense of where they were going. They were lurching from one policy to the next, each time saying that they didn't think it would work. So I do believe it's important that we decide before we get to the point where such policies need to be triggered—and I'll come to that issue next—at least on a very rough sequence of what we will do and how we will talk to the public about it. We don't need to be very specific; but before we begin to use nontraditional techniques, I think we need to talk about them publicly and create a sense of continuity and confidence in our policymaking, which I believe was absent in Japan.

Now, where does that sequence need to begin? I certainly was convinced from the material we received that 75 basis points is not a floor for the federal funds rate. In my mind, partly because I have some doubts about how efficacious some of these quantitative easing policies would be, I certainly would go all the way to zero on the funds rate or darn close to it, if necessary. I admit that such an approach would trigger adjustments in markets and institutions that would be costly. But I think the benefits of going down to zero, if we need to, would probably outweigh those costs. The fact that these institutions have to adjust might argue for a more gradual approach than we might use otherwise to get the funds rate down effectively to zero, but I don't think it argues against doing that.

Something that does bother me, in terms of the current perceptions of where we are as an institution in our thinking about this, are the newspaper stories saying that Federal Reserve officials, whoever those anonymous people are, have said that 75 basis points is as low as we'll go. I certainly would like to take that notion off the table. I think the notion of 75 basis points as a floor is one of the things that may be pressing us to move ahead faster with our thinking than we're comfortable with. People seem to think that once we get the funds rate to 75 basis points we'll have to make an announcement that we will target something else. I don't think that's true.

CHAIRMAN GREENSPAN. But that's what people think. The truth is of secondary consequence at the moment.

MR. KOHN. Right. So if the other members of the Committee are in rough agreement, I certainly would like you to clarify in your testimony, Mr. Chairman—or in the question-and-answer period that follows—that we don't view 75 points as the lowest we can go. I think that will give us some additional flexibility here.

Another problem in Japan was that the authorities were overly optimistic about the economy. They kept saying things were getting better, but they didn't. To me that underlines the importance of our public discussion of where we think the economy is going and what our policy intentions are. Like Governor Gramlich, I think we do this all the time. Talking about where we believe the pressures are coming and what the policy response will be is not something new. We have done that in the past, especially when the economy and policy were in disequilibrium. One example is the 1993-94 period when we said rates are low, we're going to keep them low until we see the economy really picking up, and then once the economy picks up significantly we're going to raise rates to somewhere close to the level of the natural rate. That was a pretty strong statement. Another example is the 1999-2000 period when we said we're going to keep raising rates until we see economic growth slowing to potential.

So in my view this idea of a commitment strategy is nothing new for us. The question is whether we would need to modify what we already do as we move rates down to the zero bound. In that regard two issues come to mind. One is whether in that situation the Committee ought to have a longer statement as a Committee instead of using only your congressional testimonies or speeches to explain where we expect the economy and our policy to be going. I think we saw following May 6 that when the Committee speaks—and this actually was surprising to me—its statement has a little more force than when you speak, or at least reinforces what you have said before in testimony and elsewhere. So, having the Committee talk about its expectations at a little more length than we typically do might be helpful.

The other issue is the one that Governor Gramlich raised about how specific we should be. Like him, I'm more disposed to being vague rather than specific; it helps with the flexibility. I'm convinced that numerical forecasts under those circumstances would be fraught with

difficulty and problems and would be bound to be wrong. On the other hand, I also recognize that, at the zero bound, the costs and benefits of perhaps clarifying expectations—if we think we can do that—might be different than they are under the current circumstances. So if it does look as if we're getting the funds rate down there—and I don't expect that we will—that would be a time to think about whether quantification of forecasts and objectives would be helpful. I'm not sure it would be. I rather doubt it. But that's an area we could study if we got close to the zero bound.

Finally, I have some doubts about the efficacy of quantitative easing. I know there's a long-run relationship, and somehow one would think that the central bank ought to be able to set the price level by printing an appropriate amount of money. But as Al Broaddus said, the problem is that the relationship between prices and money growth might be a very weak one. It might not hold over short or even intermediate periods of time. I wouldn't reject quantitative easing as a possibility if we got to that point, but it's down on my list, and I would be careful about conveying a more confident attitude about the efficacy of that technique than I think we feel. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. Governor Bernanke.

MR. BERNANKE. Thank you, Mr. Chairman. I find it useful in thinking about monetary policy at the zero bound to view it as working in one of three broad ways. First, it works by affecting expectations of future short-term interest rates, which affect longer-term interest rates and other asset prices. Second, it works through mechanisms that depend on the imperfect substitutability of different assets. That would be, for example, the purchases of individual assets or the asset portfolio substitution effects that were described by Vincent. Third, it works through fiscal effects, which were not much emphasized in the materials we've looked

at and are a form of last resort action, but which I think in the Japanese case might be called for at this point.

In my view the imperfect substitutability effects and the quantitative easing effects are there, but they are probably weak and somewhat difficult to identify at this point. As I said, the fiscal effects probably fall into the last resort category. So for those reasons, at the stage we're in now, I think we should be concentrating more on the expectational and commitment effects looking forward. Besides the weaknesses of the other two approaches, I think the expectational effects on the term structure, first of all, are best understood. There's a paper I would recommend to you, if you haven't read it, by Eggertson and Woodford that explores the expectational effects of short-term interest rates and their effects on long-term rates in great detail. Indeed, that approach is more or less what we're doing now. Of course, monetary policy as normally practiced works primarily by affecting expectations about longer-term policy and, therefore, longer-term interest rates.

What I think has been missing from the discussion we have had here today so far is that working on expectations of future short-term interest rates can be done through a comprehensive package. There are many different ways to approach expectations management. One is communications of the type we've been doing through our statements. There are various targeting procedures for inflation or price level targeting. Eggertson and Woodford talk about some reasons for price level targeting, which is their favorite approach. There is also signaling through various kinds of market interventions of the kind Dino has talked about—options, purchases of bonds, discount window lending, and so on. In particular, to those of you who have argued against trying to "target" long-term interest rates—if by that you mean that we specify a target for the five-year bond and then try to enforce it by buying five-year bonds—I must say

that I agree with you 100 percent that that's not going to work. But if the policy is one in which we essentially try to lower the whole path of long-term interest rates and we enforce that with a package of complementary actions that includes trying to manage expectations along the term structure and taking a series of other actions such as purchasing long-term bonds and other kinds of instruments, I think that's one of the first things we ought to be doing. I believe that would actually work and would in fact be a good approach.

So my answers to Vince's four questions are, in short, that I agree with Bill Poole and Don Kohn that short-term nominal interest rates should be brought down quite low. I don't have much sympathy or forbearance necessarily for protecting small segments of the financial markets. I believe our first approach should be the continuation of our current policy of working on the management of expectations. And then I think we should consider packages of policies that support each other to try to manage expectations in the market and thereby affect longer-term interest rates. Thank you.

CHAIRMAN GREENSPAN. President Santomero.

MR. SANTOMERO. Much has been said that I would have said also. As I was thinking about my comments, I considered just repeating the names of those who said what I had intended to say and let you fill in the blanks. But that shorthand is a bit inadequate. Let me first of all say "thank you" to the staff. This is in fact a useful exercise and one that I think we all have learned from. I tend to agree with the Chairman that this is a theoretic exercise that broadens our understanding of what is going on and the range of issues that we have to address. But I believe, as President Stern said, that the real issue here is reigniting growth; that's a key point and a serious one. I would weigh in on the necessity of moving to an aggregates target at the zero

bound. I agree with that and also with the view that, in such a situation, trying to peg interest rates is tricky because of frictions or segmentation considerations.

The point I really would like to emphasize, however, involves the whole question of press coverage of money market funds and the concern that has been expressed here and elsewhere in connection with them. As someone who has lived in that world for a while, I must say that such concern may be warranted if we are at a zero interest rate but that money market funds can do quite nicely at relatively low interest rates. Clearly, money market funds do not need a 75 basis point spread to exist, though it may be one that they would like. There has been an ongoing debate in the industry and in the courts over appropriate rate spreads. But in truth, the industry has been functioning quite well on spreads of 15 to 25 basis points and making money at it. The industry has a long history of fee waivers by many of its companies, which suggests that they would continue that practice as long as they could maintain their balances, retain their customers, and survive through what is seen as a transitory problem. So I would argue that this concern about the money market mutual fund industry, short of truly getting to zero, is overplayed in the press and is something we should spend less time on. We should spend more time on some combination of President Stern's and Governor Bernanke's concerns, which involve getting economic growth to appropriate levels so we can move away from a funds rate that is close to the floor. Thank you.

CHAIRMAN GREENSPAN. Governor Bies.

MS. BIES. I, too, am going to echo some of the comments of others, but I have a couple of points I'd like to make. One is that, while I'm not so worried about the money market funds, say, I am concerned—putting on my supervisory hat—that we're telling everybody to make sure they understand their credit exposures. At some point, interest rates could get so low that they

don't cover credit risks. Anecdotally I know of some banks that already have put floors on floating rate loans just to make sure that the rates on such loans don't get too low. That does raise issues about what will happen in a very low rate environment. I don't know what the magic number is for the funds rate—if it's 75 basis points or 15 basis points—but at some point there could be an impact on credit extensions. Lenders might be willing to continue lending for a short time, but if they don't see a takeout in the longer term where rates are coming back up, there could be some reluctance to lend because of questions about covering credit risks. That's especially the case if we encourage them, as we move forward, to do a better job at credit risk management.

For those reasons and others, I am also concerned that as we move lower on the funds rate—again, I don't know what the magic number is—we won't really be able to operate on interest rates because there won't be that much further to go. So I would like to look more at some of the quantitative options that are out there. I found interesting some of the alternatives in these wonderful papers—I learned so much reading them—and partly just academically I want to understand more about these issues. I'd like to know, for example, if there are limits on how much of a particular maturity we should own. At what point does the size of our holdings affect market liquidity? Or do we want to own all issues of a given maturity so we really can peg the rate? What is the framework in which we want to make that decision? I'd like to have an idea of how much of different maturities we would have to own to have an effect if we wanted to ease quantitatively. I have no idea on that.

The other idea I found interesting is selling put options on Treasury securities. Cynically, this could be the salvation for everybody who hedges mortgage securities with long Treasuries. We may be the counterparty of choice. I would like to understand that because the options

market is not very deep and I'd like to see how deep it is. If we went that way, how much room would we really have to inject a quantity of liquidity? Or is the scope relatively limited so that we'd have to build a market? So, I think it would be useful to explore further some of these issues that deal with liquidity and the options we have if we want to go the quantitative route.

I also agree that we can do a lot in terms of managing expectations just by what we put in our releases and say in our public comments. That is something I think this institution has always done, so clearly we can do that. But I am interested in understanding more about the implications of easing by means of quantitative targeting.

CHAIRMAN GREENSPAN. I'd just like to interject here that one thing we have not talked about, and obviously we will if we get closer to the zero bound, is private credit instruments. What will happen to spreads as rates get down to very low levels, and what does that imply about elements of risk and stability in the financial system and in a sense the whole global financial infrastructure that is well beyond our immediate concerns? In some respects I would almost prefer to know more about that than some of the issues that we have been discussing today if, indeed, our principal concern is reigniting economic growth. I say that because the position from which we start will involve a whole series of spreads and implied risks, which probably will be a very important factor in the acceleration pattern sparked by our actions. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. Let me first start with the context, and here I agree with Gary Stern and others that the context of all this—as I think you've just indicated—is reigniting economic growth. We'll talk more about that tomorrow, but we shouldn't lose track of the point that President Stern raised—namely, that if the economy were

growing at a 4 percent rate and inflation were as low as it is, we'd have a very different view of the world.

Now let me talk about the issues that are on the table here; and in doing so, I'd like to divide my comments into two sections. One is what to do and when. The second is what to say and when. I'm going to start with the latter, what to say and when. In that regard I think that, first, we should recognize that we already have a great deal of credibility. The fact that on May 6 we did nothing with respect to interest rates but had a phenomenal impact on the yield curve should give us some sense of empowerment, if you will, for those who are worried about reactions to what we say. But going further down the path of what to say and when, I would argue two things. One is that we should continue to do what we're already doing—in some sense maintain the status quo—and be very clear about our intention to avoid this problem of deflation. Two, without overcommitting or being very specific about it, we should convey to the public that we have a range of tools that we could use. So I would say that at this stage we ought to keep doing what we're already doing.

I'd be a little cautious about the approach shown in exhibit 4—using either *X* or *Y*—for the reasons that Ned Gramlich laid out. I think the probability is quite low that we can foresee clearly what we might confront and thereby have a strong sense of when—based on a time period or some external event happening—we would move rates back up. So I would think that the kind of ambiguity that we are so practiced at would continue to be helpful. In that regard I endorse what Ned has already said. So on the issue of what to say and when, my view is that, although we may not communicate perfectly, by and large we have gotten ourselves incrementally into a fairly good place and our credibility is relatively high. I'm not sure even if we get to very low rates that we'd want to change dramatically the way we communicate.

On the question of what to do and when to do it, let me start with the "when." I agree with the comment that 75 basis points certainly is not the point at which we should begin to do anything differently. I'm not sure if it's 50 or 25; it may actually be zero. I think we need to have a better understanding of that, if possible. I am a little concerned about potential discontinuities if suddenly we get rates down and then we begin using some other approach. I believe one of the earlier papers on the zero bound issue suggested that there should be some interplay between the level of rates and trying something different. So perhaps we should not wait for zero and then make a change. That is my instinct anyway.

Now let me move to the harder question of what that different approach should be. I was very influenced by the nature of the presentations we had from Vincent and Dino in that what we're really looking at in all of these relatively unconventional matters is some sort of risk–benefit tradeoff. As I listened to the discussion, I became more concerned about the risks of targeting particular segments of the yield curve, trying if you will to put a ceiling on longer-term interest rates in a very explicit way. The exit strategy issues and the coordination with the Treasury strike me as very real concerns and not something we should underplay. I am less concerned, frankly, about the possibility that we may take some losses or those kinds of issues because I don't see why a central bank in an environment of fiat money should have a very serious concern about that.

So that inclines me, while not to a decisive conclusion, toward a pure quantitative approach and a focus on reserves for a couple of reasons. One is that in some sense we have operated quite successfully that way both in the emergencies of September ll and more broadly. It is something that central banks certainly know how to do, and we can communicate reserve targeting very clearly. I accept the fact that the interactions between pure quantitative easing and

the outcome with respect to the real economy are potentially uncertain, but that ties back to the need to communicate clearly.

So I conclude, as Governor Bernanke did, that what we really are thinking about here is a package of quantitative operations and communications. Though my comments have been divided into what to say and what to do, the reality is that they work in tandem. Therefore, I believe we ought to be thinking about using both of those tools simultaneously. I'd compare it to the way one flies an airplane by worrying about the altitude and the other things that one worries about in the plane, which obviously I don't know; so I wish I hadn't gone down that path! [Laughter] Let me close by saying (1) I think we're not in danger yet, (2) it is important to have this kind of discussion, and (3) I'd keep all of our tools regarding both what to say and do and when on the table. But I would lean toward avoiding some of the riskier strategies by looking more closely at the reserve requirement issues and thinking about quantitative easing in a very explicit way. Thank you.

CHAIRMAN GREENSPAN. Governor Olson.

MR. OLSON. Let me mention a couple of other points of view. As I read the material—especially the matrix of the various effects in the marketplace—it struck me for the first time that, while we are still in the process of thinking through what we might need to do and when, a lot of strategic decisions have already been made by those in the marketplace. President Santomero and others of you referred to the money market mutual funds. Governor Bies initiated a look at money market mutual funds, and the response that came back indicated that a lot of strategic decisions have already been made, essentially for self-preservation, on how to manage in a low interest rate environment. I've looked recently at the banking industry in light of the first-quarter results, and dramatic changes are taking place in bank balance sheets and

income statements as a result of the low interest rate environment. It seems to me that the risks at the moment may be more liquidity and interest rate risks than asset quality risks. Asset quality has improved, but the interest rate margin declined 12 basis points from the fourth quarter to the first quarter. Moreover, there is an explosion on the liability side in short-term deposits while the only growth opportunity at the moment is in mortgage products. There seems to be a lot more room for refinancing, which means the possibility of additional compression. So I think we are going to continue to hear from banks about the pressures that they're facing in a low interest rate environment.

I'm reminded, however, that in the early '80s, if somebody had told me as a banker that six months or eight months out my incremental cost of funds was going to be 14 percent, I would have said, "I can't make it. The bank will fail." Well, the bank didn't fail. We found ways to manage through, which brings me back to the fundamental point. Ultimately the health of the banking industry will reflect the health of the economy. We need to be cognizant of the impact of a low interest environment, but our focus needs to be on the overall long-term health of the economy.

CHAIRMAN GREENSPAN. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. I also want to thank the staff. I thought the papers and the presentations were excellent, and they did add to my knowledge on these issues. I just want to make a couple of brief comments on managing expectations. I don't make it a point to go around talking about deflation, but increasingly I'm asked about it. Also, more and more often I'm being asked what tools the Federal Reserve has if we do reach the zero bound. What ammunition do we have left? Again, it's because so much has been written in the press about these issues. So I believe, as others have said today, that it is important to manage

expectations by communicating effectively. We need to say confidently that the possibility of deflation is remote, that it's the job of the central bank to make sure that we don't have deflation, and that the central bank has a variety of tools available to address this issue. I, too, as several of my colleagues have suggested, would focus on providing reserves to the system because that's the tool that we have readily available.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Thank you, Mr. Chairman. As others have commented, not much is left to be said! I'd start by observing, though, that having put the subject of deflation squarely on the table as part of our statement after the last meeting, I think we created an enormous, compelling need to do a lot of learning and to do it quickly. The papers and the discussions today certainly have helped me understand the issues.

Maybe even more important—to pick up on what Sandy just said—we've created enormous interest externally among the press, our own directors, business people, and even my brothers. [Laughter] Everybody I talk to wants to learn more about the subject. In fact, the range of emotional reaction to our statement last time among the people I talked with ran the gamut from those who were reassured by the fact that we are talking about the subject and understand it to those who found the mention of deflation frightening. The latter included one of my brothers who said, "Jack, you're scaring people." So I think our statement last month has created for us a tremendous responsibility to continue to educate the public about this issue and about what we're doing. It's the number one subject for the speech requests that I'm getting these days.

The other thing I was going to touch on, and this probably has been talked about enough, is our basic responsibility as a central bank in a developing depression situation—to be sure that

there's plenty of liquidity and to steel the intermediaries to fund real economic activity. I don't think anybody has suggested that there is a lack of liquidity now or that intermediation is not currently taking place.

I don't want to talk more about the Japanese situation or the experience of the 1930s; they have been discussed. But I came to the meeting wondering if those who were most concerned about deflation in the short run would argue that more liquidity at some point—and maybe very soon—would help reduce the risks of deflation to a more acceptable level. There has been a lot of talk about that. I had trouble, too, trying to be responsive to Vincent's particular questions and I felt better after hearing your comments on them, Mr. Chairman. When I looked at the options presented, I felt the same way that I did when we had the discussion not so long ago about what we would do in terms of conducting monetary policy if we ran out of government debt. I never was completely comfortable with any of the alternatives we had on the table; I certainly feel that way about this situation.

Finally, I would emphasize—and it's been said several times already—that we have to be very, very careful about what we say on this subject externally. I fear that we could get ahead of ourselves and create a self-fulfilling concern about deflation. I think I'm repeating points that have already been made, so I will close. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. I have a very brief comment about managing expectations. First of all, we don't want expectations that are formed now at our urging to be falsified by events. That's not good for anybody. I view that as extremely important, and I think that's in part what Ned was talking about. We need to be vague regarding the things about which we can't be confident. We don't want to make statements that we really can't be confident about. In particular, there may

be even an inherent contradiction in our expectations for interest rates and our expectations for economic growth, for example. We think that expectations that short-term rates will be low for some time to come will bring down long rates and foster a revival of the economy. But if we have a vigorous economic revival, rates can't stay as low as they are currently. So there's some inherent contradiction there, and I think we have to be very careful about how we discuss that. When we talk about managing expectations, it's going to be very helpful to be quite explicit in our thinking. We need to ask "expectations about what?", and we ought to think about whether those expectations are consistent with how we want the market to form its expectations.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. I don't have a lot to add obviously, but I didn't want to be the only one not to say anything! [Laughter] I had my hand up earlier hoping to follow Michael Moskow's discussion of the new operation twist, and I was going to suggest that we could call it the Chubby Checker monetary twist. [Laughter] The other day I got an e-mail from the head of the Greater Dallas Chamber of Commerce, and she asked if I would come and talk to a group of CEOs about "monetary policy in a zero bound environment." I thought that was a strange request! It turns out that one of my directors had planted that little seed with her. He wasn't there when I arrived at the meeting, so the group did give me permission to talk about a broader range of issues than that. Monetary policy in a zero bound environment was a topic on our agenda for our board meeting two months ago, and our directors got so interested in it that they asked us to cancel the program planned for our last meeting and update the earlier presentation. Now we have a standing request to touch on that subject at every meeting—to report on what is new with regard to the outlook and how things are going. So, this is a hot topic with our board.

I was going to ask you a question that has been touched on by Governors Bies and Olson. You mentioned that, in the greater scheme of things, you thought that the money market mutual funds were expendable. I've been surprised to see the resistance among the bankers on my board to continuing reductions in interest rates. About the middle of 2002, we started getting resistance to further easing moves, primarily from our bankers. I was a little shocked at their inability, apparently, to lower their costs as fast as their income was going down.

CHAIRMAN GREENSPAN. As the rates have gone down, earnings have gone up—much to their surprise.

MR. MCTEER. Well, they're dead set against any further easing now because they keep expecting it to go the other way. I'm not sure what to make of that.

CHAIRMAN GREENSPAN. I think the answer is very simple. If you are an institution that is doing well within the parameters under which you're used to functioning, you will fight any change without any notion as to whether that change is good or bad. That's because there's a very large uncertainty premium associated with the change.

MR. MCTEER. It's like the banker who was retiring after forty years and said he'd seen a lot of change and he had been "agin it all." [Laughter]

CHAIRMAN GREENSPAN. That's a good way to end! Let me mention a couple of general points that I'd like to add to this discussion. One is that I don't think we know enough about how the private financial system works under these conditions. It's really quite important to make a judgment as to whether, in fact, yield spreads off riskless instruments—which is what we have essentially been talking about—are independent of the level of the riskless rates themselves. The answer, I'm certain, is that they are not independent. But how their dependency functions and how those spreads behaved in earlier periods is something I think

we'll need to know more about. The reason is that I don't believe, as I said before, that we can construct an effective preemption strategy. Well, we can construct a strategy, but I'm fearful that it would not be very useful.

What is useful, as has been discussed, is to build up our general knowledge so that when we are confronted with the need to respond with a twenty-minute lead time—which may be all the time we will have—we have enough background understanding to enable us to make informed decisions. We need to know how the system tends to work to be able to make the necessary judgments without asking one of our skilled technical practitioners to go off and run three correlations between *X, Y*, and *Z*. So I think the notion of building up our knowledge generally as a basis for functioning effectively is exceptionally important. Indeed, the actual amount of time we use in implementing monetary policy—aside from the time that Dino and his colleagues have to spend at the Desk—is really very small. We have a huge amount of time to do other things. What we have been tending to do—and I think quite importantly—is to try to understand how these various markets work. Even if we never have to use the knowledge for the purpose of fighting deflation, I will bet that we will find it useful for other purposes.

There is a very interesting question that I don't know the answer to—and I suspect no one around the table does—yet it's crucial. In the quantitative easing paradigm there is the general presumption—and it's implicit in everything we talk about—that the relationship between money and prices is in the long run very close. The presumption is that if you increase the supply of money indefinitely, the price level has to go up, no matter what, or we all should turn our economic degrees back in to the universities that gave them to us. But what we don't know and what unfortunately we assume, I think more subconsciously than anything else, is whether the pattern of going from increasing supply to increasing price levels is a continuum. We tend to

believe that there is, in calculus terms, no discontinuity in the structure. I submit we don't know that that is true. Indeed, I've always been concerned about the fact that the Japanese are pumping in, pumping in, and pumping in money. They're going to increase their monetary base inordinately. The price level is going to stop moving down, then it's going to start up, and then it's going to explode, and the discontinuity there is a very dangerous phenomenon. We know the size of their debt, the supply of their instruments, and what their monetary system is doing. There is no credible long-term possibility that a central bank can keep creating money, in many cases high-powered money, and the price level will continue to fall. That just is not credible.

But we are assuming that we can turn it around in a smooth and not discontinuous way and calibrate the changes in such a manner as to transmute a system of disinflation into one of moderate inflation. I hope that is true. I know we say that around this table without explicitly identifying it. I don't know anybody who has proved it, and I suspect we will not know whether it's true until we see an actual occurrence of this phenomenon. So, I just want to throw that on the table. If anybody on the staff has great insights into this, I'd love to see a memorandum on it.

In any event, I do think we would learn a great deal simply by doing some further study on private-sector yields even if the knowledge never has to be used. A number of the issues that have been discussed around the table are valuable pieces of insight for a central bank. I would say that they are valuable pieces of insight wholly independently of the issue of whether we're fighting deflation, trying to create changes in expectations, or the like. So what I would suggest as the next step is that we ask our presenters to take a look at the transcript of this particular segment of our session today, try to cull through it, and then make recommendations as to what the response to the four questions was.

MR. HOENIG. Wouldn't it be easier just to solve this problem? [Laughter]

CHAIRMAN GREENSPAN. Does anyone have anything else that they wish to communicate on this particular subject?

MR. BERNANKE. Mr. Chairman, the depression-era deflation ended quite smoothly. Inflation was minus 8 percent in 1932 and plus 1 percent in 1933. So there's one example.

CHAIRMAN GREENSPAN. My recollection is that I was taught in small-sample theory that with an observation of one there's a very high variance. Dino, would you start us off on the next part of our meeting?

MR. KOS.[3] Yes. Thank you Mr. Chairman. Moving on to the regular market report, I'll be referring to the paper with a class II cover. Since your last meeting, markets have been characterized by lower interest rates and expectations of further policy ease in the major economies, narrower spreads, higher equity prices, a weaker dollar, and a reemergence of headlines about corporate governance after the management changes at Freddie Mac. Although the Committee's decision to keep the funds rate target unchanged at the last meeting was largely expected by the market, the contents of the accompanying statement had a major impact on global financial markets. The explicit mention of the unwelcome probability of further disinflation was interpreted as a signal that the Committee would not tighten policy in response to faster economic growth alone. Some commentators went even further, saying in effect that a 1994-style preemptive strike against inflation was off the table for the foreseeable future. The market reaction was to price in lower interest rates and the expectation that short-term rates would stay low "for a long time." This view was reinforced in the days and weeks after the meeting by comments from various Fed officials highlighting the risks of deflation and voicing a preference to combat deflationary pressures. Initially the market viewed a 25 basis point reduction in the fed funds target as the most likely outcome for this meeting; but as time went by, the expectation of a 50 basis point reduction became more entrenched, peaking with last week's article in the *Washington Post*.

This shift in expectations can be seen in the top panel on the first page, which plots implied rates on Eurodollar futures contracts through December 2008. The blue line graphs the Eurodollar futures curve as of May 5, the day before your last meeting. The red line plots that curve as of June 16, which was the date the curve reached its lowest level. In short, the movement between May 5 and June 16 represents a large pricing out of future tightening and, because of term premiums, a longer period of time that interest rates are expected to stay low. The Eurodollar futures curve went back up slightly in the last few days, as seen in the black line, following last week's CPI report, some stronger manufacturing surveys, and Friday's

[3] The materials used by Mr. Kos are appended to this transcript (appendix 3).

article in the *Wall Street Journal* asserting that a 50 basis point reduction at this meeting was not a certainty.

Treasury yields fell dramatically over the intermeeting period, pushing well through the historically low yield levels reached in March just before the war in Iraq, though they backed up sharply in the last few days. The two-year yield, shown in the middle left panel, moved down 39 basis points over the period and at about 1.14 percent is now 11 basis points below the current funds rate target. On June 13, the two-year yield hit an intraday record low of 1.06 percent. The ten-year yield dropped even more, falling 57 basis points during the period, to about 3.31 percent; and on June 16, it, too, touched a new low, hitting 3.07 percent on an intraday basis. With data on the economy mixed, Treasury yields were driven largely by evolving monetary policy expectations. Early in the period, the pricing out of potential tightening pulled yields lower. Subsequently, the solidifying expectations for a rate cut at this meeting, including the possibility of a larger easing than 25 basis points, added to the decline in yields. In short, as expectations for the duration of low short-term rates were extended, the more attractive carry trades came to be seen.

I should mention that, although deflation received considerable attention in the marketplace following the FOMC meeting, on balance market participants appear to assign fairly low odds of experiencing absolute declines in price levels. Inflation expectations as measured by the spread between nominal and inflation indexed Treasury debt edged lower by a modest 12 basis points over the period and, at 170 basis points, returned to levels that prevailed earlier this year.

Credit spreads continued to tighten as the search for yield and prospects for this extended period of low interest rates brightened the corporate outlook as well. The spread of investment-grade debt to Treasuries, shown at the bottom left, narrowed 6 basis points during the intermeeting period. The additional tightening of credit spreads this period extends a dramatic rally in the corporate bond market from the distressed levels experienced in October of last year. For example, the investment-grade spread has narrowed by 141 basis points from the widest levels in October to just 125 basis points currently.

Likewise, the spreads on high-yield and emerging-market bonds, shown in the bottom right panel, tightened further. The high-yield spread is 560 basis points, near its historical average and roughly one-half the 1,036 basis point spread observed in October 2002. The historically low corporate borrowing rates and generally receptive financial markets have spurred corporate issuance across the credit spectrum. There was a flurry of new issuance in May and June, particularly in the high-yield sector. The majority of borrowers, however, seem to be refinancing existing debt at lower rates or extending the duration of their debt profile to take advantage of lower long-term rates. Of particular note was the announcement this week of a $13 billion deal from General Motors in order to shore up pension liabilities. An issuance of such size from an automaker was virtually unthinkable just nine months ago.

The improving sentiment toward the corporate sector is, of course, most evident in the equity market. Expectations of more-accommodative monetary policy, stimulative fiscal policy, a weaker dollar, and the dividend and capital gains tax reductions were all factors. In addition, the outlook reported by some major companies surprised investors—not so much because sales and profits are expected to suddenly expand rapidly but more that, after several years of continuous downward revisions to their outlooks, there are signs of businesses stabilizing and some even showing modest improvements.

The top panel on page 2 graphs the three major U.S. equity indexes since April 1. All three are higher by double-digit amounts. The Nasdaq, all but given up for last fall, is up more than 19 percent since April 1 and also on a year-to-date basis. But equity prices have been rising almost everywhere in recent months. The middle panel graphs the FTSE, the DAX, the Dow Jones Euro Stoxx index, the Nikkei, and the Toronto Stock Exchange 300; all rose at least 10 percent since April 1. The DAX had the most pronounced bounce, perhaps aided by expectations of an interest rate cut by the ECB, which did reduce official rates by 50 basis points on June 6. But markets rose even in those cases where central bank policy was going the other way. For example, the Canadian equity market has risen despite the tightening by the Bank of Canada and worries about SARS. Finally, as seen in the bottom panel, emerging-market equity markets showed similar gains, as sentiment about prospects for global growth improved.

Turning to page 3, in exchange markets the dollar was generally weaker. On a trade-weighted basis the dollar has declined 2.7 percent since May 5. The top panel graphs on an inverted scale the euro's exchange rate against the dollar since April 1. At the time of the Committee's last meeting, the euro was trading at about $1.13. In the subsequent days, the euro continued to rise as market participants came to the view that dollar interest rates would stay low while euro-area interest rates would remain higher given perceptions that the ECB was still focused on inflation. In mid-May two sets of comments by Secretary Snow were taken by many market participants as being a conscious attempt to move the Administration away from the so-called strong dollar policy. The dollar depreciated further after each of those comments. Because it came so soon after the FOMC meeting, some commentators asked whether there was actually a coordinated anti-deflation policy between the Fed and Treasury involving both lower rates and a weaker dollar. The value of the dollar stabilized somewhat against both the euro and the yen after comments by President Bush in late May and early June reiterating the so-called strong dollar policy, though many traders in the market were left confused about the Administration's view of the dollar.

The value of the dollar against the yen was also affected by another factor, official intervention by the Japanese government. Despite the continuing economic problems in Japan and event risks such as the capital infusion into Resona Bank, the yen showed a tendency to appreciate. Holding that pattern back was at times heavy intervention by the Ministry of Finance (MOF). Acting as agent for the MOF, the

Bank of Japan (BOJ) has purchased, including today's activities, a bit over $37 billion since the last FOMC meeting, bringing its total dollar purchases since the beginning of the year to about $56½ billion. Total Japanese reserves are now more than $500 billion, of which U.S. dollar reserves account for more than $400 billion.

As the bottom panel shows, the trade-weighted value of the dollar has fallen about 17 percent since early 2002 and is now at its lowest level in several years. As I mentioned earlier, some traders have complained about the apparent confusion with regard to the Administration's dollar policy. But a number of high-profile members in the leveraged community actually are giving the Administration credit for what they believe has been a conscious policy of talking the dollar down and doing it without any adverse movement in either bond or equity prices, at least so far.

Turning to page 4, the European growth outlook has deteriorated and interest rates in the euro area have been falling. The top panel graphs the three-month libor fixing in black and euro area three-month deposit rates three, six, and nine months forward rates in green. Cash rates fell in anticipation of the ECB's 50 basis point easing on June 6. Forward rates, however, maintained a cushion below cash rates and imply at least another round of expected ECB easing. Accommodative conditions were also reflected in the corporate market, as shown in the middle panel. Spreads—especially among riskier assets—continued to narrow. The BBB spread narrowed to 115 basis points, the tightest level since April 2000.

Finally, in Japan the BOJ continued to attempt to pump liquidity into the system. As shown in the bottom left panel, the BOJ has successively raised its target range for current account balances on its balance sheet. Part of that increase is technical and reflects a shift in Japanese post office funds into the current account balance category. The most recent increase in the target followed the infusion into Resona and SARS-related concerns in neighboring countries. Recently the BOJ announced that it would purchase asset-backed securities collateralized by loans to small and medium-sized enterprises with below-investment-grade ratings. JGB yields have fallen sharply all year, as shown in the bottom right panel, and hit a record low of 45 basis points on June 12. The benchmark thirty-year JGB hit a low of 98 basis points the same day. For reasons not very clear, JGBs sold off suddenly last week, and the ten-year rate spiked to about 70 basis points. This being Japan, some saw that as a buying opportunity, and yields promptly fell back to about 60 basis points but have edged back up to 65 basis points now.

Turning to page 5, the management changes and accounting issues surrounding Freddie Mac occupied the market over the last two weeks or so. The top panel graphs the equity prices of Freddie Mac and Fannie Mae, along with the S&P 500, since January 1. The share prices of Fannie and Freddie began the year moving together. Freddie Mac shares began underperforming in mid-January after it announced a disagreement with its auditor that would result in a restatement of results for the last three years. Also affecting Freddie Mac shares was a slowing of its MBS purchases, including an outright shrinkage of the MBS portfolio in April. Freddie Mac's MBS

portfolio was also experiencing faster prepayments for reasons that are not entirely clear. In any case, the gap in performance widened after the June 9 management shakeup. By way of comparison, Fannie Mae's stock has only slightly underperformed the S&P 500. The middle panel depicts spreads of ten-year Fannie Mae and Freddie Mac debt over Treasuries. Both spreads have widened somewhat but remain substantially narrower than they were earlier this year. Initially after the June 9 shakeup, there was some selling pressure on Freddie Mac's debt; but as spreads widened, investor interest reappeared, including reportedly among some large official reserve holders. Investor concerns also have been mitigated by Freddie's aggressive support of its own debt in the market. Freddie Mac bought back $10 billion and €2 billion worth of its own debt. It has ample cash on hand, and the new management team has been moving to restore confidence.

The bottom panels show how the two housing government-sponsored entities are faring compared with each other. The bottom left panel graphs Freddie Mac's funding costs at the ten-year maturity sector less Fannie Mae's. Freddie had been enjoying a relative borrowing advantage over Fannie ever since the latter announced its unexpectedly high duration gap in August 2002, leading to a widespread view that Freddie was less risky because of more-aggressive hedging of interest rate risk. The management shakeup and the criminal probe have reversed that borrowing advantage, although not by much. The widening of the MBS spread, shown at the bottom right, does not so much reflect concern about the relative credit quality of the MBS but rather concerns that Freddie will be constrained in its ability to grow its own portfolio in the future. Hence it may not be able to support its own MBS through portfolio purchases.

Mr. Chairman, there were no foreign operations in the intermeeting period. I will need a vote to approve the domestic operations. I'd be happy to take any questions.

CHAIRMAN GREENSPAN. Questions for Dino?

MR. FERGUSON. I was struck, when you were talking about the spreads for investment-grade credits, that you mentioned the search for yield and expectations regarding rates but you didn't say anything about underlying fundamentals. What can you tell us about market perceptions in the debt market? You said something about the equity market, but I wondered how investors perceive the actual risks involved in the purchase of fixed-income corporate debt.

MR. KOS. That's a good point. There is a perception that corporate creditworthiness is improving. Some of the issuance is being used to refinance debt—to delever for one thing—

which, again, is better for the credit holder. But also liquidity is improving as maturities are being restructured. Now, in a sense the downside, as people have pointed out, is that corporations are not using as much money for investment as they might have. And, as the delevering takes place, the amount of net new issuance is not actually as large as the gross issuance numbers imply. So there are people getting money back from repayments of debt, and there is competition for the available supply.

MR. REINHART. Governor Ferguson, some of this will be addressed in the chart show tomorrow morning, and there are also a number of indicators in Part 2 of the Greenbook about corporate credit quality. Just to underscore what Dino said, forward-looking measures of expected year-ahead defaults, for instance—a KMV-type measure—have come off in the last couple months. Actual recovery rates are doing a bit better, and so are default rates; and though the rating changes are still toward the downgrade side, the margin has narrowed.

CHAIRMAN GREENSPAN. Further questions for Dino? If not, would somebody like to move to ratify the domestic open market transactions since the May meeting?

MR. FERGUSON. I'll move to ratify.

CHAIRMAN GREENSPAN. Is there a second?

SPEAKER(?). Second.

CHAIRMAN GREENSPAN. All in favor say "aye."

SEVERAL. Aye.

CHAIRMAN GREENSPAN. The "ayes" have it. We now go into temporary adjournment, or recess, until tomorrow.

[Recess]

June 25, 2003—Morning Session

CHAIRMAN GREENSPAN. Good morning, everyone. Steve Oliner, would you start us off?

MR. OLINER.[4] Thank you, Mr. Chairman. Earlier this morning we received new data on orders and shipments of durable goods, and we've distributed a single page chart that I'll refer to in a moment as I review those data. I should also note at the outset that this single-page chart replaces one of the panels on page 5 of your chart show package, which was produced before we had the data. The top-line figure in this morning's data release showed that new orders for total durable goods edged down 0.3 percent in May. As you know, within this aggregate we focus on the series for nondefense capital goods excluding aircraft to get a read on business equipment spending. Orders for this grouping of goods declined about ½ percent in May, and shipments were off a tad more. Although these numbers sound weak, they were actually a little better than we had expected and would cause us to nudge up our forecast for equipment and software purchases in the current quarter. In addition, as you can see from the chart we handed out, orders (the solid line) have moved above the level of shipments (the dashed line), providing some support for the moderate near-term increase in capital goods outlays that we have assumed for this projection.

Turning to your regular package of charts, the data I just reviewed plus the stronger defense spending that we reported last Friday lift our estimate of real GDP growth this quarter to 1¾ percent at an annual rate from the 1½ percent figure shown on line 1 of the table. We are projecting a marked step-up from this pace during the second half of the year, largely on the basis of the policy stimulus—both monetary and fiscal—now in train. This acceleration continues into 2004, when we expect real GDP to advance more than 5 percent. As you can see by comparing lines 1 and 2, the first half of this year turned out to be weaker than we had expected in January, and we now project a sharper acceleration going forward. We anticipate that much of this pickup initially will take the form of stronger household expenditures. As shown on line 3, the growth contribution from consumer outlays is projected to start moving up next quarter, as lower withholding rates and rebate checks begin showing through to spending. With household demand firming, the caution that has pervaded the business sector should gradually recede, boosting outlays on equipment and software (line 4) in 2004. We also expect a sizable growth contribution next year from inventory investment (line 5), as firms build stocks to accommodate the advance in final sales. The faster growth in 2004 reduces the unemployment rate (line 6) to 5.4 percent by year-end, the same level we had projected in January

The incoming data provide some faint signs of the anticipated transition to faster growth. As shown in the middle left panel, private payrolls were essentially flat in April and May, suggesting that labor demand may be turning a corner after declining for two years. Industrial production, not shown, edged up in May after recording

[4] The materials used by Mr. Oliner, Ms. Johnson, and Mr. Wilcox are appended to the transcript (appendix 4).

sizable declines in March and April, and we are looking for a modest rise in June. This outlook is consistent with the indexes for new orders from the various purchasing managers' surveys, which—as shown to the right—have moved up since April. Among the recent indicators of spending, real consumer outlays on goods other than motor vehicles bounced back in May, as indicated in the lower left panel, and appear on track to post a moderate gain for the quarter as a whole. As shown by the barbell in the lower right panel, the automakers' forecasts of light motor vehicle sales in June are centered near the sales pace of recent months.

Although these data are still too mixed to conclude that activity is firming, we believe that the foundation is in place for a substantial pickup, as discussed in your next chart. An important part of that foundation is a heavy dose of fiscal stimulus, including the newly enacted tax law. As noted in the top panel, we had anticipated many provisions of the new law, including the pull-forward of cuts in marginal tax rates, marriage-penalty relief, and the boost in the child tax credit. But the law also contained provisions we hadn't anticipated in the April Greenbook—notably, the dividend and capital gains tax cuts, an increase in the partial-expensing allowance for equipment investment, and some grants to state governments. Moreover, the personal tax reductions are occurring sooner than we had expected. Taking account of the new tax law plus the continuing effects of earlier tax cuts and the large increase in defense spending, we estimate that fiscal impetus at the federal level (shown by the black line in the middle left panel) will be very large this year and next. Indeed, the cumulative amount of stimulus now in train well exceeds that provided by the tax cuts and the defense buildup during the Reagan Administration. Only a small part of this stimulus is expected to be offset by restraint at the state and local level, shown by the red line.

Financial conditions are also conductive to growth—and have become more so since the last forecast round. Given the rally in stock and bond markets, we have revised up our assumed path for the Wilshire 5000 (the middle right panel) about 10 percent. We have also taken on board the substantial decline in a wide array of long-term interest rates, including the mortgage rate displayed in the bottom left panel. As shown to the right, we have incorporated the further depreciation of the dollar since the last Greenbook.

Your next chart takes a look at financial conditions in the household sector. On the whole, we think households are in good financial shape, though there are pockets of stress. As shown in the top left panel, the household bankruptcy rate has continued to rise, no doubt boosted by the still soft conditions in the labor market. However, the bankruptcy rate focuses on the worst tail of the distribution and does not tell us much about typical households. Broader measures of loan performance have been sending a more positive signal. As shown by the red line in the panel to the right, the delinquency rate on all household loans at commercial banks continued to trend down in the first quarter. At the same time, the delinquency rate on auto loans at finance companies (the black line) has ticked up but remains near the bottom of its range over the past decade.

Households have been restructuring the liability side of their balance sheets through another wave of mortgage refinancing. As shown by the red line in the middle left panel, the "coupon gap," which measures the difference between current mortgage rates and the average rate on the stock of existing loans, is currently very wide, providing a strong impetus to refinancing activity. We estimate that "refi" volume (the black line) hit yet another record this month, with households extracting a sizable amount of cash through these transactions. Even though mortgage debt has been growing rapidly, the household debt service burden (shown to the right) has been edging down in recent quarters, owing to the decline in interest rates and the lengthening of loan maturities. Going forward, we expect debt burdens to lighten further, as income growth picks up and as households continue to refinance higher-cost debt.

Turning to the asset side of the household balance sheet, some observers have continued to raise concerns about the emergence of a housing price bubble. The lower panel shows that house prices, as measured by the repeat sales index for existing homes, indeed have been growing rapidly in real terms. While we would not entirely dismiss concerns about a bubble, we believe the price increases in recent years largely reflect solid fundamentals—most notably, the sharp reduction in mortgage interest rates. The rate of house-price appreciation has tapered off from its peak in 2001, and looking ahead, we expect the gains to slow quite a bit further. However, outright declines appear unlikely under our forecast of above-trend economic growth and only small increases in mortgage rates.

As shown in the top left panel of your next chart, businesses also have been taking advantage of the drop in long-term interest rates to improve their balance sheets. The corporate sector has been relying heavily on bond financing (the red bars) while paying down bank loans and commercial paper (the hollow bars). This substitution toward longer-maturity debt is now in its third year, and the cumulative effect can be seen in the panel to the right. The red line plots the aggregate ratio of current debt to assets for nonfinancial corporations, where current debt consists of short-term obligations plus the portion of long-term debt due within one year. As you can see, this ratio has fallen to the lowest level in more than a decade, even though the ratio of total debt to assets (the black line) has not changed much on net in recent years.

The combination of lower interest rates and the shift toward longer-maturity debt has reduced the debt service obligation for corporations, as indicated in the middle panel. We have defined this obligation as interest expense plus debt due within one year, expressed as a percent of after-tax cash flow. The debt service obligation for the median investment-grade firm (the black line) has now reversed its entire run-up between 1997 and 2000. For the median speculative-grade firm (the red line), the decline has been less pronounced but this series still has fallen to the lower part of its historical range. These trends are obviously good news about corporate financial positions.

At the same time, many companies are having to cover funding shortfalls in their defined-benefit pension plans. As noted in the bottom left panel, pension contributions by S&P 500 firms tripled in 2002, reaching $45 billion. Although this is a sizable figure, we doubt that the pension situation poses a major threat to the health of the corporate sector. For one thing, the funding gap is highly concentrated among investment-grade firms, which accounted for roughly 90 percent of all contributions last year. Moreover, even for these firms, last year's pension contributions amounted to only a small part of their total cash flow—about 5 percent by our calculations. Overall, we believe that corporate financial positions have improved a fair bit, and financial markets evidently agree. As shown by the red line to the right, the spread between the yield on ten-year BBB-rated bonds and comparable maturity Treasuries has dropped sharply from its peak recorded last fall. In addition, as shown by the black line, a market-based measure of expected defaults over the coming year has moved lower as well.

Against this backdrop of stronger financial conditions, a key element of our projection is the outlook for business investment, addressed in your next chart. As I noted earlier, the data on nondefense capital goods through May painted a mildly encouraging picture about the demand for business equipment. In contrast, as the top right panel shows, nonresidential construction activity remained quite sluggish through April, our latest reading.

To gather more timely information about the investment outlook, we asked the Reserve Banks to query their business contacts on this topic. As noted in the middle panel, about 35 percent of the respondents plan to increase their capital spending over the next six to twelve months, somewhat outweighing the 20 percent that intend to reduce spending; the rest plan to leave their outlays about unchanged. These responses seem roughly consistent with our forecast of a moderate uptrend in nominal investment spending in coming quarters. Among the firms planning to boost their spending, about two-thirds said that they had already started to place the orders to achieve this increase. We also asked about the major factors driving the reported plans. Few respondents mentioned the cost or availability of external finance, and an equally small fraction cited the partial-expensing provisions as a reason to increase spending over the relatively short horizon on which we focused. Rather, the outlook for sales growth was the factor cited most often—both by firms that plan to increase outlays and by those that don't. This focus on sales growth accords nicely with a standard accelerator model of investment.

The bottom panel characterizes our outlook for equipment and software spending, using the accelerator framework. This panel shows the historical relationship between the growth in real E&S spending (on the vertical axis) and the acceleration in business output (on the horizontal axis). As you can see from the red dots, spending in both 2001 and 2002 was below the regression line, and we expect 2003 to end up as another weak year. However, our projection for 2004 is considerably brighter. We expect the degree of business caution to fade, which should provide a substantial direct lift to spending and also make firms more willing to take advantage of the tax

incentives and low financing costs now available. Karen will now continue our presentation.

MS. JOHNSON. Your first international chart presents an overview of developments in selected international financial markets. As can be seen in the top left panel, both the narrow index of the foreign exchange value of the dollar in terms of the currencies of the major foreign industrial countries (in black) and the broad index that also includes the currencies of our other important trading partners (in red) have fallen further and at a faster rate since the January chart show than during the six preceding months. On balance, the index for major currencies has fallen 6 percent since the end of January this year and nearly 20 percent from its peak value at the end of January 2002. As can be seen in the panel on the right, the dollar has depreciated particularly sharply in terms of the euro, moving down about 25 percent from its recent peak in January of last year. The dollar has fallen significantly against both the Canadian dollar and the yen as well, with the stepdown against the yen coming during the first half of 2002; the yen–dollar rate has fluctuated narrowly and changed little on balance since then.

The depreciation of the dollar has been broadly consistent with changes in corresponding long-term interest differentials, shown in the middle left panel. Although dollar rates are above yen rates, they are below rates in Germany and Canada. Since the January chart show, ten-year government bond yields have decreased in these markets, but U.S. dollar rates have dropped more than German and Japanese rates.

Borrowing costs have diminished for emerging-market economies as well in recent weeks. EMBI+ spreads for Argentina and Brazil, shown on the right, have fallen to levels not recorded since the spring of last year. Apparent increased market willingness to invest in riskier assets and to seek return as yields have fallen in the industrial countries partly accounts for the declines in spreads. The absence of any major unfavorable developments within these emerging-market economies likely contributed as well.

As can be seen in the bottom panels, stock prices are generally up in recent weeks in the foreign industrial countries (on the left), and major emerging-market economies (on the right). But since the January chart show, stock prices in continental Europe and Japan are up somewhat less than the S&P 500.

Your next chart reports the results of our efforts to use the staff's econometric models of the United States and the rest of the world to address the question, "What have been the effects of the dollar depreciation to date?" Clearly our answer depends on the properties of our particular models. But even for a given model, there is no single answer to that question because, in order to design the exercise for the model, the analyst must give a reason why, in the counterfactual scenario, the dollar would not depreciate as it had in fact done in real time.

For our first counterfactual scenario, we posited that each bilateral dollar exchange rate in the model remained at its value in the first quarter of 2002, when the dollar on average peaked. We also held short-term monetary policy interest rates constant at their values in 2002:Q1 because the exchange rate is importantly affected by monetary policy and we wanted to begin with no exchange rate effects coming from changes in policy rates. This scenario treats the constant paths of exchange rates as resulting from shocks to risk premium terms in the equations that relate exchange rates to long-term interest differentials and the counterfactual short-term interest rates. As can be seen in the top left panel of the chart, the effect of the dollar depreciation since early last year as structured in our simulation has been to increase import price inflation (the bars) above what it otherwise would have been by an amount that rises to more than 4 percentage points for the first half of this year and then diminishes somewhat. Such an increase in import prices is large enough to make a difference for PCE inflation (the black line). The staff's FRB/Global model calculates that the increase in PCE inflation owing to the dollar as modeled in this case rises to ½ percentage point in the second half of this year. As can be seen in the right panel, the weaker dollar is also a net stimulus for real GDP growth. In this scenario, that stimulus is calculated to have been negligible in 2002 but to have added about ½ percentage point to real GDP growth in the first half of this year and is projected to add 1 percentage point in the second half. Other models might not estimate effects quite this large.

The answers provided by the first scenario reflect the imposed condition that short-term interest rates remain unchanged. In general, monetary officials could be expected to respond to the consequences of strong exchange rate pressures. Accordingly, the middle row of panels provides a second set of estimates in which we retained the shocks to the exchange rate risk premiums calculated in the first case but allowed the model to adjust monetary policy both here and abroad in response to these developments and their effects on output and prices according to Taylor rules. As a consequence, both interest rates and exchange rates do not remain unchanged at their 2002:Q1 level. This counterfactual allows for some feedback on exchange rates from the monetary policy response to the pressure on the dollar and its consequences. When monetary policy is allowed to respond, the calculated implications for U.S. import prices, consumer prices, and real GDP growth of the dollar depreciation since early last year are damped. In this estimate, the effects on import price inflation rise only to around 2¾ percentage points, so PCE inflation is boosted only ¼ percentage point. The estimated stimulus to real GDP growth is reduced to less than ¼ percentage point in the second half of this year. As is evident from the range defined by these two estimates, there is no single answer to this question. But we see this range as a reasonable bound for the extent to which dollar depreciation to date has raised U.S. inflation—and so countered deflation—and helped to support real output growth.

The effects on other countries are reported in the bottom panels as "fixed" for unchanged policy rates and "Taylor" for policy rates governed by Taylor rules. The euro area experiences a substantial reduction in price inflation and GDP growth even

in the case in which monetary policy reacts to the exchange rate pressure, suggesting that the appreciation of the euro is important in explaining current euro-area sluggishness. By contrast, the effects are much smaller on the other industrial countries. The currencies of developing Asia were fairly stable against the dollar over the past six quarters, so they too have experienced depreciation on a weighted average basis since 2002:Q1. Thus our model estimates that they have experienced higher inflation and stronger output growth as a result of currency depreciation to date.

Your next chart presents some evidence on the stance of monetary policy that is currently in place in two of the major foreign industrial economies—the euro area and Canada. The top panels show our calculations for each of these regions of the output gaps currently implied by our baseline forecast. For the euro area (on the left), the gap will widen over the forecast period, as growth remains below potential until near the end of the forecast period. In contrast, we project that actual output will remain slightly above potential in Canada over the same period. This projection assumes another easing of 50 basis points by the ECB by year's end and no change in the Canadian policy rate.

The middle left panel compares the actual path of the ECB's policy rate (the black line) with the expectation for that rate that we incorporated into the Greenbook at the time of your chart show one year ago (the red line) and to the market's expectation at that time (the dashed blue line). Since mid-2002, the ECB has implemented a somewhat easier policy than we and the markets were expecting a year ago, as economic performance has been disappointing. The bottom panel compares the ECB's policy rate to two variants of a Taylor rule prescription. The first, the red line labeled "Taylor Rule #1," utilizes imposed coefficients that equally weight deviations of inflation and growth. By that standard, the ECB has been a bit more expansionary than the Taylor rule indicates, as the rule implies continued effort to move inflation below the 2 percent target.

The standard Taylor rule can be criticized as incorporating insufficient forward-looking information. The recent declines in oil prices and the appreciation of the euro can be expected to lower inflation in the euro area over coming quarters. In the spirit of including these factors into the assessment of the current policy stance, we calculated "Taylor Rule #2," the dotted blue line, retaining the same coefficients but substituting for observed inflation the staff forecast for inflation six quarters ahead. By that standard, ECB policy has been and continues to be tighter than the rule would prescribe, even given the recent cut of 50 basis points.

Similar comparisons are presented for the Bank of Canada policy rate on the right. A year ago, we and the market were expecting the Bank of Canada to tighten by more than in fact has been the case to date. Although Canadian economic growth has remained above potential, the slowing of the U.S. economy and the appreciation of the Canadian dollar stayed the hand of the Bank in raising rates. Compared with Taylor rule calculations, in the bottom right panel, the Canadians appear to have been

somewhat expansionary. The move up in rule #1 reflects the rise in headline inflation, which in turn owes importantly to oil prices.

On balance, the success of the Bank of Canada in keeping that economy close to potential suggests that they have adjusted policy sufficiently in response to economic developments over the past year. For the ECB, the picture is more clouded. Since 2002 Q1, the ECB has lowered rates a total of 125 basis points. We cannot replicate for certain with our models exactly what the shocks have been that have struck that economy since early 2002. But our attempts to quantify the effect of the exchange rate change over that interval suggest that the ECB would need to lower rates significantly more, perhaps as much as a total of 300 basis points, to offset the contractionary effect on euro-area GDP of the exchange rate change they have experienced.

Our outlook this time for the U.S. external sector is summarized on the next chart. Total foreign real GDP growth, line 1 in the top left panel, is projected to grow at an annual rate of about 2½ percent during the second half of the year—a substantial acceleration of real GDP from the first half. Next year, we look for growth abroad to rise further. Among the industrial countries, activity is likely to remain lackluster in Japan and improve only gradually in the euro area, whereas Canada should continue to outperform the other foreign industrial countries. Growth in developing Asia (the right panel) is projected to rebound over the second half of this year, but to a lesser extent than we previously thought, as incoming data have surprised us on the low side. We are also expecting a pickup in expansion in Latin America, with Mexican real growth recovering in line with U.S. growth.

Our forecast for the real exchange value of the dollar in terms of all of our trading partners (the middle left panel) reflects the downward shift in the market value of the dollar that has occurred since your January chart show. We still see likely factors that will put upward pressure on the dollar—as the U.S. recovers more vigorously than elsewhere—and factors that will put downward pressure on the dollar, as the financing needs of the widening external deficit grow over the period ahead. With no way to judge just how these will balance over time, we have put into the forecast a very gradual downward trend in the dollar, reflecting the inevitable need for external adjustment to occur some day.

The implications for real exports and imports of a lower path for the dollar, a slightly stronger outlook for the U.S. economy, and a somewhat weaker foreign outlook, especially in the near term, are shown to the right. Exports (in red) are projected to rebound and to make a significant positive contribution to GDP growth through 2004. Imports (in blue) should expand some during the rest of this year and then accelerate strongly, resulting in a negative contribution of more than 1 percentage point in 2004. On balance, real net exports should make a small positive contribution over the remainder of this year and a moderate negative one during next year.

Our near-term projection for the current account, the bottom left panel, is for the deficit to reach $600 billion by the end of next year. The widening of the projected trade deficit explains all of the change in our outlook for the current account balance. The table on the right reports the data just released for the balance of payments in the first quarter. Whereas net official inflows (line 1) rose in the first quarter from their average last year, net private financial inflows (line 2) slowed. Within private flows, foreign purchases of U.S. securities (line 3) diminished, and foreigners were net sellers of U.S. equity (line 4). The resumption of U.S. purchases of foreign securities (line 5), particularly equity, contributed to the U.S. external financing need. Foreign direct investment into the United States (line 7) recovered to a pace about equal to U.S. direct investment abroad. Going forward, we expect that more-robust U.S. growth will continue to attract foreign private financial inflows, but the financing need will be growing as well. Accordingly, some additional net inflows of official capital and some downward nominal adjustment of the dollar are likely. David Wilcox will now continue our presentation.

MR. WILCOX. Chart 10, your next chart, shifts the focus back to domestic considerations and outlines the major factors conditioning our outlook for inflation. As shown in the top left panel, we expect that a significant, though narrowing, margin of slack will persist over the forecast period—enough to take a couple of tenths off core inflation both this year and next. Although consumer energy prices (the top right panel) have begun to soften, for the year as a whole we still expect them to contribute about a tenth to core PCE inflation. Next year, we expect them to be a neutral influence. Likewise, we expect core non-oil import prices (the middle left panel) to add about a tenth to core inflation this year and to have no net influence next year. All in all, as shown by the red line in the middle right panel and on line 5 in the table at the bottom of the page, we believe that core PCE price inflation is in the process of stepping down fairly noticeably this year, and we expect it to edge down further next year. As can be seen by comparing lines 5 and 6 in the table, we have revised down our forecast for core PCE price inflation both this year and next by about 0.3 percentage point since the January Greenbook.

The deceleration in core consumer prices over the past year, together with the likelihood that an appreciable amount of economic slack will persist for several more quarters, has—as you know—generated intense interest in and speculation about the possibility that the U.S. economy will begin to experience deflation. The next two charts touch on some aspects of the report on this topic that I wrote with Doug Elmendorf and Dave Reifschneider and that was distributed to you earlier this month.

The first of these charts summarizes and updates our efforts to assess the probability of deflation and related events. As noted in the top panel, we computed these probabilities using stochastic simulations of FRB/US, the Board staff's large-scale econometric model of the U.S. economy. For the purpose of these simulations, and consistent with the analysis in the rest of the paper, we defined "deflation" as occurring whenever the Q4/Q4 change in the core PCE price index is less than the estimated measurement bias in that index, ½ percent. Importantly, our definition is

meant to encompass a much broader range of circumstances than many observers have in mind when they describe deflation as inevitably generating a downward spiral in economic activity. Also in the realm of definition, we treated the zero bound as having been hit whenever the annual average of the funds rate is less than 25 basis points. We assumed that monetary policy follows a version of the Taylor rule, but with the zero bound enforced. We drew the shocks for the simulations from the model's residuals over the period 1970-2002. In the paper we circulated to you earlier, we took the April Greenbook forecast as defining the baseline, but the results we show here take the June Greenbook as defining the baseline. However, you will note if you refer back to the original paper that the differences attributable to this change are small.

The middle panel uses FRB/US to calculate confidence intervals around the staff's baseline inflation forecast. In particular, the darkest region gives the 50 percent confidence region; the intermediate shading shows the extent of the 75 percent confidence region, and the lightest shading shows the 90 percent confidence region. Thus, for example, in the fourth quarter of 2004, roughly half of the probability mass is estimated to fall between zero and 2 percent. Put slightly differently, about 25 percent of the outcomes show the measured rate of change in core PCE prices over the four quarters of 2004 falling below zero, thus corresponding to true deflation of ½ percent or more; and another 25 percent show the measured rate of change coming in above 2 percent.

The bottom left panel reports the probabilities of some specific events. As shown on the first row of the table, taking the June Greenbook projection as the baseline, we put the probability of deflation at about 15 percent for this year, just short of 40 percent for 2004, and about 40 percent for 2005. As shown on the second row, we estimate that the risk of hitting the zero bound is lower because, in many of the stochastic simulations, deflation is induced by favorable productivity shocks. As shown on the third row, the probability of both experiencing deflation and hitting the zero bound is smaller still, but nonetheless represents about a 1-in-6 event for 2004 and a 1-in-7 outcome for 2005.

The bottom right panel provides a model-based perspective on one element of the potential cost of deflation. According to FRB/US, a number of aspects of macroeconomic performance deteriorate when a central bank pursues a very low average rate of inflation; the one we have highlighted here is that the central bank's ability to stabilize real activity is somewhat impaired. As shown on the first row, at an average CPI inflation rate of 2 percent (the right-hand column), the central bank is able to limit the standard deviation of the unemployment rate to 1.5 percentage points. But at an average CPI inflation rate of zero—corresponding to bias-adjusted deflation of nearly 1 percent per year—the estimated standard deviation of the unemployment rate is 1.8 percentage points. Similarly, as shown in the second row, deep recessions are somewhat more frequent when the average inflation rate is very low, according to the model. While these effects are modest, they nonetheless

suggest that your choice of an average inflation objective is a matter of some consequence for the performance of the macroeconomy.

Your next chart poses a series of questions about the conduct of monetary policy raised by this analysis. First, there is the question as to whether you should aim to put an additional cushion between zero and the long-run average inflation rate beyond any allowance you might make to take account of measurement bias. The asymmetric nature of the zero lower bound and the downward rigidity of nominal wages might incline you toward the view that you should but would leave open the question of how large the additional cushion should be. As noted in the left-hand column, you might lean toward a larger cushion the more concerned you are about the adverse effects of the zero bound and nominal wage rigidity; you might also build in a larger cushion the greater you see the underlying volatility of the economy as being. On the other hand, as shown in the right-hand column, you might be inclined toward a smaller cushion the greater your confidence in the efficacy of the alternative approaches to the conduct of monetary policy that were discussed yesterday afternoon. You might be so inclined as well if you are concerned about the efficiency loss even from low positive inflation—for example, from the impairment of the effectiveness of the price system, the greater scope for losses from nominal illusion, and so forth.

A second question has to do with how aggressive you should be in moving to head off any incipient deflationary pressures. As shown on the left, a first motivation for aggressive and preemptive cuts in the federal funds rate might arise from concerns that nontraditional policy actions will not be effective. A second motivation could center on second-moment considerations; thus, while you might think that nontraditional approaches would be effective, you might be concerned about the uncertainty surrounding any estimate of the effectiveness of nontraditional monetary policy. Under a conventional analysis of policymaking under uncertainty, that lack of assurance would justify moving aggressively to reduce the odds of your being put in that unfamiliar circumstance. On the other hand, as noted on the right, a less aggressive approach would be warranted the more you are concerned that markets would interpret an easing in that circumstance as signaling a downbeat assessment of the state of the economy or if you believe that the public would become unnerved if and when they see that you have no more scope for traditional actions.

Finally, a third question has to do with whether your best course would be to counteract a deflation already in process even if real activity is currently at a satisfactory level. You could be justified in combating deflation in these circumstances if you were concerned about the efficiency cost of deflation, just as you have been concerned about the efficiency cost of inflation. The costs imposed by nominal illusion, partial indexation of the tax system, impairment of the price system, and heightened uncertainty about the future course of the macroeconomy would be reasons for moving to counteract deflation. In addition, you might be concerned that deflation—even in this relatively gentle form—could limit your ability to move policy aggressively to counteract a deterioration in real activity should one emerge

down the road. On the other hand, as indicated to the right, you might take a very cautious approach in addressing the deflation if you believed that the factors giving rise to it would prove only temporary. A cautious approach might also be warranted if you believed that the deflation would ultimately prove self-correcting, as it might, for example, if it was induced by a favorable shock to productivity growth that so stimulated aggregate demand as to lay the groundwork for an eventual acceleration of prices.

Your final chart displays your projections for 2003 and 2004. As shown in the top panel, the central tendency for the growth of real GDP is ¾ percentage point lower than at the time of the January meeting, and the central tendency projection for the unemployment rate is ¼ percentage point higher. The projection for PCE price inflation is unrevised. As shown in the bottom panel, you anticipate a pickup in the growth of real GDP next year, little change in the inflation rate, and a somewhat lower unemployment rate by the end of the year. We would now be pleased to take any questions you may have.

CHAIRMAN GREENSPAN. Steve, could you just repeat the statement you made with respect to corporate funding of pension funds? Did you say that, for investment-grade firms, 5 percent of cash flow was contributed to pension funds? Is that what you said?

MR. OLINER. In 2002. That’s right.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Thank you, Mr. Chairman. I have a question about the Greenbook baseline and also about the alternative simulations. First, after reading the text in the Greenbook, it seemed somewhat surprising to me that you had the real growth numbers for the second half of this year as low as they are. I’d be interested in what the results might have been had you allowed the model just to run. That’s one question. Second, as always, the alternatives are very interesting and certainly cover a very wide range of potential experience. But I’m rather amazed—I think that’s the right word—that the lowest rate of growth for 2004 under any of the alternatives is about 4¾ percent. If I went through this exercise, maybe I’d have a similar problem. But I would say that, if one used a VAR model that is affected very much by what has happened to the economy in the last three quarters, it would be pretty easy to get numbers that

are a lot lower than these. I just wondered whether you think real growth rates of 4¾ percent and above really are where one would expect the reasonable alternatives to lie.

MR. WILCOX. Let me address first the question of what we did to our forecast for the second half of the year. We marked it up by less than one might have done simply on the basis of taking on board the changes in conditioning factors such as fiscal policy and financial conditions. We did that, I think, on the basis of two main considerations. First, in the current climate of business caution that we see, it seemed plausible to us that there would be a smaller reaction—especially by businesses but also perhaps by consumers—than one might expect in ordinary macroeconomic times to the additional fiscal stimulus that has been put in the pipeline. Second, we think that part of the additional demand in the second half will be met out of inventories as businesses will be reluctant to step up production until they become more assured of the solidity of the economic expansion.

I'm not quite sure how to answer the question about what would have happened if we had just let the model run, given that our model is thirty or forty judgmental analysts. [Laughter] If we had tossed the question to FRB/US, I think we might have gotten something on the order of another ½ percentage point or so of growth in the second half of the year. In part, I think that is spoken to in one of the alternative simulations where we show a weaker-yet response to the fiscal stimulus, which results in ½ percentage point or so less real growth than in the baseline. As to how reasonable it is to show a set of alternative simulations almost all of which have growth rates with a leading digit of 4—

MR. PARRY. Even the second-half result of 3.5 percent growth with the "weaker response to fiscal policy" alternative is impressive.

MR. WILCOX. I agree with you that it's impressive. Another impressive feature of the current situation is the amount of stimulus that is in the pipeline from various sources. They were enumerated by Steve: an unprecedented amount of federal fiscal stimulus, a significant depreciation in the dollar, a 20 percent rebound in the stock market from its low, and a very marked reduction in long-term interest rates. With all that, it certainly looks to us as if the odds are very heavily tilted toward a significant acceleration in economic growth. I do think there are risks to the downside, but there are even risks to the upside of our quite robust baseline projection.

MR. PARRY. Okay, thank you.

MR. STOCKTON. Obviously, we can always weave together a series of very plausible outcomes. For example, let's say we started with weaker productivity growth than we are currently forecasting. If that were to come as a substantial disappointment to financial market participants, one could imagine that, as we pushed out yet again the diminishment of this unusual restraint on investment spending until the middle of next year, we'd have the resource utilization gap remaining. Suppose the gap did not diminish at all over the forecast period. I think the combination of those developments and maybe a little less impetus to spending from the fiscal policy that has been enacted could quite easily get the GDP growth forecast into a range of something that started with a 3 and not a 4. We certainly did not intend the alternative scenarios to suggest that it would be unreasonable to imagine a forecast that was running in the 3½ to 4 percent range next year; I think that would be quite reasonable. David indicated his confidence intervals on the inflation side; the confidence intervals on the real GDP side are quite wide, too, as you know; and a forecast as low as you were suggesting would fit within them quite comfortably.

MR. PARRY. Thank you.

CHAIRMAN GREENSPAN. Governor Bernanke.

MR. BERNANKE. Picking up on President Parry's comment and looking at the central tendency of the FOMC projections shown in chart 13, we more sage and conservative people also are predicting something above 4 percent for real GDP next year and about 1 percent inflation, which historically is a highly unlikely configuration. In a speech a few months ago I suggested that a relatively easy way to improve the transparency of the FOMC would be to detach these projections from the Chairman's testimony and release them in a more timely way, perhaps with the minutes of the previous meeting. It occurs to me that the numbers that we see here would be quite useful to release to the public in two senses. One, this combination of unusually high growth and low inflation would make very clear on what we base our balanced risks for growth going forward combined with our downward risks to inflation. Second, I think it would support the financial market configuration that we're looking for, which is a strong stock market and a strong bond market. So I think these FOMC member projections, which are somewhat more muted but nevertheless quite strong, would be quite supportive of our objectives. I'm wondering, is it on the table that we might let those be released a tad earlier?

CHAIRMAN GREENSPAN. This is an issue on which I think we really ought to come to a conclusion. We've procrastinated on it. The problem that occurs is that if we wait until my testimony to release these forecasts, they are usually obsolescent by then, and I find myself struggling to reconcile those old forecasts with the latest data. I don't know what to suggest at this stage. You're raising an important question, but I don't think we have the time to discuss it at this point. Dave, do you have a suggestion on this?

MR. STOCKTON. Well, obviously you want to think through the full implications of this. With an earlier release of the FOMC central tendency forecasts, one difficulty you might face in your testimony would be that, with the added three weeks of data, people will be asking you to provide an update on it. You may or may not be in a position to do that. But other than that, I'm not sure that I see any substantial downside risk.

CHAIRMAN GREENSPAN. Well, I always have the obvious answer to the problem you mentioned. I can say that I have not spoken to more than a fraction of my nineteen colleagues on the FOMC since our meeting, and I can arrange for that to be the case! [Laughter]

MR. STOCKTON. It probably would be a wise thing to do!

CHAIRMAN GREENSPAN. We're going to have to make a judgment on this issue. An obvious alternative is to put this information in the announcement today, which I would frankly recommend against largely because these numbers don't seem to square exactly with what we're saying in the statement, though technically they do. These are fairly large numbers and very benevolent ones if I may say so. The trouble is that they're always benevolent. I don't recall in recent history a projection coming from the Committee that was as negative as suggested by the discussion that we tend to have around the table. In fact, I would say that if somebody actually sat down and tried to square the individual Presidents' remarks with what is submitted in these forecasts, there would be some dissonance. I haven't done it, but I've been around long enough to be aware of that phenomenon. If you want to find out, after each one of you discusses what is going on in your regional economy, announce the number you submitted. Nevertheless, I think we do have to address the issue. It shouldn't be today. But when would be the appropriate time to release our FOMC forecasts is an interesting question. One possibility is to attach them to the minutes for the May meeting when we release them—is it Thursday?

MR. REINHART. On Thursday, yes, Mr. Chairman. I put a cover memo on the materials on communication policy that we circulated yesterday asking for the Committee's guidance as to when it would be appropriate to discuss general issues about transparency—whether it should be at a lunch, at a one-day meeting, or not until January. This is one topic that I can put on the agenda whenever you'd like.

CHAIRMAN GREENSPAN. Yes, I would think so. I assume nobody would object to that. We probably can't resolve this issue prior to my upcoming testimony, but we ought to discuss what we want our policy position to be on it. It shouldn't be decided ad hoc largely because I think it's a more important issue than we may have realized in the past.

MR. MOSKOW. Just on this point, Mr. Chairman. I agree that it should be done in the context of a larger discussion of transparency because there may be some other things we want to announce at the same time. Also on this particular point, you do give the Reserve Bank Presidents and Board members a chance to change their forecasts after hearing the discussion at the FOMC meeting.

CHAIRMAN GREENSPAN. Right you are.

MR. MOSKOW. So we'd have to change that policy, too.

CHAIRMAN GREENSPAN. Yes, and I don't think we want to change that policy. That's a good point, and I had forgotten about that.

MS. MINEHAN. Just one other intervention. We're asked to do our individual forecasts in the context of what we consider to be the appropriate monetary policy, and we might not all have the same conclusion about what that is.

CHAIRMAN GREENSPAN. No, that has always been a problem, and we've scrupulously avoided resolving that question.

MS. MINEHAN. Yes.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. David, I found chart 12, "Implications for Monetary Policy," very helpful in trying to think through some of the issues we will get to later in the meeting. In the middle panel there, you make the point that one argument for being more aggressive would be a concern that nontraditional approaches would not be effective. On the other hand, suppose one were confident that such approaches would be effective and had a sense that the public shared at least some of that confidence. Could it not also be said that having that confidence would support being more aggressive because we wouldn't be afraid of getting close to the zero bound and the possibility that we might have to use those approaches? Could you make that argument?

MR. WILCOX. I may not have understood your question, but in general on this chart one could take everything in column A and say its opposite would apply in column B. So indeed, the greater one's certainty about the effectiveness of nontraditional approaches, the more complacent one could be in taking preemptive action against a forecast of deflation.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. I had a quick question about the survey on capital spending plans. Obviously, capital spending is the key to the forecast for the near-term future. I was wondering if we had ever done this type of survey before. If so, what level of confidence do we have in it, and has it helped us in the past to predict future actual spending by business firms?

MR. OLINER. In January we also had a set of special questions on capital spending plans. I think what might have been a little different this time around—and others can correct me if I'm wrong—is that we tried to structure the questions to get quantitative responses that we

could tabulate as opposed to a more qualitative sense of what respondents' views were. But yes, we've done something like this before.

MR. MOSKOW. So we haven't done it quantitatively before. I'm just wondering about the percentages you cited—that 35 percent are going to increase spending and 20 percent plan to reduce spending. You also said that two-thirds of those who plan to increase spending indicated that they actually have started to place the orders. Our District went the other way on that, which is rather interesting.

MR. WILCOX. I'd have to say that we have no track record to assess the accuracy of this survey as a predictive tool.

CHAIRMAN GREENSPAN. Did you ask for specific percentage changes?

MR. WILCOX. No, it was directional.

CHAIRMAN GREENSPAN. So there could be a significant dispersion among those who say they're increasing capital expenditures in terms of how much they're increasing them by.

MR. OLINER. Yes, that's absolutely right. Across the Banks there was a fairly close correspondence in the answers to the top line question about increase, decrease, or no change. But as President Moskow noted, there were some discrepancies across the Banks with regard to the other questions—the more supportive questions about whether that was already happening or when the orders would be placed.

MR. MOSKOW. Okay, thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. I'll pass. I was going to talk about the disclosure issue, but I'll pass at this point.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. I have a very brief question on chart 12. You mentioned the concept that deflation could be self-correcting. The example you gave obviously was productivity improvements and so forth. Are there broader examples of self-correcting deflation? I could imagine perhaps a change in exchange rates and a pretty big pass-through of that. But what else would one put in the category of self-correcting deflation?

MR. WILCOX. I think the major instance that we had in mind was a favorable productivity growth shock, which in our analysis—as we outlined in the paper—shifts aggregate demand up faster than it does aggregate supply.

MR. FERGUSON. All right, thank you.

MR. BERNANKE. You could also get self-correcting deflation if you had a monetary standard like a gold standard, which we don't have, of course. An increase in the production of gold—

MR. FERGUSON. Right.

CHAIRMAN GREENSPAN. If there are no further questions, would somebody like to start the Committee discussion? First Vice President Stewart.

MR. STEWART. Thank you, Mr. Chairman. The New York regional economy has shown some signs of improving in the second quarter. Employment has recovered moderately in the past two months, housing markets appear to have retained good momentum, and there are signs of a revival in both New York City's office market and in the region's manufacturing sector, though the latter is still characterized as weak. New York City, which was hit by some of the steepest job losses in the District, has shown recent signs of a pickup, driven in large part by the financial sector. Though large corporations on Wall Street are still not hiring, smaller

financial firms as well as legal and business service companies are reported to be adding staff. While New York City jobs data show only a slight recovery from the recent lows, the suburbs—where job losses were milder—have seen more of a rebound in jobs this year. Office vacancy rates have declined in the past two months, most notably in lower Manhattan. The midtown office market appears to have steadied but lower Manhattan's market has firmed markedly, with vacancy rates dropping from 15 percent to 12 percent in just two months. Wall Street firms are reported to be seeing good growth in profits and revenues. Debt issuance has been strong, while equity and merger-related business remains at quite low levels despite a recent pickup in that high margin activity.

New York City's and New York State's fiscal problems have been addressed largely through a combination of tax hikes and budget cuts. Widely publicized hikes in mass transit fares, tolls, sales tax rates, and regulated rents should have only a modest effect on the overall cost of living in the New York City area. In upstate New York, there are fewer signs of a pickup. Albany, usually one of the state's star performers, recently saw a sizable downturn in employment. Rochester's hard-hit manufacturing economy, dominated by firms facing intense foreign competition, remains weak. While Buffalo has sustained fairly mild job losses recently, the troubled finances of the city of Buffalo are being taken over by a state board.

Our early June Empire State manufacturing survey indicated an improvement in business conditions, but commentary from respondents still characterized the sector as weak. The home purchase market has shown remarkable resilience, with inventories remaining tight across most of the District. In contrast, Manhattan's rental market remains slack, with nonstabilized rents off about 20 percent from their 2001 peaks. Multifamily construction is remarkably brisk—mainly in New York City, which no doubt reflects the very long lead time for project approval.

On the national scene we have seen substantial improvements in financial markets, in surveys of consumer attitudes, and in a number of business indexes. Given current levels of interest rates, the tax cut, increases in federal spending, and the drop in the dollar, a forecast of improved growth is certainly reasonable. However, we have yet to see any strong evidence of an actual pickup in spending, employment, or production. There has been a rebound in a few sectors—particularly in travel and recreation, which were heavily affected by the war—but as yet the forecast of overall improved growth remains just a forecast.

Our business contacts have become less gloomy recently, but the tenor of their remarks is not yet optimistic. Firms seem to be quite hesitant to make capital spending commitments or to increase employment. In many instances they have substantial margins of excess capacity, some of it related to the technology and stock market boom of the 1990s. There is great concern about foreign competition and the lack of pricing power. Our middle market company contacts express growing anxiety about competition from China due to the latter's significant pricing advantage and constantly improving quality. Many of these contacts expect capacity expansion to occur outside the United States for that reason. Businesses have become very disciplined about continually looking for ways to increase output with fewer workers, and they expect to continue that practice even as sales pick up later this year. For that reason we expect employment to significantly lag economic recovery—even more than was the case in the early 1990s.

Our large company contacts tell us that management and boards are spending much of their time on governance and accounting issues, which is the cause of a more conservative risk attitude. It does seem quite likely that household spending will remain on track and could gain momentum with the tax cut. Certainly federal spending will be strong. Housing will continue to be quite robust as consumers take advantage of once-in-a-lifetime low mortgage rates. While

state and local governments are raising taxes and trimming spending, this negative effect will be small compared with the fiscal stimulus from the federal government.

The expected strength in household and government spending notwithstanding, some skepticism about a very positive outlook seems warranted. For example, the Greenbook forecast calls for 4½ million jobs to be created over 2004. We believe that the traditional relationship between economic recovery and employment is now much weaker because of new management practices and structural shifts in manufacturing that will continue despite the recovery. On balance, a forecast of improvement in growth looks logical. But we should be cautious about accepting it as a basis for decisionmaking until we see business activity pick up decisively. Housing and deficit spending are not a strong enough foundation for a sustained recovery. We still need clear signs that capital spending and employment are improving. Thank you.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. Economic activity in the Seventh District remains sluggish. Our contacts are still cautious, but the pessimism that was so pervasive earlier in the year has eased. Much of the improvement in attitudes came on the business side. For example, in response to the Board's special survey on capital spending, substantially more of our District contacts reported plans to increase outlays than to scale them back, and this is a significant improvement over what we were hearing earlier in the year. However, as I mentioned before, in our District the increases we hear about for the most part are still plans; the outlays haven't started yet, and the CEOs I speak with remain cautious about spending.

Several of our commercial real estate contacts said that they had seen a pickup in inquiries and property showings but that this had not yet led to an increase in actual leasing. More generally, we hear reports of increasing merger-and-acquisition activity from lawyers and

from investment bankers and other intermediaries. Business travel continues to recover, leading at least one major air carrier to restore some previously canceled flights. Moreover, we've heard reports that many firms are easing travel restrictions, as concerns surrounding the war in Iraq and the SARS epidemic wane. Despite the modest improvement in business attitudes, firms remain reluctant to hire. Although the BLS in its last survey reported an increase in temporary help, both Manpower and Kelly Services said that orders remained flat through May. Kelly indicated, however, that orders edged up in each of the first two weeks in June. On the household side, sales of both new and existing homes remain robust. But retailers continue to tell us that their sales are disappointing, especially given that they're offering steeper discounts and more promotions.

In terms of autos, our contacts report little if any improvement in sales so far in June. At our recent auto outlook symposium held in Detroit, the consensus forecast called for light vehicle sales to average about 16.5 million units for the remainder of this year and 16.7 million units for next year. That pace will not be sufficient to reduce inventories. Some of these stocks are likely a buffer for the upcoming UAW negotiations and will be drawn down if there is a strike. Otherwise, automakers will have to cut back production later unless sales increase to a pace significantly above their forecasts. Weaker prices for used cars also point to overcapacity in the industry. Automakers are beginning to express concern that these weak prices are pushing their dealers' profit margins to very low levels.

Outside of autos, District manufacturing generally remains sluggish. "Bouncing along the bottom" is a phrase that we continue to hear quite often. However, there have been some pieces of good news. A few manufacturers reported that a weaker dollar had helped boost orders in May. A major national distributor of computer hardware and software reported that the past

three and a half weeks have been the strongest since last October. The Chicago Purchasing Managers' survey for June will again be above 50; the index will be 52.5, up slightly from 52.2 in May. These survey results are confidential until they're released next Monday.

Turning to the national outlook, the data indicate a slight pickup in growth as we moved through the spring. In real terms, the national retail sales numbers show some strength outside of autos. Housing markets are still robust, and financial indicators are positive. Still, the increase in activity appears to be fairly modest. The lack of hiring is very troublesome, and CEO caution—perhaps due to corporate governance concerns—continues to restrain the recovery in capital spending. While our contacts certainly have become less concerned that another downturn is imminent, few are optimistic that a significant step-up in activity is just around the corner.

In terms of our forecast, a number of factors point to more-solid increases in economic growth. We've talked about many of them: accommodative monetary policy, improved equity markets, fiscal stimulus, a lower dollar, and the capital replacement cycle. To date, however, we haven't seen enough improvement in the numbers or in our contacts' attitudes to convince us that a pickup is in train. Of course, the longer we remain in this slow growth spot, the more questions are raised about the strength of the underlying fundamentals. For now, we're still betting that the fundamentals are strong. We project that real GDP growth will average somewhat above potential in the second half of this year and that output will rise more substantially in 2004, but we're roughly a percentage point below the Greenbook projection of 5.3 percent for 2004. Under either forecast, resource gaps will not close much until we move into next year. Persistent resource gaps and the possibility of hitting the zero bound are legitimate concerns. It's unlikely that the overall price level will actually fall, but inflation could nevertheless head to levels that

would be uncomfortably low in the current economic environment. So, the cost of taking out insurance in the form of reducing rates is low.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Thank you, Mr. Chairman. The Twelfth District economy has shown little sign of ending its lull. Consumer spending did not pick up much as the conflict in Iraq subsided, and it even weakened a bit in some areas. Many retailers have been struggling with thin margins, especially in Washington State and Oregon, which have had the highest unemployment rates in the nation. In Washington, Boeing's production of commercial aircraft has dropped to its lowest levels since the mid-1990s, and the state has offered Boeing substantial financial incentives to produce its newest commercial aircraft there rather than in one of the numerous competing states. The District manufacturing sector more generally has been struggling as well. For many IT products, demand has been especially weak of late, due in part to the restraining effect of SARS on retail purchases of IT products by consumers in mainland China. Few District manufacturers have plans to expand their capital investment spending this year, although firms in other sectors are more upbeat.

We also see some upbeat news in data for a few key sectors. New home sales and construction have maintained a torrid pace, with only the slightest hint of slowing reflected in a moderated pace of price appreciation in some areas. Increased federal government outlays for defense hardware have provided substantial stimulus to local economies, with southern California and especially Arizona ranked among the primary recipients of the new contracts. As yet, however, the District has shown little or no sign of an improved employment outlook overall. The depth of the job losses in some areas is startling. In the San Jose MSA, which contains Silicon Valley, employment has fallen 18 percent since its peak in late 2000; and the

overall job losses in the San Francisco Bay area rival southern California's losses during its economic doldrums in the first half of the 1990s.

The persistent economic weakness means that there has been little relief for most states facing large revenue shortfalls in the upcoming fiscal year. In California, budget negotiations are deadlocked; and with the campaign to recall Governor Davis now emerging as a significant distraction, the state is unlikely to approve a new budget until several months have elapsed in the new fiscal year. In the meantime, the state expects to sustain adequate cash flow through September largely through the recent sale of $11 billion in warrants backed by future revenues. After that, additional and more costly short-term borrowing will be required unless a workable budget is in place. California is also grappling with severe problems in its workmen's compensation system. Last year the typical Californian employer saw a 40 percent increase in workers' comp costs, and the trend has continued this year. This is large enough to noticeably increase growth in total compensation costs, causing some current and potential employers to reevaluate the desirability of operating in California.

Let me turn to the national economy. Taken as a whole, the data on the current quarter have been weaker than we expected, continuing the pattern of disappointing news that we've seen for several quarters in a row. As a result, we've once again revised down our estimate of growth, this time by a full percentage point. That said, there have been a few signs of improvement in activity very recently, although they by no means constitute evidence of the long-anticipated rebound.

Going forward, financial developments and the recent fiscal package have caused us to revise up our forecast for the next year and a half, although we are far less optimistic than the Greenbook. Assuming a funds rate of 1 percent, our forecast shows growth of 3¾ percent in the

second half of this year and 4½ percent in 2004. Although a rebound in activity seems likely, this scenario remains all forecast and little actual data. We have yet to see clear signs of the acceleration in equipment and software spending that appears to be a key to a stronger economy. Nor have we seen a convincing rebound in confidence that would support investment spending following the end of the Iraq war. Moreover, even with the acceleration in our forecast, substantial excess capacity would remain in the economy through the end of next year. As a result, we expect to see inflation remain low for some time, with core PCE prices expected to increase about 1 percent both this year and next.

Overall, we face considerable uncertainty about the future strength of the economy. There's a strong likelihood of excess capacity continuing through next year even if the economy does pick up steam. And we have low inflation. We believe this combination of considerations makes a strong case for an easing of policy at this meeting. Thank you.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Thank you, Mr. Chairman. We have observed only marginal changes and subdued economic conditions in the Sixth District since the time of the last meeting. In fact at our board meeting one director suggested that the economy reminded him of the movie "Ground Hog Day." The same scene seems to be repeated over and over again. But here's an abbreviated version of our regional story.

Retail sales have been growing at a modest pace and are still being driven primarily by promotional activity. Our tourism and hospitality industries have improved in some areas, and room rates are actually up somewhat in some locations. Low mortgage rates have continued to sustain single-family housing markets, but multifamily construction and nonresidential construction are still hobbled by excess capacity and weak demand. Structural adjustments

continue in our manufacturing sector, which remains sluggish except for auto-related activity. Similarly, activity in petrochemicals is declining because of high natural gas prices and burdensome environmental rules. As requested, we also made some special inquiries with regard to investment prospects, but we were unable to find any significant sentiment on the part of businesses to invest except to replace depreciated equipment or to cut costs. Such cost-cutting investments continue to have considerable attraction. A couple of company contacts reported that such investments were expected to cut labor costs as much as 30 or 35 percent. To me this suggests that the outlook for continued productivity gains is indeed real.

There's little sign of improvement on the labor market front except in Florida, where the bulk of our District's economic growth is occurring. District employers generally remain reluctant to hire full-time employees. State governments are adjusting to lower revenues by seeking new revenue sources or by making deep cuts in spending. Certainly that restraint will damp somewhat the stimulative effect of the recent federal tax cuts.

Finally at the regional level, prices observed in our area have been essentially stable as increases in prices for services have been offset by continued softness in goods prices. Another positive development since our last meeting in this "Ground Hog Day" scenario I just painted is that District measures of consumer confidence are rising and we're seeing indications that business expectations have improved. The whispered conversations suggesting that things just feel better, which I reported at our last meeting, have continued.

On the national front, I see a number of marginally positive developments. Housing remains stable at a high level; industrial production edged up last month; manufacturing seems to have stabilized; and durable goods orders are positive. Consumer spending is holding its own, and retail sales, excluding autos, seem to be coming back. Financial market developments have

also been positive, with stock market indexes up significantly. Interest rates have actually come down across the curve by more than 50 basis points. Business credit terms have eased; business profitability is up; and credit quality is acceptable and not deteriorating. Finally, energy prices are still down from the highs we saw earlier.

While my forecast is a bit less exuberant than the Greenbook's—and my own numbers would be on the low side of those we submitted—it seems to me that the economy has turned the corner and is poised to gain momentum. At the same time, I recognize that the outlook for investment spending and significant job growth over the near term is not as encouraging as we might like. And markets have built in expectations of further easing.

Looking ahead just a bit to the policy discussion, I would suggest that what we say in our press statement today may be more important than our action. The material presented by David Wilcox emphasized the importance of aligning expectations to achieve the desired response to our decisions. Our statement about disinflation after the May meeting clearly was responsible for the significant decline in rates across the yield curve despite the fact that we did not change the funds rate. Because of expectations, I believe it is important today to link directly any policy move that we might decide to make to concerns about the fundamentals in the real economy.

I argued for patience last time, and I believe we are seeing a turnaround. Not changing rates today, coupled with a positive statement about the recovery prospects and not saying anything to fuel greater concern about further disinflation, would seem to be a reasonable policy alternative. I would be uncomfortable if we justified a further rate cut by citing concerns about further disinflation or deflation rather than its causes. I would not cut rates because of a desire to avoid operational problems of the zero bound in the future or as an effort to get ahead of the curve in anticipation of further adverse shocks to the real economy. I'm convinced that a prompt

response to actual shocks is very appropriate, as was the case with the September 11 terrorist attacks. Since shocks by definition cannot be anticipated, to act in anticipation of an unknown shock would in my view simply waste whatever powder we have left. As for the disinflation argument, I believe it remains a low probability event for the reasons I discussed earlier. The kind of disinflation I think we should be concerned about in terms of specific policy action is the kind associated with a depression, not problems of the zero bound or wage rigidity.

I'd like to make one additional observation about expectations, though. I think we need to leave a sense that any downward move in rates is viewed by us as temporary. If we lower nominal rates to near zero and state publicly that we intend to keep them down until the economy recovers, then there's a nontrivial risk—especially if the economy weakens further—that the public's expectations for deflation will be heightened. That clearly happened in Japan. In other words, trying to avoid the Japan-type of liquidity trap could only increase the likelihood that it will occur because of the effect on expectations. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. President Hoenig.

MR. HOENIG. Mr. Chairman, as others have said about their Districts, the Tenth District economy has remained sluggish since our last meeting but there are some signs of a turnaround and a little more optimism. Labor markets continue to be soft, manufacturing activity has not picked up noticeably, and commercial real estate remains in a slump. State and local governments are also cutting back, and in some cases they are trying to raise taxes or have raised taxes in order to balance their budgets.

On a more positive note, indicators of future activity have shown some improvement. While District firms are still cautious about new hiring, they announced far fewer job cuts in the last month than in other recent months. Also, manufacturers' plans for future capital spending

are higher than they were earlier this year. Commercial realtors are now expecting conditions to improve somewhat in the coming months instead of continually getting worse. In other positive signs, retail sales are holding up, housing activity is still strong, and energy activity continues to expand. I'll say a little more on those sectors in a moment.

On the inflation front, goods prices have been basically flat since our last meeting. But manufacturers have mentioned to us that they are seeing a bit of increase in the cost of goods. Let me say just a little more about the manufacturing sector. In our survey on capital spending, of those firms that plan to increase capital spending over the next six months about half said that they had already placed the orders. That reflected some improvement from prior surveys. I would also note that several of our directors indicated that optimism was considerably higher among small and medium-sized manufacturers than in some of our larger firms.

As I noted, consumer spending has continued to rebound after the dip associated with the Iraq war, and housing activity has remained strong. The energy sector is showing improvement but interestingly hasn't improved as much as one might have expected. Some individuals in our region have told us that an important reason is that they've seen prices go up before, have invested to produce more, and then had prices fall on them. They're not anxious to go through that experience again. The farm economy is showing improvement, as you've read elsewhere, so I don't see any need to comment further on that.

Let me turn to the national outlook. I agree that economic forces are in place for a more robust recovery, making a rebound to trend growth this year and to above-trend growth next year more likely now than it seemed at our last meeting. Businesses remain cautious, however, in their plans for capital spending and for new hires. That, of course, is a concern for the outlook, and I would suggest that the Greenbook's forecast probably is a bit optimistic, especially

compared with our own forecast. But the point is that our recent surveys of capital spending and other factors are considerably more positive in terms of expectations. So I expect to see growth pick up to about 3½ percent in the second half of this year. While below the Greenbook forecast, that is still, I think, a very positive outcome.

As for policy, I won't talk about numbers, but I believe that the probabilities of improvement going forward are much better than they were just a short time ago, at our previous meeting. So I look at the possibility of taking an easing action today as insurance. I think it can be presented in that way—in a very positive light, consistent with an improving economy and economic outlook. In my view that's a good way to think about it and to present it. Thank you.

CHAIRMAN GREENSPAN. President Broaddus.

MR. BROADDUS. Thank you, Mr. Chairman. While gathering our regional information this time we were trying to find, as was everybody else, some sign that economic activity was beginning to pick up and turn around. In sum, for our District at least, solid evidence of an actual acceleration in economic activity is very hard to find. Our various surveys, directors' comments, and contacts with business people all suggest that the District economy is still quite sluggish. I think it's very likely that some of the sluggishness in our region is due to the extraordinary rainfall we've had this spring, which almost certainly has restrained consumer spending and tourism. (I'll refrain from saying "damped.") [Laughter] The rain may also be the reason private housing permits in the first four months of this year were a bit weaker than in the same period last year. That's not to say that the weather is the reason for all the apparent softness in the District. Factory output, for example, which presumably is less affected by the weather, is still contracting as indexed by both shipments and new orders. Unemployment rates have been rising in all but one of our District states. We don't see any significant signs of capital

spending beyond ordinary replacement spending and routine upgrades of computer equipment. So again, there's little evidence of an actual pickup in activity in our region yet.

Beyond these reports on actual developments to date and in concert with a number of the other comments we've heard already, I do think that on balance business attitudes about the outlook have improved. Sentiment is a bit mixed, but in general people seem more optimistic. At our board meeting a couple of weeks ago, for example, one of our directors said that he thought we were now at an inflection point in the recovery. I think that's an increasingly prevalent attitude across the District, at least for now.

That's a good segue to the comments I would offer on the national economy. Like others, we agree with the staff that the prospects for GDP growth through 2004 have improved to some extent in recent weeks. That's partly because of the greater fiscal stimulus now in place than expected earlier but also because of the stock market rally and what seems to me to be a growing recognition that overall financial conditions are really quite conducive to increased business investment at this stage of the game. I thought one of your charts in the chart show made that point very nicely, Steve. So the projections we submitted, like the Greenbook, call for an acceleration of growth going forward though our forecast is not as robust as the Greenbook forecast. We expect a smaller boost from the additional fiscal stimulus than the staff projects. Also, with respect to prices, even if the growth of GDP moves moderately above potential growth as projected, it will still take time to work off the overhang of excess labor that has been building up now for about two and a half years. That will continue to be what I would view as a disinflation impulse at work in the economy.

Moreover, while we think a moderate acceleration in growth is the most likely outcome, we would not attach an especially high probability to it. We also believe there's a relatively high

probability of a weaker outcome. After all, even with the Iraq war about two and a half months behind us, we still have not seen really solid evidence of a pickup, as many people have said. Jamie emphasized that a couple of times, and I think that's right.

Most important, while there are a few signs that labor market conditions may be firming, they are far from conclusive at this point, as the Greenbook indicates. Strong productivity growth still appears to be restraining job growth, and if this pattern continues, at some point it's going to undermine consumer confidence and consumer spending. In that event, core inflation could easily fall below the approximately 1 percent rate that is now projected in the Greenbook baseline through the end of 2004. Allowing for an upward bias in the index of, say, ½ percentage point, that would imply an inflation rate that's very close to zero; and that, obviously, is pretty close to incipient deflation.

Ten years ago when I would make a comment in a speech or conversation advocating price stability and somebody would ask me how low I wanted inflation to go, I would always say without hesitation "zero." I take it back! [Laughter] To borrow a phrase, I think a sustained rate of inflation below the current rate would be "unwelcome." In my view, there's a moderately high probability of that outcome going forward.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. Thank you, Mr. Chairman. My sense of the District economy is that an improvement is under way and that it is broad but not deep. By that I mean that the improvement is broad in that a number of different sectors or different components of aggregate demand are participating in it. But it's not deep because for every positive reading or every two positive anecdotes we get on the District economy we can find a negative one. So to that extent the situation is still mixed.

Homebuilding, home sales, and home improvement spending remain the foundation of growth. There's no question about that. Those numbers not only have held up but have continued to surprise participants in that industry on the upside. Consumer spending overall has been expanding, but slowly. One gets that same sense of the situation on average whether one talks to major retailers and hears their year-over-year comparisons or to managers of large malls in the District. Of course, it's not universally true.

Our survey of capital spending suggested, as did many others, that there is some improvement in train and that some of the orders have already been placed. That's clearly positive. Anecdotes from bankers, which I think reflect the attitudes of their customers and particularly their business customers, are clearly more upbeat than they were six or twelve months ago. That's also true for the most part of activity in the energy and agricultural sectors of the economy. Putting all that together, I think things are improving

As for the national economy, I'll be very brief. I think the trajectory of real growth as reflected in the Greenbook is a reasonable representation of what may happen, although I personally couldn't bring myself to write down numbers as strong as those in the Greenbook. Nevertheless, to me the general Greenbook profile is a reasonable picture. Our VAR model shows much weaker growth; but because it puts a good deal of weight on the last nine or ten quarters, it's not surprising that we get something weaker out of the VAR. To me, though, the really distinguishing characteristic of the forecast is low inflation. Not only are domestic conditions right for a continuation of low inflation, but if we look beyond our borders and consider the global situation—what is happening in places like China and India and so forth—it seems to me that an environment of continued low inflation is a very good bet. I have a very

difficult time constructing a credible story that has any appreciable acceleration of inflation in the next year or two. Thank you.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Thank you, Mr. Chairman. My contacts in the transportation industry—at UPS, FedEx, and a very large trucking company, J.P. Hunt—all report that current volumes are essentially flat. They don't see any improvement as yet. The way my FedEx contact put it, there's no increase in the number of packages on the belt at this point.

Looking ahead, my UPS contact said that, in talking to their customers, he didn't see any signs of an increase—nothing more than the usual seasonal increase—during the busy fall season. My FedEx contact was a bit more positive. In fact, I wrote down what he said, which was that he was "pretty bullish" on the fall and beyond. I pressed him on what that really meant. He said "pretty bullish" means that he's a bit more optimistic about modestly improved activity, up from flat. [Laughter] I also talked to him about capital spending plans, and I want to make a point here that I view as quite important, and I think it bears on the interpretation of the survey evidence as well. The capital spending plans for UPS and FedEx are both essentially flat, year over year. Aircraft purchases are an important part of their spending plans, but they're not buying any new aircraft; all of their purchases are used aircraft from passenger airlines. They put those expenditures into their capital spending plans, and that's what they report to us. It does not involve new production. Now, it's true that we need to absorb some of the excess capacity in industrial buildings and transportation equipment and so forth before we see a pickup in production. But we want to be careful that we don't interpret these reports as meaning that the planned spending is going to feed directly into new production because some of it will simply involve the absorption of excess capacity that already exists in a number of areas.

I talked twice to my Wal-Mart contact, first on June 12, when he was particularly interested in what was going to happen over the weekend; and I talked to him again the following Monday. What he said on June 12 was that it doesn't look pretty. That's the way he started off his remarks. Wal-Mart is seeing signs of what they interpret as liquidity pressures on the household sector. People are buying more from need than from want is the way my contact put it. As I've said a number of times in the past, Wal-Mart looks carefully at the way in which spending is related to the receipt of paychecks. There's a midmonth paycheck cycle, and Wal-Mart is seeing more spending around the time when paychecks arrive. My contact also mentioned that their new smaller grocery stores—I think they're called New Market stores and they're much easier to get into and out of than the big Wal-Mart stores—are getting more traffic. While they don't have many of these New Market stores, there is an increasing frequency of shopping at these smaller facilities and a declining frequency of shopping at their large super centers. Wal-Mart's interpretation is that customers want to get in and out of the stores quickly to get the items they have to have, like toilet paper and diapers, and are not so interested in shopping for more discretionary items.

My contact said that Wal-Mart is not optimistic that the tax bill will have a measurable effect on their sales because most of the benefits are going to higher income people and not to those who do the bulk of their spending at Wal-Mart. That was Wal-Mart's expectation anyway. He also indicated concern about an inventory overhang because orders were placed some months ago and the goods to be delivered will exceed what Wal-Mart views as the likely demand over coming months. So he thought they were going to end up with more inventory than desired.

Let me make just a couple of comments on deflation. I think several different aspects of this issue need to be sorted out. On the demand side, to the buyers of goods, what is important,

of course, is not the price now relative to the price last month or last quarter but the expected price in the future. That is how price is tied in with whether one is speeding up or delaying outlays. I'm talking about the interaction between the prices and the quantities purchased. If you think the goods are on sale, you may purchase them earlier than you would otherwise. If you think the goods are going to be priced even lower next month or next quarter, you may delay your purchase. This applies only to goods that are storable, not to perishable goods or services. You can't really store tomatoes. Maybe you can store tomato consumption utility, but you can't store the tomatoes themselves. So in terms of the behavior of buyers, what matters is the durability and the rate of obsolescence. I went back and looked at the behavior of the durable goods price index and the consumption of durable goods. What is interesting is that durable goods prices have fallen in every quarter since the second quarter of 1996. They've been declining for a long time. Of course, some of that involves high-tech goods, such as computers, but part of it is automobiles. So it's not that declining prices per se reduce purchases. If prices are declining in a way that doesn't lead to expectations of dramatic future declines, it may not cause people to delay purchases. Prices of high-tech goods have been declining for a long time, and people continue to buy them.

On the producers' side of the market, the issue applies not just to goods but also to services because no producer wants to put in place expanded operations to produce services or anything else if he doesn't think he can recover the cost. So the expectations of future prices relative to current prices apply across the entire range of goods on the producer side. There the productivity part is critical—productivity and, of course, future production costs in general, including wage costs and all other costs. If a producer believes that he can recover those costs, even though the product prices are declining, then there's no reason to pull back from the market.

So the price story clearly interacts with the productivity story and the expected productivity story. It is possible to have a perfectly reasonable equilibrium at high levels of employment and production and with ongoing price declines, provided that the expectations of productivity growth are adequate to support the continued investment in productive facilities. I wanted to make that comment about deflation. I think the deflation story is not the total story with respect to the current demand and production outlook. Thank you.

CHAIRMAN GREENSPAN. President McTeer.

MR. MCTEER. In the Eleventh District, particularly Texas, we share in the national mood shift for the better. Maybe it's because we're eating more ketchup, which is a way to store tomatoes! [Laughter] In terms of employment growth, we seem to have regained our rightful place as leading the national average; we were not leading it for a while. The mood in our region may have been helped by the San Antonio Spurs winning the NBA Championship, after knocking out the Dallas Mavericks of all teams in the divisional finals. And two days ago the Rice Owls of Houston won the National Collegiate Baseball Championship. So we have our three major metropolitan areas covered there, San Antonio, Dallas, and Houston.

At the recent meeting of the Conference of Chairmen we got an unscientific reading on the relative mood in Federal Reserve Districts. Our chairman and deputy chairman both thought they were gloomy, but they reported back that they seemed downright upbeat compared with many of their counterparts from other Districts. Maybe it's a lesson captured by the song "I've Been Down So Long, It Seems Like Up to Me." But on a more quantitative measure, our employment growth has been positive so far this year. Through April, employment grew about ½ percent, compared with being negative before that, and in May it grew 1.6 percent. So employment seems to be picking up.

We have a new "Texometer" that classifies economic indicators in Texas in a range from hot to cold. We don't have any that are actually hot; but almost hot are energy, education, health, government spending generally, temporary jobs, and construction. To give a little detail, in energy the rig count is at its highest level in one and a half years; and we've had employment growth in that sector now for three consecutive months, which may be leading a bit the developments that Jack talked about that were occurring primarily in Louisiana. In education, spending is up, and employment is up 6.7 percent this year. Health employment is up 4 percent this year, and government jobs are up about 2 percent. Moreover—and I believe it's contrary to the national experience—our temporary employment agencies have experienced 8 percent employment growth so far this year. Going down the scale a bit, under the tepid category are manufacturing hours, single-family housing, exports, job growth in our border area, reports from Beige Book contacts, and the Texas leading index. Below that in the thawing-out category are high-tech and initial claims. Still cold are Mexico, commercial real estate, multifamily real estate, and manufacturing more generally. To sum up, our District economy has moved from down to neutral with an upward bias.

For a longer-term perspective I might mention our spaghetti charts, which show employment growth by Federal Reserve District from different base periods. The oldest base period is the beginning of 1990, and in that chart Dallas still leads in employment, with Kansas City and Atlanta coming in second and third. Since the beginning of 1998, San Francisco leads, with Dallas second and Atlanta third. And since the beginning of 2000, the line-up is the same—San Francisco, Dallas, and Atlanta. In recent years the midwestern Industrial Belt states have trailed in that measure, ranking toward the bottom of the twelve Districts—remember that this is just a measure of employment—and going back to 1990, the northeastern Districts trailed.

Turning to the current national economy, a rebound in the economy is just around the corner, as it has been for some time now. [Laughter] It's a familiar story. Consumer spending is following a steady upward track while most other hard indicators of real activity are rather stagnant. Our hopes and hunches for an early pickup in the economy come from a number of developments: a rebound in financial asset prices, including both stocks and long-term bonds; a narrowing of risk spreads, reflecting less perceived risks in the economy; a prolonged policy of easy money and low interest rates, with a recent implicit promise of more to come and for longer than previously thought; progressively easier fiscal policy recently augmented substantially with a significant tax cut; and a considerable weakening of the dollar, especially against the euro. I understand that Herb Stein is known for saying that if something is unsustainable, it won't be sustained. I hope it's equally true that if something is inevitable, it will happen! [Laughter] I suppose it will sooner or later, but the question is whether it will be sooner or later. It bothers me that the more optimistic outlook reflected in financial markets and in surveys includes an expectation of further easing by the Fed. We may be looking in the mirror in that regard.

For a long time the Greenbook projections underestimated real growth and overestimated inflation. That has been corrected, thankfully, but we may have overshot a bit. I haven't looked it up, but my impression is that we have overestimated both growth and inflation lately. In any case, we've made better progress in reducing inflation than we had expected to make. I think we should have celebrated for a year or so and taken a few victory laps before replacing our fear of inflation with a fear of deflation. The public and the Congress have no idea what a good job the Greenspan Fed has done.

I tend to be optimistic when there is reason to be, which I believe is the case now. I also tend to be optimistic when I don't have a clue, which may be the case now. But I am hopeful

about the outlook on the grounds that in this economy over the long run the odds favor optimism over pessimism. Even so, I was a bit taken aback by the strong rebound in real growth that the Greenbook projects will begin next week. [Laughter] I hope it's right.

CHAIRMAN GREENSPAN. President Pianalto.

MS. PIANALTO. Thank you, Mr. Chairman. Economic conditions in the Fourth District have not changed very much during the intermeeting period. Many manufacturers continue to report significant amounts of excess capacity and declining prices for the products they are producing. For the most part they're not planning to acquire new capital equipment beyond the amounts that they had scheduled early in the year. More and more manufacturers with whom I talk indicate that their firms are undergoing a fundamental restructuring. More of the components that they use in the production process are being produced overseas or purchased from overseas, and only the assembly, testing, and value-added components are remaining in the United States for now.

Bankers consistently tell me that, although their residential mortgage loan origination volumes remain very large, they are hungry for qualified commercial and industrial borrowers. Bankers also tell me that their loan-to-deposit ratios are quite low and their liquidity ratios are quite high. When I talk to business people I find that they've become as impatient about the economy's sluggishness as we have. They are unsettled about their inability to generate sales or to have any pricing traction, and in the meantime their medical costs and pension costs continue to rise.

Increasingly, my directors and other business contacts report that they are planning additional rounds of cost cutting and personnel downsizing in order to generate respectable profits. Apparently some organizations had decided to wait until midyear—forecasters were

projecting that the economy was going to pick up by then—before implementing these plans for additional downsizing, and reluctantly some of the CEOs are now feeling the need to pull the trigger. My business contacts do not see the current price and availability of credit as impediments to capital spending. Perhaps they don't appreciate the various other channels through which lower interest rates might help the economy, such as through the influence on exchange rates and balance sheets.

Turning to the national economy, from my perspective the Greenbook outlook is on the high side. What accounts for the difference is that the Greenbook is more optimistic than I am about capital spending, and the numbers that I submitted are consistent with my view on capital spending. The Greenbook does characterize the economy as operating far below potential in terms of both levels and growth rates. Suppose, however, that the economy is not operating quite as far below potential as assumed in the Greenbook. That is, even at somewhat higher capacity utilization levels certain firms would still not be economically viable. I'm hearing from my business contacts that some industries may still need to shed more capacity than they have so far and that the process is going to take some time.

There are possible reasons why at this time—after a stock market crash, terrorist attacks, accounting scandals, and industrial restructuring—we might prudently lower our estimates of potential output and its growth rate, at least for a few years. To the extent that these various forces are at work, easier monetary policy may not lead to appreciably faster economic growth. I am concerned that we may be too focused on stimulating aggregate demand and not appreciative enough of the supply-side constraints that may be at work and that we just have to work through. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. Why don't we take a break now for coffee and adjourn for ten or fifteen minutes.

[Coffee break]

CHAIRMAN GREENSPAN. President Santomero.

MR. SANTOMERO. Thank you, Mr. Chairman. Economic conditions in the Third District remain mixed. There are some signs of improvement, but weakness lingers in certain sectors. While the outlook is marginally positive, many of our business contacts continue to express caution about prospects for the rest of the year. Manufacturing in our District appears to have stabilized this month. Our business outlook survey index of general activity increased to plus 4 in June, its first positive reading since February. The indexes of new orders and shipments also improved, but they have yet to move into positive territory.

Capital spending in our region has not shown evidence of any significant strengthening. About 12 percent more manufacturers said they plan to increase capital spending over the next six months than plan to decrease it. But that is a low level of the index compared with what we saw in the 1990s, and it's even lower than the average for last year. The special survey on capital spending plans at manufacturing and nonmanufacturing firms in our District suggests that we will see a modest increase in investment over the next year. Similar to the nation, about a third of our firms plan increases in capital expenditures, but it appears that in our region those increases might be more delayed compared with elsewhere in the nation. For the nation, about two-thirds of the firms said they already had started placing orders to achieve the investment increase, whereas in our region fewer than half have begun ordering.

Our labor market, however, appears to be doing marginally better than the national experience. Employment in all three states rose in March, April, and May, after declining in

January and February. And the unemployment rate in our states fell to 5.6 percent from 5.8 percent in the first quarter. Most of the retailers in our area are being cautious in inventory planning as they expect only sluggish growth in sales this year. Although auto dealers reported an increase in sales in May compared with April, inventories are well above desired levels except in the import category. Retailers of general merchandise report that sales rose in May but remained below year-ago levels. In their view, consumers appear to be limiting their purchases because of concerns about job and income security—a point that echoes some of the comments of President Poole.

The strongest sector in our region continues to be residential real estate. At our last meeting I reported that we had seen some easing in the residential market in recent months. That has now been reversed. Builders contacted in May said that demand for new homes picked up in late April and has continued. In contrast, commercial real estate remains soft, with little change in recent months. Philadelphia vacancy rates have been stable at about 11 percent in the city and 15 percent in the suburbs. Quoted rents have been fairly stable, but effective rental rates continue to fall. Large amounts of space available for subleasing remain on the market.

Last time I reported that I sensed some renewed optimism and a definite change in tone in our region since the end of the war. I still sense that people want to be optimistic, but it may be getting harder for them to be optimistic as the weakness continues. Many of our contacts say that they're starting to feel a lack of certainty about the recovery during the rest of the year.

Turning to the national economy, the improvement in the financial market indicators that began after the conclusion of the war has continued since our last meeting. But in my view the data on the real sector of the economy remain weak. While certain sectors have stabilized, we have not yet seen signs that the recovery has picked up the necessary momentum to move to the

next step. The financial market indicators signal that this will occur. The question is when and then how fast an equilibrium will be reached.

The Philadelphia Fed's forecast agrees with the Greenbook forecast that GDP will pick up, but we expect a more gradual increase than the Board staff suggests. We see GDP growth rates being in a range slightly below potential in the second half of the year and then accelerating to somewhat above potential in 2004. I might note that our forecast is close to that of the median respondent of the most recent Survey of Professional Forecasters. The combination of both stronger productivity growth and weaker GDP growth in our forecast compared with the Greenbook means that we have slower job growth. While the Greenbook sees nonfarm payroll employment growth at 375,000 jobs per month in 2004, we project it at only 200,000 jobs per month. We see inflation remaining low over the forecast period but slightly higher than in the Greenbook.

The main reason our growth forecast differs from the Greenbook is that we expect a smaller effect of the tax package. The Board staff assumes that the provisions of the tax law that expire next year will be extended and that households will treat those provisions as permanent. This implies a sizable positive effect of the tax law on consumer spending. In contrast, given the size of the projected budget deficits and the intense publicity surrounding this issue, we think the tax cut is likely to be perceived as more temporary, which will limit its effect. We also note that households spent a relatively small percentage of the 2001 tax cuts, and we believe there's little reason to think it will be different this time around, especially since a smaller fraction of the new tax cuts go to credit-constrained households than in 2001. Also, in our view about half of the tax cuts at the federal level will be offset by state and local tax increases. The Board staff projects a smaller effect there.

When we last met I said that it was difficult to assess post–Iraq war economic conditions. The signals from the financial markets were positive. The data on the real sector were weak, but they still largely reflected the influence of the war. I argued that we needed to wait until more data came in before deciding how to respond to the slow growth exhibited in the data and the concern over the prospects of general deflation. Those data have arrived. Postwar conditions show continued sluggishness and little sense of upward momentum. Concern about the risk of deflation has grown.

In my view, conditions suggest that it's time for us to consider further monetary policy action, but I think we must be particularly careful how we explain such a move. The wording of the statement becomes even more important this time than usual. If markets were not already expecting a move, I would be concerned that a cut might be misinterpreted and perhaps even counterproductive. If we decide to move rates lower as insurance against the risks of deflation, to use President Hoenig's word, we should be more explicit in reiterating our goal of price stability on the upside and downside. I believe this will give us more flexibility to begin moving rates back up in the future once we believe the risks have abated and economic conditions warrant it, which is likely to be before unemployment rates move down very much.

Long-run inflation expectations have remained stable, suggesting that market participants believe that the Fed can fight the risk of deflation in the short run by lowering short-term interest rates without changing its commitment to price stability in the medium and long term. I think our statement should emphasize our commitment to this goal so as to prevent even the slightest depreciation of the Fed's hard-won credibility capital. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. Let me start with a confession. I'm an outlier. I know this is true in many respects, [laughter] but I'm referring to my forecast for growth next year, which is above the Committee's central tendency and close to that of the staff. I base this bit of exuberance, which I believe to be rational, on the following factors. First, we've seen tentative and preliminary signs over the intermeeting period that the economy is indeed beginning to strengthen. It appears to be responding to the gradual waning of the hangover in financial markets and the real economy from the excesses of the late 1990s and to the moderation of geopolitical risks that have been associated with the war in Iraq. Retail sales and industrial production picked up in May. Labor markets have stabilized. Capital goods orders and shipments, while no great shakes, are still at least consistent with a rebound from the exceptionally weak first quarter. And purchasing managers' surveys have turned up. These signs, including the May orders data, for the most part reflect actual transactions and decisions taken before the May meeting and its consequences.

Second, there's now a lot more stimulus coming than we had thought at the time of the May meeting to add to the already gathering momentum. Some of this is fiscal policy, as a number of people have discussed, and some of it is our own doing. The perception that monetary policy will be easier for longer has helped to lower interest rates, increase equity prices, and depreciate the dollar, all without raising inflation expectations. Easier financial conditions are not just occurring in the United States. Equity markets are up, and long-term rates are down all over the globe, though other countries obviously are getting the other side of dollar depreciation. This improvement clearly reflects developments in the United States, but it also probably builds on a perception—reinforced by a significant easing by the ECB over the intermeeting period—that monetary policy abroad will be easier for longer.

Third, although outcomes like my forecast or the Greenbook's seem pretty ebullient, in fact they assume that the restraint on business spending lifts slowly and that the economy does not exhibit all that much resilience. These forecasts do not assume that the economy exhibits a reversion to mean behavior once the huge amount of stimulus being applied is taken into account. In effect, the equilibrium real interest rate, although rising a bit over the forecast period, remains unusually low and well below what one might think of as the long-term natural rate, especially taking account of the assumed rise in productivity. In that regard the forecast is somewhat conservative.

Still, until we see an actual and appreciable strengthening of growth, I consider the risks around such a forecast to be weighted decidedly toward the downside. In fact, the economy has not rebounded sharply from pre-war weakness. Growth in the second quarter is a little slower in this country than anticipated and much weaker abroad. Such downside risk is reinforced for me by the fact that I really don't understand entirely what is holding the economy back. Perhaps, as we've speculated, the slow business spending results from a lack of confidence after the real and financial turmoil of the boom-and-bust period. That caution no doubt has been accentuated by concerns about risk-taking by CEOs and boards, given the severity of potential legal and market punishments for getting it wrong. These restraints should erode under pressure from rising sales and favorable financing terms as they do slowly in the staff forecast. But they haven't eroded yet. They could persist and be even stronger than in the Greenbook if businesses continue not to see much in the way of profitable opportunities for investment. Businesses already are realizing huge gains in efficiency by utilizing existing capital much better; rapid productivity growth is boosting profits and income and economic potential, but it's not increasing the incentives to invest, at least so far. The net is that, in marked contrast with the late 1990s, sizable and

continuing monetary and fiscal stimulus has been required to have even the hope of eating into underutilized margins of resources. We can't be sure this configuration will improve until we begin to see convincing evidence of a marked firming in business spending. Until then I think we also can't rule out the possibility that we may need to reduce interest rates substantially further and hold them there for a time.

Intermeeting developments have helped to alleviate some of my concerns about the pace of disinflation. The rise in core consumer prices in May along with the drop in the dollar and elevated energy prices suggest to me a lower risk that inflation expectations will decrease substantially in the near term. Stronger demand should limit the longer-term disinflationary trend. Still, inflation is declining at a time when it is already near the low end of a range that's probably consistent with nominal interest rates that allow us sufficient flexibility to respond to added downward shocks. If inflation expectations are falling along with inflation, real funds rates may actually be edging higher. Moreover, the improvement in financial conditions after the last meeting was built on the expectation that, if the economy remained soft and inflation threatened to go substantially lower, we would respond—not only by keeping rates low but by reducing them further. My forecast, like that of the staff, assumes that the easier financial conditions of the past few weeks will persist. With strengthening demand still a forecast rather than an actuality and inflation still moving down, it seems to me that the economy needs the extra stimulus from highly accommodative policy and the more stimulative financial conditions. And we need to find ways in the policy portion of our meeting to preserve the financial gains of the intermeeting period. Thank you, Mr. Chairman.

CHAIRMAN GREENSPAN. Governor Olson.

MR. OLSON. I'd like to re-emphasize a couple of data points, especially some mentioned earlier in the chart show. The first involves the new tax law. You may remember that Steve Oliner pointed out some provisions of the law that the staff had anticipated and some that were unanticipated. I would remind you that all of the provisions were crammed into a tax bill that met the Senate's budget constraints. To do that required an artful amount of posturing in order to bring a lot of stimulus into a very short period of time. One of the wags writing about the tax package suggested that it has so many sunrises and sunsets that it could be called the "Fiddler on the Roof tax bill." [Laughter] My point is that very heavy bets have been made that this tax package will be stimulative in the third quarter, which starts next Tuesday. I have to say that, whatever else may or may not happen, the tax changes will provide a significant amount of additional discretionary spending capability starting right away. Additional incentives for business fixed investment begin at that time also.

The second point I would mention is the coupon gap. We moved over this issue fairly quickly, but because of the increase in the coupon gap that occurred just recently this month, that rate gap is now at a decade-high level. There is still a tremendous amount of capacity for refinancing and an enormous amount of home equity available to be tapped. So unless mortgage holders have finally reached the point at which they are no longer responding to those low rates, we will continue to see refinancings. As a result, one of two things is going to happen. People will have more spending power either from the cash taken out or from reduced mortgage payments, which will increase their discretionary spending capabilities. So I am optimistic about the prospects for the third and fourth quarters and the possibility that the second half of the year will be as positive as in the staff forecast. That said, the data to this point certainly do not indicate that there has been a turnaround, so it does seem to me an appropriate time for easing.

I would like to make one more point, just to follow up briefly on a comment that I made yesterday regarding the effect of lower interest rates on the banking industry. As I noted, the banking industry in the first quarter had record profits in spite of the fact that banks had a significant reduction in their interest rate margin. But that was only because the provision for chargeoffs was reduced significantly—and appropriately so, given the improved credit quality of their loan portfolios. The coverage of loan-loss reserves is appropriate by any measure of delinquency or chargeoffs on accrual loans. However, another contributor to the profit picture was the realized gains on securities, which were as high as they have been for the past ten years. So we're starting to see managers in the banking industry make some strategic decisions based on a new interest rate environment. What this suggests to me is that increasingly we're going to be hearing from a number of sectors about the impact of low interest rates on their business. I think all of us are going to have an opportunity in the next few weeks to remind people that we set monetary policy not aimed at advantaging one sector or another but on the basis of its likely effect on the overall economy.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. Thank you, Mr. Chairman. I think Al Broaddus stole my thunder, but I must say that really awful weather continues to damp spirits in New England, literally and figuratively. Most of the contacts we talk to seem to be—excuse the phrase—muddling through, [laughter] but there are as yet few truly bright signs. State and local governments in the region all are engrossed in the process of passing budgets that try to deal with large structural deficits. The long, slow workout from the demise of the high-tech and telecom industries in the bubble period continues. But a number of our contacts say that many jobs, even high-end jobs, have moved to India and China and won't come back even when activity picks up. There are

worsening problems in Medicare and Medicaid reimbursement and other issues in health care, which is one of the region's largest industries. Even the almost done "big dig"—and it's a good thing that it's almost done—has started to affect construction employment. So I guess it's no wonder that many contacts think the regional economy has more or less stalled.

Business confidence moved down in May, though we have had some reports of life in the venture capital investment banking industry. Consumer confidence has risen, but mostly about the future, and confidence readings about the present are currently considerably lower than their immediate post–September 11 lows. There has been some job growth in the region, and the unemployment rate remains steady. But the size of the region's labor force has begun to erode after growing through the recession and its slow aftermath. The length of the slowdown and the high cost of housing and other living expenses in the region may be discouraging potential workers from coming into the area or perhaps causing some current workers to move out. Commercial vacancy rates remain high, though some contacts indicate that the pace of the increase in vacancies is moderating. Declining rents and available space may well be a godsend to some new emerging businesses, as one source reported, but we haven't seen many actual or potential takers as yet.

Finally, an index of leading economic indicators for Massachusetts moved into positive territory once again in March and April. This was based on a rise in the equity values of Massachusetts companies, an increase in demand for high-tech products, increased orders for computers and electronic products, and rising merchandise exports. But this index gave positive signals in earlier months that subsequently were taken away. Moreover, that index actually has more to say about what the economy may look like six months from now than in the third or the

fourth quarters of 2003. In sum, it hasn't been a great spring or early summer in New England. We're hopeful that things will get better. The question is when.

On the national scene, I see some hints that a faster recovery is in the offing. People have talked about all of these hints before. They include confidence readings, retail sales, equity markets, credit markets, low mortgage rates, a stabilization in industrial production readings, some optimism on the part of purchasing managers, an uptick in orders, a slowly falling dollar, and increased fiscal stimulus. Taking all these developments together, it seems clear that there's some possibility that economic activity will pick up in the second half of 2003, and it could pick up substantially.

But when I think about that, my hope that the rebound in activity will occur is mixed with some concerns. Labor markets remain weak, and businesses continue to be extremely cautious, focusing hard on cost control. This works well for profit margins, and it has kept productivity growth strong, but it has been hard on employment. The pace of layoffs may be easing, but they haven't stopped, and the translation of consumer confidence into spending in this environment seems, to me anyway, to be vulnerable. It may be that the new tax legislation will come to the rescue here. But the analyses I've seen suggest that it is focused on wealthy consumers, which leads one to wonder whether its effect on spending, at least in the near term, will be significant. State and local government spending squeezes and the potential for local taxes and fees to go up immediately could drain some portion of the federal stimulus; and consumers may well react to their concerns about the present by saving more rather than spending.

With this kind of perspective—on the one hand, hope and, on the other, concern—I was a little surprised by the Greenbook forecast. With only a 25 basis point cut in the funds rate, GDP growth in the next two quarters doubles from that of the first two quarters, and GDP growth in

2004 starts with a 5. As far as we can tell, this forecast would put the Greenbook in second place among the fifty-one Blue Chip forecasters, with 2004 growth only slightly behind the projection of the forecaster that's in first place, which is an organization called Genetski.com. The Greenbook forecast for growth is also 1.2 percentage points faster than the next most optimistic forecast—or maybe Don's. [Laughter] True, the unemployment rate drops only to the mid-5s, and inflation is low; but with a pickup of that magnitude, the risks of the kind of deflation that we're wringing our hands about seem rather small to me.

It may be that the tax cut, the low interest rates, and a rise in equity wealth and confidence will cause consumption to take off in 2003 and the saving rate to stabilize at a level below its historical average. But I wonder about the likelihood of that, at least in 2003, if employment doesn't grow by much. And will the jump in consumption in 2003 along with the expanded investment incentives in the tax package really spur business investment to grow at a 17 percent pace in 2004? Business investment levels dropped during the recession, to be sure, but they remained at the levels of 1997 or 1998. Given the caution expressed by many businesses, I wonder whether the current process of making do and continuing to restructure in the context of growing demand will continue. Using the same numbers in the fiscal package and similar estimates of potential and monetary policy ease, the Boston Fed's forecast is much less optimistic than the Greenbook on overall growth and business investment specifically. We see 2004 GDP in the mid 3s with unemployment remaining around 6 percent, inflation trending down, though very slowly, and investment growing at about 10 percent. This is more of a mainstream forecast. It's likely not right, of course, but I take it and the similar forecast of the Blue Chip panel to be an indication of some considerable downside risk to the Greenbook projection.

When we finally begin to see solid signs of a pickup—if those signs suggest a pace of growth, especially for 2004, along the lines of the Greenbook forecast—I would start to think about when and how we might get policy to a more neutral stance, recognizing that it will take some time to close the output gap. But for now, in my view the Greenbook is a forecast with more than the normal range of downside uncertainty about it, given the unusual nature of the recovery we're seeing. Even a more restrained perspective, like ours in Boston or the Blue Chip forecast, has asymmetric downside risks, at least in my estimation. Thus I lean, as I have for some time, toward taking out a bit more insurance in the form of an easing move, with the hope that it, in combination with the added fiscal stimulus, will really get this recovery going.

In that regard, and recognizing that the specifics of the policy decision will be discussed a little later, I do want to indicate a bit of concern about using all of our remaining ammunition too fast. If activity doesn't pick up or if some new shock like a terrorist attack or a sudden fall in the dollar were to occur, I'd like to have some room for conventional policy to work. Deflation is a concern to be sure, but I continue to believe that the type of corrosive downward spiral that we witnessed in the 1930s or that Japan may be experiencing today has a very low probability, lower than the probabilities we were talking about this morning. The growing output gap is an important and related concern. But some straws of a stronger recovery are in the wind, and time may be on our side here.

I'd move cautiously. And I would agree with President Guynn and others who have suggested that what we say now is very important. We've raised the issue of deflation, and we've qualified that definition—at least in Chairman Greenspan's talk about corrosive deflation. If we could tilt our comments about whatever we do toward indicating that it's a relatively

normal response to a slower-than-desirable pace of economic growth rather than the imminence of deflation, I think that would be helpful in the current circumstances. Thank you.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Thank you, Mr. Chairman. At our last meeting there was a feeling that both the real output term and the inflation term in our policy objective function were pointing downward. The forecast envisioned persistent output gaps, and inflation appeared to be dropping below our desired target range—not necessarily to deflation, just to an inflation rate below our target range.

Over the intermeeting period there has been improvement on both sides. Consumption has picked up and is now forecast to be stronger than before. Housing is maintaining its strength. Equipment and software investment is picking up. Nonresidential investment has finally stopped sliding, as has employment. Industrial production and all the measures of new orders have turned around. Many of these turnarounds and pickups would be considered still early returns, but turnarounds and pickups are better than the alternative. On the inflation side, too, the evidence is less worrisome than before. The core CPI and the ECI both turned up a bit in the latest data, and all measures of inflation expectations are in positive territory, perhaps off a bit but not careening toward deflation. It now looks as if inflation will settle in at a rate within our target range, not pierce through the lower bound. There is still a persistent output gap in the forecast, so inflation could continue to decline; but again, the situation doesn't look quite as bad as it did last time. As Steve Oliner pointed out earlier, many policy-related variables have also become more expansionary lately. Steve mentioned rate spreads, the dollar, the tax bill, and the stock market—the usual list.

As for the policy action we might take today, I actually think there's a bit of a problem. There's a difference between what I will call the level approach and the change approach. These roughly map to the more and the less aggressive policy stances that Dave Wilcox mentioned earlier. As argued yesterday by the *Washington Times,* one can still make a good case for an aggressive monetary policy. Output gaps are large, and it would take a healthy expansion of aggregate demand for a reasonable length of time before they return to anything like preferred levels. As long as output gaps persist, there should be minimal positive inflationary pressures, and indeed, inflation rates should continue to be stable or declining. I would remind everybody that the staff also pointed out that to ward off these disinflationary pressures, to deal with uncertainty in the rate of inflation itself, and to deal with uncertainty about the nontraditional measures that we spoke about yesterday, an aggressive policy, not a gradual policy, is suggested. From this level perspective, a fairly aggressive policy still makes very good sense.

But from a change perspective, as argued yesterday by the *New York Times,* the situation looks different. In this view, it is hard to justify an aggressive policy now when we are seeing more signs of strength and when other policy-related influences have become so much more positive. An aggressive policy action today would either be or be seen as adding more fuel to a fire that has finally started burning. From this change perspective one might argue for a less aggressive policy or even for no change in the policy stance. I suppose if pressed I personally might be inclined to split the difference between these two views—I don't know if Dover has a *Times* [laughter]—and argue for a middle-of-the-road approach here.

Let me just mention one other factor, which is that we do have an opportunity now that we don't always have because the Chairman's testimony on the semiannual monetary policy report comes up in a few weeks. So we have the luxury of being able to do something today that

is more or less a holding action. Then, if we see information on one side or the other that changes our minds in the next couple of weeks, we have a chance to put some words about our views in the Chairman's testimony. And we know now that our words have enormous effect. Thank you.

CHAIRMAN GREENSPAN. Governor Bies.

MS. BIES. When I came into this meeting, I had feelings similar to those that President Guynn expressed. In getting ready for today's meeting, I looked back at my notes on the last couple of meetings and found that we were always on the verge of a rebound in economic activity. Obviously the war erupted and created another discontinuity in this expansion. I'll use President Guynn's "Ground Hog Day" movie analogy to say that what is missing is obviously business capital expenditures. I hope, like the hero in "Ground Hog Day," that CEOs will begin to get the message and start focusing externally instead of internally. If we can make that happen, maybe we will have a happy ending as the movie did.

I've been spending a lot of time looking at the data on the business sector. While I'm not going to go through the points that Steve made earlier, I thought his analysis was excellent in terms of describing the status of the business expansion. The new numbers on nondefense durable goods orders this morning may be a sign that we are at the point where there's a glimmer of hope that we are past the discontinuity associated with the war. On the other hand, we're not really seeing evidence of a robust movement ahead, and that does concern me. The European Central Bank has just lowered its forecast of growth in the euro area. And as Karen pointed out, our staff has reduced its expectations for growth internationally over the rest of this year. This suggests that we're not going to get a lot of support from the foreign sector. I am starting to see some glimmers of hope in the employment statistics. Employment is still very weak, but private

payrolls look as if they are beginning to stabilize. At least they're not falling off as they were earlier in the year.

I'm not as optimistic as the staff regarding the outlook for 2004. My forecast is at the bottom of the range of those that we on the FOMC submitted. It concerns me, when I look further out on the forecast horizon, that the output gap is sustained to 2005. Given where we are on inflation measures, I'm not so worried about deflation. I am concerned about persistent disinflation because it's still not clear to me how our banking sector and other sectors that have moved more toward risk-based pricing of credits are going to work through this. So I'm worried about being in a consistently low inflation environment and what that might do to our financial sector. Remember, the last time we were in this type of situation we had Regulation Q, which prohibited the payment of interest on a lot of the deposits in the banking sector. Because of the persistent output gap and these other considerations, I don't see much downside risk to trying to encourage this expansion that may be getting under way and kick it up another notch. So, I'm leaning toward the view that we ought to go ahead and take out a little insurance at this meeting.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Thank you, Mr. Chairman. You closed our last meeting by using a legal term, the concept of the burden of proof. You suggested that the burden of proof at this meeting should fall on those who thought they saw sufficient growth either in the data or in the outlook that we should stand pat. If I were the judge on the case, I'd say that at this stage the case is unproven, as the British would say.

CHAIRMAN GREENSPAN. As the Scottish would say, not the British.

MR. FERGUSON. Well no, sir. The British include England, Scotland, and Wales. [Laughter]

CHAIRMAN GREENSPAN. Well, you have a law degree and I don't.

MR. FERGUSON. We'll split the difference and call it what an island magistrate would say. Let me proceed with the evidence, if I might. First, on the evidence supporting a sense that things are looking better, I'd have to say that there are a number of straws in the wind in support of that assessment. They've been talked about here today. Retail sales grew respectably in May, the labor markets appear to be stabilizing, and the data we've just received on new and existing home sales are certainly a sign of continued robustness in that sector. It's not surprising that the household sector seems reasonably strong because the underlying fundamentals for that sector look strong. Real disposable income has improved for a number of reasons; the stock market obviously has contributed positively to household balance sheets; and as was mentioned earlier, there are ongoing opportunities for refinancing. And consumer confidence seems, on balance, to be firming somewhat. If one moves from the household sector to look at the industrial side of the economy, again there are straws in the wind. IP has stabilized, as a number of people have said, and the survey data from both the Reserve Bank regional surveys and the ISM give a sense of perhaps some firming in the manufacturing sector. Finally and most important, as we've already noted, the financial conditions are quite consistent with a turning. Equity prices are up; risk spreads are down; and as Vincent and Dino indicated yesterday, some of the forward-looking indicators of risk also suggest some improvement. So there are a number of reasons for a bit of cautious optimism. But I would put the emphasis on "cautious." What doesn't seem to be there yet is the type of self-reinforcing improvement that we'd need to see before we decide not to take out some insurance today.

Let me also go through the bits of evidence that perhaps disprove the case. First, I would say that it's not really clear what the financial markets are telling us. Normally we could look to

them to be forward-looking and to tell us something about the real economy. As I listened to the discussion yesterday and thought about it myself, there seemed to be some question about the markets' assessment of the real economy. As someone said yesterday, in part what seems to be driving the fixed-income markets are a search for yield and an expectation that interest rates will remain low. Neither necessarily indicates that the market sees the real economy as improving. If one looks at the equity markets, what we heard yesterday—which is consistent with what I've heard and what I'm thinking in general—is that we are seeing data from the corporate sector that are not getting worse and may be stabilizing. But the recent data certainly are not consistent with a rapid turnaround. So I have a bit of a question as to whether or not, as someone said earlier, we may be looking in the mirror. At least there is a question as to whether the financial conditions are really supportive or indicative of growth. I would say that they are clearly supportive; I'm not sure they're yet indicative of growth.

The second reason I'd be somewhat cautious relates to the fact that I spent a lot of time in the company of CEOs over the past intermeeting period. In my view, they still harbor a fair amount of pessimism, a judgment that is shared by others who have already commented. I say that because of both what the CEOs themselves talked about and what they said about the issues on which their boards of directors are focused. I believe the boards continue to be more heavily focused on corporate governance issues and leeriness about accounting issues as opposed to trying to find places to make investments for expansion. Also, I think order books are not yet sufficiently full for CEOs to have a great deal of confidence in moving forward. I would argue that the data we've seen, which Steve described as mildly encouraging, are no more than mildly encouraging. That's not bad, but obviously they do not suggest that activity is really robust. So

I'd put a question mark on the outlook for the corporate sector and particularly for the investment side of that.

The third area of concern I'd have is the consumer sector. While many of the fundamentals look good, the fact that the unemployment rate is staying relatively high and job creation is relatively muted has at least the risk of weighing more on the household sector than it has in the past. I'm not sure that it will, but it might.

If one puts the two sides together and adds to it the stimulus in the pipeline from monetary and fiscal policy, I can see how the staff came up with the baseline forecast, and I'm not going to quibble strongly with that. But I do believe that the risks to that forecast are primarily to the downside.

Nevertheless, even if we take the forecast as given and look out past the next few quarters, we see a number of things happening. One is that the output gap still closes relatively slowly. Second, the unemployment rate hangs up above the NAIRU through next year. Third, core PCE even before the adjustment stays at what I would consider to be the very low end of an acceptable range. Add to that the fact that, even in the context of what some view as a relatively strong forecast, the staff has lowered its expectations for core PCE over the next eighteen months or so from the estimate they had in January.

The other point I would add is that, in its forecast, the staff normally does not in any sense lead us in terms of implying a change in rates. This time they chose to put in a 25 basis point cut and still got to this longer-term outlook that I would call only moderately acceptable if one thinks about the disinflation picture in particular. On top of that I'd note the information provided in chart 11 of the chart show about the probability of deflation, given the current low rate of inflation. I would describe that chart as really quite sobering. I would then pick up from

where Ned Gramlich was—which is that, when we get to the policy session, the choice is between a more aggressive or a less aggressive approach. I think there are legitimate arguments on both sides. I certainly think we need to take out at least some insurance, and I'll wait until the policy round to talk about what I think that should be. Thank you very much, Mr. Justice.

CHAIRMAN GREENSPAN. Is that a demotion? [Laughter]

MR. FERGUSON. If you went to law school, it's not so bad!

CHAIRMAN GREENSPAN. Governor Bernanke.

MR. BERNANKE. Thank you, Mr. Chairman. The economy seems poised for recovery in that policy is accommodative and the financial markets are supportive. But on the ground where it counts we have not yet seen clear evidence of a turnaround in investment or hiring. Moreover, we have more than the usual degree of uncertainty about the amount of slack in the economy, which implies that we face highly uncertain downward risks to the already low rate of inflation. For these reasons, it's extremely important that we do what we can to maintain the supportive configuration in financial markets. That means continuing our easy monetary policy and, even more important, using our statement to signal our willingness to keep policy easy so long as there is a risk of further disinflation and continuing economic weakness.

If you will indulge me, I'd like to take my time to add a few words on communication policy in general. Our discussion yesterday and our experience of the past year have shown that effective communication is a big part of successful monetary policymaking. It's becoming increasingly more important as the inflation risks move from one-sided to symmetric and as the range in which we can move the funds rate narrows. We can communicate to financial markets how we expect to manage short-term interest rates in the future. If we then follow through on our commitments, the power of our interest rate instrument is multiplied many times over.

Contrast the effects on financial markets of our 50 basis point easing of last November with our no change policy of May 6. The difference lay entirely in the accompanying statements and not in the decisions themselves. The May 6 statement proves that purely qualitative statements can be effective when policy intentions are conveyed to the markets. Nevertheless, communication that is entirely qualitative in nature also risks misunderstanding. For example, I think the May 6 statement left the mistaken impression with some that the Fed was concerned about the threat of imminent deflation as opposed to what really concerned us—namely, the possibility of a decline in inflation to a level that, while below the desirable range, would still be greater than zero. This misperception may have led to unnecessary anxiety among the less sophisticated and to skepticism about the Fed's seriousness among the more sophisticated. This misconception can be cleared up; but as we go forward, the subtleties will multiply, particularly as the recovery picks up and as we make the inevitable but very tricky transition from deflation-fighting to inflation-fighting.

I expect that the need to make our public statements more precise and less ad hoc will ultimately lead to the introduction of some elements of quantification. There are different ways to do that. One approach would be to provide guidance to the markets by issuing a working definition of price stability expressed as a range of measured core inflation that takes into account measurement bias and the need for a buffer zone against deflation. In issuing such guidance, the FOMC would not need to make any explicit commitment, only indicate that this working definition of price stability would be used as a guidepost in its pursuit of its dual mandate relating to price stability and sustainable growth.

This is not the place to get into details about any specific proposal. I do think, however, that this measure or similar ones would help us enlist the financial markets, particularly the bond

markets, in stabilizing the economy. The reason is that any tendency of inflation to move out of range—either up or down—would tend to move longer-term bond yields in a stabilizing direction in anticipation of the forthcoming policy response. Ambiguity has its uses but mostly in noncooperative games like poker. Monetary policy is a cooperative game. The whole point is to get financial markets on our side and for them to do some of our work for us. In an environment of low inflation and low interest rates, we need to seek ever greater clarity of communication to the markets and to the public. Thank you.

CHAIRMAN GREENSPAN. Thank you very much. Mr. Reinhart.

MR. REINHART.[5] Thank you, Mr. Chairman. I'll be referring to the materials that Carol Low distributed during the coffee break. The financial market backdrop for the Committee's decision is provided in exhibit 1. Your announcement on May 6 set in motion a significant downward realignment in market expectations, as can be seen in the movement from the dotted to the dashed line in the top left panel. After all the dust from testimony, speeches, and newspaper articles settled, investors have come to place considerable weight—as seen in the solid line—on a funds rate trading below 1 percent for the remainder of this year and into the next. Options on federal funds futures indicate, as seen in the last column in the table at the right, that the odds slightly favor a 50 basis point move at this meeting. Moreover, as the red bars plotted in the middle left panel suggest, options on Eurodollar futures are consistent with a significantly greater likelihood that the funds rate will be below 1 percent five months hence than was foreseen at the time of the May FOMC meeting (the black line). Indeed, the upward climb of the blue line plotted at the right shows that a notable mass is now being put on the probability that the funds rate will trade at or below 50 basis points in five months. The sense that the Committee intended to keep the funds rate lower and for longer than previously expected supported equity prices, with the major indexes plotted at the bottom left gaining about 10 percent over the intermeeting period. This was also so for bond prices, with the yields plotted at the lower right shedding 60 basis points.

To repeat, the recent financial market rally was importantly underpinned by the expectation that the Committee would ease. As discussed in the top panel of exhibit 2, one pillar in the case for moving the fund rate 25 basis points lower would be to ratify at least a portion of the easing currently built into market prices. Extending the rally in financial markets would bolster wealth and keep funding available to businesses on easy terms, thereby providing encouragement to spending. Such a configuration of financial market conditions would, as reported in the second bullet, work down resource slack more quickly. The solid line in the middle left

[5] The materials used by Mr. Reinhart are appended to this transcript (appendix 5).

panel plots the Greenbook baseline path for the unemployment rate that is expected to prevail if the Committee lowers the funds rate to 1 percent and holds it there, whereas the dotted line shows the consequences for unemployment, according to the FRB/US model, if the funds rate is held at 1¼ percent. While the spread between the two lines is small, the difference does cumulate over time to lessen the pressures on disinflation.

In the benefit–cost calculus in current circumstances, the Committee might be reassured that, as shown in the middle right panel, inflation expectations gauged from financial markets (the red and blue lines) or gleaned from a survey (the dotted line) remain subdued. Indeed, the alternative FRB/US simulations presented in the Bluebook give evidence of how little risk there is, given the staff's assessment of the economy, that inflation pressures may flare. Those simulations, which assume that the nominal funds rate moves down to 1 percent today, all envision the real funds rate being moved up to its long-run equilibrium level of about 2¾ percent over the course of one year. They differ as to whether that adjustment takes place in 2005, 2006, or 2007. The punch line is given in the two bottom panels: The Committee could move the funds rate ¼ percentage point lower from its current level and not have to reverse that action for 1½ years while still keeping inflation on a gentle downward trajectory toward ¾ percent, as close to price stability as one might imagine. Perhaps too close for some, in light of the renewed importance of a cushion of inflation to protect against the zero bound to nominal interest rates. One way to fatten that cushion is to ease 25 basis points today on the expectation that any reversal would be delayed for some time. Another way to fatten the cushion, as listed at the top of exhibit 3, is to ease 50 basis points today. In one sense, such a policy move would merely reestablish the degree of monetary policy accommodation of late last year. As seen by the thick solid line in the middle panel, the ex post real funds rate has moved up from the level prevailing in the second half of 2002, mirroring the decline in inflation, while its equilibrium value—at least as gauged by staff models—has been a moving target that fell over the same period.

While the staff anticipates that a quickening of aggregate demand is imminent, its assessment of aggregate supply is such that an ease of 50 basis points would seem to position policy better to support a more rapid rundown of slack. Moreover, the Committee might harbor some reservation about the staff projections that spending will show such vigor. Given the lags in the effect of monetary policy, action today will mostly shape economic conditions next year. As shown in the bottom left panel, in the list of the projections for GDP growth and the unemployment rate next year made recently by major investment banks, the staff forecast of vigorous economic expansion (the memo item at the bottom) is squarely at the upper end of the range of projections.

A projection that you may put even more stock in is your own. As David Wilcox reported earlier this morning, the central tendencies of your economic projections for 2004, not shown, are that real GDP grows at 3¾ to 4¾ percent, the unemployment remains around 5½ to 6 percent, and PCE inflation clocks in at 1 to 1½ percent. Dave

Lindsey reports in his opus distributed to the Committee yesterday that the setting of the federal funds rate since the late 1980s can be described well by a Taylor-style rule using those forward-looking forecasts and a lagged dependent variable to capture gradualism. By that standard, as plotted in the red dotted line at the bottom right compared with the actual funds rate in black, your current economic forecast would call for putting the policy rate at nearly ¾ percentage point if you were to operate as you had over the prior ten years.

Alternatively, it is possible that the Committee views the risks to its forecast of economic growth as especially susceptible to upside surprises, perhaps to the point of arguing for keeping the funds rate unchanged, the subject of exhibit 4. Easing might be viewed as unnecessary because considerable fiscal stimulus is in train. As shown in the middle left panel, the staff estimates that fiscal impetus will to rise to an eye-popping 1¼ percent of nominal GDP this year, moving it into a range rarely seen in the past forty years. Given the complexities of the recent legislation, there's a large amount of judgment in forecasting how much kick there will be to household and, especially, business spending. If the staff has shaded its estimate of the effects too much, there would be an even more marked pickup in growth than in the Greenbook.

A muted response to investment incentives and a slow dissipation of the gloom that has damped capital spending over the past few years help to explain why, as in the middle right panel, the staff forecast places the expansion of equipment and software spending during this business cycle (the solid blue line) below the range of postwar experience (the shaded area). If you think we are about to see a rebound in investment more in keeping with its typical cyclical amplitude—that is, the Greenbook is too pessimistic—the corresponding need for monetary policy stimulus would be lessened. You may also have the sense that economic expansion had already gained sufficient traction from the ongoing rapid growth of liquidity. The four-quarter growth of real M2 (the red line in the bottom panel) and real bank credit (the black line) remains robust and in a range typically associated with contemporaneous growth in activity.

Likely, though, the question is not if but by how much to ease policy. After all, the Committee left its May meeting with a strong presumption that it would ease policy today, leaving the burden of proof to those who believed the economy had picked up enough to make such an action unnecessary. Although the tone of recent readings has brightened, at best the Scottish—and perhaps English—verdict of "not proven" is in order. Your last exhibit examines the Committee's assessment of the risks to the outlook by first bringing up a procedural question. On May 6, the Committee separated the risk assessment into statements about the risks regarding its objective of sustainable economic growth, risks regarding its objective of price stability, and an overall balance of those two risks. However, as was the case in March, but not the previous three years, the Committee voted only on the policy rate and not on the risk assessment. I assumed in the Bluebook that you wanted to return to the practice of voting on the assessment of risks so that it had the full force of the Committee's imprimatur. But given the numerous times in the past that members

have indicated that it would be unworkable for the statement to have nineteen editors, I also assumed that you would not want to review it routinely before the vote, except, as in May, when substantive changes to the format seemed to be called for. To solve this governance puzzle, I suggested in the Bluebook that the Committee choose among generic formulations of the parts of the risks assessment to allow some discretion to the drafters. That is, when the time comes, the Deputy Secretary would read a single proposal put on the table by the Chairman that wraps together a decision of the intended funds rate and directions for each of the three parts of the assessment of risk.

As for today's choice, as considered in the bottom left panel, almost regardless of your decision on rates, growth rate risks would seem to be balanced. Similarly, with inflation edging down from an already low level in most forecasts, risks to the Committee's goal of price stability would seem to be to the downside. As a result, the overall balance would presumably be to the downside. Conceivably, the Committee might view a 50 basis point ease as sufficient to balance the risks, similar to the action it took last November. There's some sentiment in the market for this, in that in the latest Money Market Services Survey (the bottom right panel), almost half the respondents who thought the funds rate would be 75 basis points this afternoon also thought the Committee would opt for balanced risks. But it does seem a stretch, in that fostering a sense in the market that the Committee wanted to draw this easing cycle to a close would undercut some of the stimulus of a 50 basis point move. That concludes my prepared remarks, Mr. Chairman.

CHAIRMAN GREENSPAN. Thank you. Questions for Vincent?

MR. GRAMLICH. Yesterday a number of people raised the question, "If zero isn't really the lower bound, what is?" I think there was a general feeling that we don't know what the lower bound is but that it's below 75 basis points. If we went to a funds rate of 75 basis points with a balanced risk statement, would we build in a market impression that that's as low as we're going to go?

MR. REINHART. I think there is a risk that moving to balance in the current circumstances would be interpreted as having the funds rate as low as the Committee really wanted it to go. Given that there is a misperception that 75 basis points might be the bottom end of your comfort zone, I think it may very well turn out that way.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. I have two questions, Vincent. First, if we look at the middle chart in exhibit 3, which shows the actual real federal funds rate, the current real rate has moved up since the last meeting. How is an easing of 25 basis points an insurance policy?

MR. REINHART. It is the case that 25 basis points would not get you to as easy a policy as, say, in the first half of last year.

MR. PARRY. Or about six weeks ago.

MR. REINHART. But it's also the case that your sense of the forecast going forward is probably more positive than it was a year ago or even in May.

MR. PARRY. Okay. Second, I just want to raise an issue, and if this is the wrong time, I can come back to it. In exhibit 5 in the bottom left-hand corner, the panel entitled "For today's choice" says that the growth rate risks are balanced. The issue I want to raise at some point relates to the word "sustainable" that shows up as an adjective in our statement. I really think the way we used it the last time was wrong. I checked how we've used it in the past, and I think it was different. It seems to me that the problem could be fixed very easily by using the word "acceptable." I may be focused on a point that seems narrow to some, but I just don't think "sustainable" was the right word the last time, and I can't see how it would be right this time. I don't know if you've given any thought to that or come to any conclusion about it, so I wanted to mention it. Or should we talk about that later?

MR. REINHART. One thing I have learned is that people read different things into the word "sustainable." I think some members would view the words "sustainable growth" as saying the growth rate of potential.

MR. PARRY. Before May that is exactly what it meant.

MR. REINHART. Whereas I think others have felt that the word "sustainable" also includes a level concept to it. That is, if the economy is well below its level of potential, the growth rate that it could sustain for the next several quarters is actually higher than that of potential.

MR. PARRY. Well, it seems to me it's a little problematic to view it one way one month and a different way another month.

MR. REINHART. I think the word is ambiguous. And that's one reason I would like at some point to put on the Committee's agenda a discussion of its communication policy.

MR. PARRY. Thank you.

CHAIRMAN GREENSPAN. Governor Bies.

MS. BIES. Maybe this is going to have to wait until your discussion of communication. One of the other things I struggled with as I read the Bluebook wording— and I see it again in exhibit 5 in the bottom left box—is the part about inflation risks being on the downside. As worried as I am about disinflation, which I see as a significant risk, I am not worried about inflation down the road. If inflation were around 3 percent, we'd be worried about the risk of a rise in inflation. Risk to me always implies something about what could be the worst outcome rather than direction. Given where we are now with regard to inflation, I'm wondering if we should imply concern about inflation's moving in one direction only rather than the risk of its going up or down. Getting back to Governor Bernanke's comments, how we communicate our views on inflation is important. Because we're in such an unusual situation, I think directional words might be better than the word "risk."

MR. REINHART. In my proposal and in the proposal in the Bluebook I was trying to come up with words that were as generic as possible with regard to inflation. I think the May 6

statement served the Committee well by indicating a direction—the unwelcome risk of a substantial further fall in inflation from an already low level. I'm not proposing this wording as part of the press statement for today's meeting but rather as a way for you to convey your views about the direction in the statement.

MS. MINEHAN. Could I just interject one point because it follows directly?

CHAIRMAN GREENSPAN. Yes, go ahead.

MS. MINEHAN. This may be just my own deficiency, but when we talked at the end of the last meeting about separating the two parts of the statement, we were basically doing so on a wait-and-see basis. We voted on the policy action, and then we waited to see the wording of the draft statement. I did not say to myself at that point, "Aha, we are not voting on the risks." Making an issue out of that in the minutes struck me as a little odd. I don't know if anyone else shares that same impression. Maybe my memory or my understanding of what we were doing is deficient. I thought we were focusing on a new way of talking about where we were, but I certainly thought that we had a shared understanding of the risks.

MR. REINHART. It was implied that you were voting on the risks, but when it came to the actual vote and what Normand read to you before the roll call, you voted only on the interest rate decision.

MS. MINEHAN. Okay. I thought that was more or less because we hadn't seen the formulation of what the statement was going to say about the risks. I didn't view it as a substance issue. Maybe I'm making too much out of it. At the time we had the vote, had we seen the statement? Did we see it before the vote?

MR. REINHART. Yes, we handed out the draft statement before the vote.

MS. MINEHAN. Then I must be out to lunch.

MR. REINHART. All I really wanted to do was to get the formal process back to the point where the Committee actually does formally vote on the two aspects of its decision.

MS. MINEHAN. Okay.

CHAIRMAN GREENSPAN. Further questions?

MR. MOSKOW. I want to follow up on Governor Bies's question, just so I understand this. In the Bluebook, the risk assessment language indicates that we're going to say one of three things about inflation: The risks to the outlook for inflation over the next several quarters are weighted to the downside, are balanced, or are weighted to the upside. So will that be in the statement that comes out?

MR. REINHART. Not necessarily in those exact words, but that sense would be in the statement. There will be a declarative sentence about inflation, and it will follow the direction that the Committee indicates.

MR. MOSKOW. So the risk assessment paragraph will not be in the statement?

MR. REINHART. Not word for word.

MR. MOSKOW. But it will be in the transcript?

MR. REINHART. It will be in the transcript, yes, and it will be in the minutes.

CHAIRMAN GREENSPAN. Further questions? Let me then start. Within a matter of days we should begin to experience a rare test of an economic theory and approach to economic policy. We currently are observing a sluggish economy that seems to be stabilizing but is scarcely exhibiting any robust dynamics. Over the course of July and August, some $20 billion of Treasury receipts will be transferred to households. Our general view of the way the economic world works, essentially going back to Keynes's General Theory, is that this shift of funds will have a prompt and significant impact on consumption expenditures and economic

growth. Secondarily, working through the accelerator effects on capital investment, the pickup in spending should foster, in the classic case, an economic rebound consistent with the forecast in the Greenbook.

The recent legislation clearly requires that $20 billion or so be shifted to households over the next several weeks. That's not an expectation. It will happen. The reason we all expect personal consumption expenditures to rise, of course, is that the presumed marginal propensity to consume is greater than zero. If one postulates that the marginal propensity to consume is literally zero and that all we're seeing is a transfer from the government's savings account to household savings accounts, then the only result will be a shift in savings from one sector of the economy to another, with national savings unchanged and economic activity not directly affected by that transfer. No econometric model of which I am aware has a zero marginal propensity to spend. But even if our model were to have that property, there would be an increase in household wealth and an increase in the ratio of wealth to income. Although in this model expenditures would not occur out of income, they would occur in much smaller dimension from the increased wealth effects. So there would still be some effect.

The reason that this is such an interesting and critical test is that we are not in the middle of either a vigorously expanding economy, in which it would be very difficult after the fact to isolate the effect of the tax cut, nor are we in a significantly weakened economy, in which it would be difficult to extract the momentum stemming from the infusion of Treasury cash. As a consequence, we are in a very rare period in which we will have the opportunity to observe a fundamental test of the significance of fiscal policy in the economy. We will probably know a lot, I would suspect, by mid-August. We may even learn something prior to my monetary policy report to the Congress, which is currently scheduled for July 15, although I would not count on

that. The test on the effectiveness of fiscal policy will involve a process that will be reported on in a very detailed manner by the press, and I suspect we're also going to learn a great deal anecdotally about what is going on.

If it turns out that there is very little impetus to consumption or capital investment, that is going to alter our view of the effectiveness of fiscal policy quite materially. It's hard to accept the view that there will be little or no effect on PCE on the grounds that a large portion of the tax cuts benefits upper-income groups, which is certainly the case. To be sure, the conventional wisdom is that the marginal propensity to consume is very significantly lower for upper-income groups. But I must tell you that in some of the studies we have carried out using data systems that combine our flow-of-funds data and our survey of consumer finances, we have picked up marginal propensities to consume for the upper-income groups that, while lower than for the middle and lower-income groups, are not that much lower. So one can't argue that we are going to get little or no effect, at least on the basis of the data I've been looking at, merely because of the income distribution of the tax cut.

Of course, there's a more interesting and in a sense more important issue as to whether capital expenditures will revive in this context. To an important extent, the evidence will be anecdotal, and I hope we will get greater insight from that source over the next month or two. I sense from conversations with various business people that the restraint on capital investment is really a restraint on any form of aggressive risk-taking. That seems to be in part a reflection of the corporate governance scandals, which have induced a considerable amount of fear on the part of corporate executives. A few years ago, a CEO would present a capital investment project to a board of directors, go through the details, and typically get agreement and approval fairly quickly. The boards of directors were essentially passive in that process because there is no way

that their state of knowledge could possibly match that of the CEO backed up by the CFO and a whole panoply of charts and detailed data on the internal workings of the firm. In fact, it really isn't the job of boards of directors to look too deeply into the details; it's more a process issue. Indeed, that's the way it has worked.

Today it is quite different. The legal risks, which both the boards of directors and the CEOs perceive, have led both to exercise a high degree of caution. Directors, and I say this only half facetiously, who really know nothing, now aggressively question proposed capital investments without a clue as to what is going on. It is true, if one looks very closely at the details of the Sarbanes-Oxley legislation, that the criminal statutes in that law are quite appropriate in the sense that they stipulate willful, aggressive action for perpetration of deception or fraud. By any characterization I know of, people in the business community who are guilty of such theft ought to be in jail. There is no way around that conclusion. Regrettably, the interpretation on the part of a significant portion of the corporate community is that the dividing line between criminal and permissible activities is not clear, so they are leaning over backwards and exercising exceptional caution. That has created, as best I can judge, a degree of risk aversion well beyond anything that one could observe previously in the business community. Indeed, the financial data clearly suggest that risk aversion as perceived by investors is very significantly less than that perceived by corporate directors and executives.

So it strikes me that we are in an interesting test period for our forecasting capability and hence policymaking. Fortunately, I suspect that we're going to learn a great deal over the next two months, but it's very difficult to judge the outcome in advance. So far as today's policy decision is concerned, as has already been mentioned, we concluded at the end of the May 6 meeting that the burden of proof would essentially ride on whether sufficient information had

emerged during the intermeeting period to persuade us not to reduce the federal funds rate target at this meeting. As Judge Ferguson very sensibly ruled, by any measure the threshold of the evidence needed to forestall a cut in the federal funds rate at this meeting has not been reached. I agree that an easing action is the right thing to do.

We have been considering reductions of 25 or 50 basis points. I'm uncomfortable with 50 basis points for several reasons. As has been mentioned, if we were to approve 50 basis points and then adopt some kind of balanced risks assessment, I believe we would generate the expectation that we are no longer contemplating a lower rate structure for an extended period of time. As a result, I think we would begin to get very significant upward movements in long-term rates. That outcome would be quite counterproductive at this stage unless the Greenbook baseline forecast turns out to be right. But that forecast has a very low probability as far as I'm concerned. It points to an outcome that would be delightful if it were to materialize, but it is not a prospect on which we should focus our policy at this point. So the issue is whether, if we were to reduce the funds rate by 50 basis points, we'd have to do it with a presumption that we would reduce it still further. I'm fearful, as many have suggested, that that would create a view that we are far more concerned about the economy than is in fact the case and that we know something that the markets don't know. That could result in a quite counterproductive reaction.

The reaction to the May 6 statement should tell us that the credibility of this institution has increased very materially in the past six months to a year. Even though surveys of economists show them to be far from prepared to address the deflation concerns that we have publicly expressed recently—and hence a very substantial proportion of them do not perceive that a lower rate is the right choice at this stage—half or more are forecasting that we will lower it. But that's not their recommendation. Basically they are forecasting what they think we will

do rather than what they think is right. That leaves us with a sense that, because we have a credible position that people respect, if we were to decide on a 50 basis point rate cut and suggest that we remain concerned about having to lower the rate still more, it would lead to results that I don't think we would particularly like.

That leads me to the conclusion that the reduction should be 25 basis points and that we should use wording in our press statement similar to the wording we adopted at the May meeting. We need to convey the notion that we may not have completed our easing and that we are still watching ongoing developments in that regard. I believe, however, that we have to acknowledge that economic conditions have improved, as indeed they have, and that the probabilities of significantly more-positive developments starting soon are clearly better than 50–50.

So what I want to put on the table at this stage, and I hope it's acceptable, is to move the funds rate down 25 basis points, maintain the assessment that the risks to sustainable economic growth are balanced, but continue to imply that the risks of igniting inflation are very low. The latter clearly implies that policy easing insurance is exceptionally low priced and that we foresee low inflation as the likely environment in which we are going to function for the period ahead. I don't know how the markets will respond to all of that, but if our purpose is to maintain the extraordinary communication success of our May 6 announcement, in my judgment this statement is as close as we can get. That, therefore, is what I would put on the table. President Hoenig.

MR. HOENIG. Mr. Chairman, I support the recommendation, and let me explain my reasons in the following way. I am scheduled to give a speech next week; and as I think about it, the policy stance you've just described makes me comfortable that I will be able to give that

speech. In other words, I do think that the outlook is positive. I don't know if it's as positive as the Greenbook or as positive as we hope, but I think it's positive. However, I believe that the cost of insurance is fairly low and a ¼ point cut in the funds rate target is to me a reasonable insurance policy. If we went more than ¼ point, selling the idea that the economy is picking up and that the outlook is favorable would be much harder; that would be very difficult to communicate. So I support your recommendation strongly.

CHAIRMAN GREENSPAN. First Vice President Stewart.

MR. STEWART. Mr. Chairman, I support your recommendation. I agree that there is no clear sign of a recovery, and it seems to me that we need to back up our antideflation reputation. I would not go to a ½ point cut in the funds rate objective because it seems appropriate—to recall some of my nautical training of years ago—to go slowly in uncharted waters. At these levels of rates we don't know what the impact on the financial industry will be, and I like the idea of giving the banks, money market funds, and consumers time to adjust to these low rates.

CHAIRMAN GREENSPAN. Governor Ferguson.

MR. FERGUSON. Mr. Chairman, I agree with your recommendation and I also very much like the way you got there. I think we do want to reestablish an accommodative policy, which means the choice is between 50 and 25 basis points. Given the fiscal stimulus in the pipeline and given some of the incoming data that suggest a pickup in economic activity, 50 basis points may be a bit too much. As I've listened to the discussion today and thought about it, I must say that I would like to have a bit more of a cushion. But if things unfold in a negative way, I think we will have time to provide more of a cushion. I strongly endorse what we're trying to do overall, which is to send a very clear signal that we're prepared to be accommodative now and prepared to be accommodative for some time if we have to be.

Working with the risk assessment the way you've outlined seems quite consistent with that last statement; I think it might send that signal. There is some risk that we'll disappoint the market to some degree, but I don't think this action will backfire on us. So I'm very comfortable with your recommendation and the way you got there.

CHAIRMAN GREENSPAN. President Parry.

MR. PARRY. Mr. Chairman, I really have a preference for a cut of 50 basis points, in part because of the arguments that were made by Governor Gramlich. In addition to that, it seems to me that 50 basis points would actually more than offset the decline in expected inflation and, therefore, the increase in the real funds rate that has occurred since the last meeting. To me a 25 basis point cut merely undoes an inadvertent tightening brought about by declining inflation expectations. And if that's the case, it's hard for me to conceive of a cut of 25 basis points as taking out an insurance policy. It just gets us back to where we were.

CHAIRMAN GREENSPAN. President Poole.

MR. POOLE. Mr. Chairman, I support the 25 basis point reduction, and I think your discussion about the statement is right on the mark. It does leave open, of course, a possibility of another 25 basis point cut in the future. That's part of the purpose of doing it this way. That being the case, we will get questions about where this easing process might end—whether there's a possibility of another 25 beyond that. In addressing those questions we could punt and say that we'll cross that bridge when we get to it. I don't believe that would be the wise thing to say. I think we need to be talking in much more definite terms about what it would mean to move to a so-called nontraditional policy. It's not that we expect to get there, and we should emphasize that. I certainly don't anticipate that we will get there. But I think we need to have a coherent view of what it would mean if we did. That's because such a policy regime is not over

the horizon as a remote possibility from the perspective of the marketplace but it's actually out there on the horizon as a genuine possibility. In my view the market understanding of what it would mean is very, very weak. I don't think people know what it would mean. If we do get to that point, it will be important for us to make sure that money growth remains substantial, and I would want to emphasize that we will pump funds into the system to be certain that happens. That's essentially what it means if the funds rate actually goes to zero from time to time. I think we need to talk about that because people will be asking us about it.

CHAIRMAN GREENSPAN. Well, I think we have a problem in the sense that the markets don't know very much about it and I'm not sure we do either. That is, we know what the nontraditional activities are, but we don't know how the market will respond to a whole new set of monetary policy procedures. We do know that uncertainty of this nature will increase risk premiums. It has to. Anything new, good or bad, increases risk. One reason that I'm reluctant to move the funds rate target down 50 basis points is that it gets us closer to the point where we will have to address the issue very immediately. I say that because I agree with you. I don't think that the markets have a clue, really, about what nontraditional types of policies would mean. We could handle it in the upcoming monetary policy report if we knew much about it. I frankly would prefer to avoid that in the hopes that this economy will start to pick up, which would make that conversation moot. I'm not sure that we could convey to the markets a sense of confidence that the transition from the traditional to the nontraditional would not raise risk premiums. Unless we can do that, we are in a very difficult position. I would hope that Keynes prevails, which is something I rarely say, [laughter] and that this economy picks up and takes that issue off the table. Governor Kohn.

MR. KOHN. Thank you, Mr. Chairman. I support both parts of your recommendation. I do think we need to follow our talk with action. As for the size, 25 versus 50 basis points, I recognize as President Parry said that one could make a case for 50 on the grounds of being aggressive and getting ahead of the problem. But I think 25 is appropriately sized for the situation, given that we do see signs of some improvement and there's a lot of stimulus in the pipeline. I believe that the 25 basis point cut taken together with a sense of downside risk to inflation should limit any upward ratcheting of interest rates from what little disappointment there will be in the market. Like President Poole, I presume that if we don't get the rebound that we're looking for in the third quarter, we're going to have another serious conversation in August about whether we need to move further.

Let me make a couple more comments on some of the things that have been said. I do have a little concern about the sense that we might shy away from a rate cut that we think is needed because of the signal that such a move would send to the markets. If I thought 50 basis points were the appropriate action, I would argue in favor of that, and I would have confidence in our ability to explain it, though it would be very difficult to shape our message so that we weren't sending the wrong signal. I would worry if I thought that concern about the message being sent kept us from doing the right thing. In my view it's the combination of our words and actions that will shape market expectations and confidence. I think we can put the two together in a way that we get out the message we want to send.

Let me touch on a few more things that were mentioned. The word "sustainable" in my mind is growth at potential. The way I see the three sentences in the balance of risks statement is that the first sentence is about the output gap, the second sentence is about the inflation gap, and the third sentence adds it up. So if I think the first sentence is about the output gap, sustainable

to me means growth at potential. Interestingly, relative to what Governor Bernanke said earlier today, the forecasts that we'll be putting out are for growth above potential and are not entirely consistent with the statement that we're likely to put out. How we're going to handle the balance of risks language may be more of a problem going forward if growth actually does pick up. I don't think it's a problem for today.

Finally, Vincent's chart in the top left-hand panel of chart 1 brought home to me that actually it wasn't so much the release of the words in our press statement that resulted in the change in financial conditions; it was all the things that followed, including our own statements. It involved the interaction of what we said later and the data that came out relative to what we had said earlier. Many of us, myself included, were a little surprised by the reactions to some of the things we said. To the extent that some of us have expressed concern that there's too much talk of deflation—that people don't understand that it's disinflation we're talking about—I think we all, present speaker included, need to be very cautious about what we say. We need to be careful that we're not confusing the situation and fanning concerns that are not appropriate. Thank you.

CHAIRMAN GREENSPAN. Governor Gramlich.

MR. GRAMLICH. Thank you, Mr. Chairman. I find today's decision a very hard call because, in addition to the spending uncertainty issues that you mentioned, we have all the uncertainties—I'll call them the uncharted waters uncertainties—that we talked about yesterday and how to deal with those. So this time it has been difficult for me to figure out what I think we ought to do. Therefore, I support what I'll term your middle-of-the-road holding action. It doesn't go too far wrong in any dimension and it might even be just right. In addition, I would like to support Don in what he just said. I've always been uneasy about this argument that if we

move 50 basis points we send a message of fear. I would question that, partly for the reasons that Don mentioned. If the economy is really that shaky, maybe we should go 50.

CHAIRMAN GREENSPAN. Well, that's what we did in January 2001. The market did not expect us to go 50, but we chose to do that, and we were fully cognizant of what was involved. So I don't think there's really a disagreement on how to proceed if a larger move is necessary and that's what we want to do. I'm referring only to the types of actions when the market misreads what we do because their interpretation involves a combination of what we said previously and what we are in fact trying to do. If we have to move, market reactions to the move cannot be a consideration. President Broaddus.

MR. BROADDUS. Mr. Chairman, like Ned, I think it's a very tough call this morning. Clearly the choice for me is between the ¼ point and the ½ point reduction. As I see it, we have a significant risk of further disinflation. We've said that publicly. Also, as I said in my comments about the economy, I do believe that an acceleration in economic growth is the most likely outcome, but I don't think that has a particularly high probability in relation to other possible outcomes. In my view there's a strong probability of a weaker outcome than that, and I think we need to move forcefully and decisively against those downside risks at this meeting. Moreover, I really don't see much risk in doing that. To put the issue in a longer-term context, I've been attending these meetings for a long time, and it seems to me that often we've gotten into trouble when we have not moved quickly in situations where we've seen a significant risk in one direction or the other. We haven't been willing to move as forcefully as we should have. So, like Bob Parry, I have a strong preference for a ½ point reduction.

I have just a couple of additional comments. I'm worried, looking forward, about how this situation might play out if these downside risks remain in the picture. If we move ¼ point

now and then by the August meeting or the meeting after that we don't see much progress, we may be faced with having to take stronger action at that time. I don't know exactly how that would go, but we could end up with an even lower funds rate than otherwise and that prospect bothers me a little. On the issue of the signal and whether people would view a 50 basis point cut as suggesting that we see something the public doesn't see, that to me would be an advantage of what I understood Governor Bernanke to be recommending. If we communicate clearly to the public all of this information—what our real concerns are and their relative importance—I think that would deal with the issue. Another thing that bothers me about a ¼ point reduction is that some people may conclude that the reason we decided on ¼ point rather than ½ point is because we're worried about the zero bound. We had a wide-ranging discussion of that yesterday, with a lot of views expressed. One thing I took away from it was at least a reasonable degree of confidence that somehow or other we'll deal with that problem if we have to. I'm a little worried that a cut of only ¼ point today might suggest to some people that we're not confident of our ability to do that. I'm going to support the recommendation, but I must say it's a tough call for me.

CHAIRMAN GREENSPAN. President Guynn.

MR. GUYNN. Mr. Chairman, I support your recommendation. I have to admit to being still a bit uneasy, until we see the draft press statement in a few minutes, because how we talk about the disinflation risks concerns me. When I look at the tabulation of our individual forecasts for inflation next year, I don't see any statistically significant further decline in our inflation expectations. So I find it hard to read into the conversations I've listened to and these forecasts a great concern among us about inflation falling rapidly over the period ahead. Therefore, I hope that we won't create the mis-impression in the statement that we see a bigger

risk than our forecasts seem to suggest. That's not what I see when I look at our forecasts. Nevertheless, I'm supportive of your recommendation, and I will vote for it.

CHAIRMAN GREENSPAN. President Santomero.

MR. SANTOMERO. I support your recommendation for lowering the fed funds rate at this meeting, Mr. Chairman. I would have preferred a bit more decisive action. My concern is that for the next two months we'll be talking about this among ourselves and the press will be asking what we're going to do next and whether we plan to stop at 1 percent—wondering if perhaps there's a little fear associated with breaking 1 percent. But it's clearly the case that a reduction in the funds rate is in order to get the economy back to an acceptable growth rate, so I support your recommendation.

CHAIRMAN GREENSPAN. President Stern.

MR. STERN. I, too, support your recommendation, Mr. Chairman. It seems to me that this additional stimulus is very low cost at this point, so I think it's the right thing to do. I also support the idea of reinforcing the signal that we sent to the market the last time about our views on interest rate levels and so forth. I'm not sure about the best way to do it. Maybe when the draft statement is available, that will clarify it, at least for me. I have one other, perhaps somewhat gratuitous, comment. It seems to me that when inflation is running at 1 percent plus or minus—and it may be more minus than plus—there's not much of a distinction between being concerned about further disinflation or about deflation. We're just not very far from deflation. So I'm not sure that trying to make that distinction in our public comments is going to turn out to be very productive.

CHAIRMAN GREENSPAN. President Moskow.

MR. MOSKOW. Thank you, Mr. Chairman. I agree with the way that Roger Ferguson phrased the issue—that the threshold of evidence provided by the data since our last meeting was not sufficient for us not to change rates today. So I do agree with the 25 basis point cut and the way you phrased the balance of risks. But of course the data we talk about are always looking backward, and the key is the forecast going forward. As we've often said in these meetings, sometimes the last cut or the last increase in the funds rate target is the one that's not needed because we didn't have perfect information at the time we made that cut or increase. I certainly hope that's true this time, and I hope we won't have to move forward with any nontraditional forms of monetary policy.

I do want to say a word about the risks statement, though. In my view Vincent has done an admirable job in trying to take the wording of our statement from the last meeting and to put it into this old framework that we had for the balance of risks. On an interim basis, I think that's fine. But I believe—and I'm going to sound like a broken record here because I recommended this at the last meeting—that a subcommittee of this Committee should be appointed to look at this in more detail, as was done in past. The most recent such subcommittee was the one that Roger chaired, and there were several presidents and several members of the Board on it. This is a very tricky area. A couple of points have been mentioned here today. Governor Bies has concerns about the phrase "downside risks" with regard to inflation, and Bob Parry is worried about the word "sustainable." Don Kohn made a very good point that down the road, when we're looking for sustainable economic growth, we may not want to say that the risk is weighted toward the upside. So I think a group of us should look at this in more detail and come back with a recommendation to this Committee regarding how to deal with this on a longer-term basis.

CHAIRMAN GREENSPAN. Why don't you survey the members and rather than get into a discussion right now, because obviously we don't need to do that today—

MR. MOSKOW. No, I'm talking about the longer term.

CHAIRMAN GREENSPAN. I understand. It's a very critical question of how we ought to proceed to get our communication issues straightened out. We've moved forward since the last meeting, and apparently effectively, but that's not the end of the game. Governor Bies.

MS. BIES. Mr. Chairman, I can support your recommendation. Like several others, I was torn between 25 and 50 basis points. But as you put it very well, we have a huge stimulus coming with the tax package that's about to take effect, and in accordance with traditional economic theory, that should provide the impetus to get the economic growth that is projected in the Greenbook. For that reason I'm more comfortable with a cut of 25 rather than 50 basis points right now.

I do support President Moskow's direction of thinking regarding how we talk about things. At this moment, in a world where CEOs and everybody else are worried about risks, even to imply that the opportunity for growth of 4 or 5 percent is seen as a risk seems not to be the best choice of words. We might want to find better words to convey our message in a way that will encourage what we see as the growth necessary to get economic performance up to potential and to use all of our excess capacity and human resources. I think it's time that we look at this and try to address some of the comments that Governor Bernanke made.

CHAIRMAN GREENSPAN. President Pianalto.

MS. PIANALTO. Mr. Chairman, I also support your recommendation for a 25 basis point cut. The reason I support it is the need to address the disinflation risk. In the statement we issued at the last meeting we did tell the public for the first time that we had concerns about that

risk, and over the intermeeting period we validated those concerns in such a way as to strengthen the public's conviction that we would act today. Having called attention to the risk, I think we are obligated to follow our rhetoric with action. As others have said, uncharted territories contain risks that we would be wise to avoid, and I think this action will help us avoid those risks.

CHAIRMAN GREENSPAN. Governor Olson.

MR. OLSON. I also support both parts of the recommendation. It seems to me that, in accordance with what we signaled in May, an easing is appropriate. And consistent with what is in the pipeline, particularly the fiscal stimulus, a ¼ point move seems appropriate. I think we've also set a very high threshold for ourselves in terms of our responsibility to communicate, and in my view we ought to look at that question very carefully. Before I joined the Fed and the FOMC, I thought as an outsider looking in that there was a lot of room for improvement in communication. Since joining this group I have come around almost 180 degrees on that. Because of the intense focus on every word from the Fed, I have become an incrementalist in terms of how we change the manner in which we communicate. So I believe we ought to think very carefully about how we do that.

CHAIRMAN GREENSPAN. Governor Bernanke.

MR. BERNANKE. Mr. Chairman, I support your recommendation as well as your reasoning. I'd like to follow up briefly on your answer to President Poole. I wonder if you might give some thought to whether or not it would make sense tactically to say publicly that we are willing to lower the federal funds rate to zero if necessary. I realize there is some cost to doing that, but I see two advantages. First, it might allow us to defer gracefully for a longer period the issue of what we might do if we run out of room. That is, if the question comes up,

we could say, well, we're still 100 basis points away from that. Second, I think it would have a beneficial effect on expectations in that there would no longer be a feeling in the market that we had reached the end of our rope. Obviously, we're going to have to put some thought into that.

CHAIRMAN GREENSPAN. I agree that the longer we can forestall the threshold of having to move to nontraditional means, the better off we are. As I indicated yesterday, while I think there are serious problems as we move rates down, money market mutual funds are not a big issue. These are ephemeral short-term financial intermediaries that can come and go very rapidly. There are trickier questions, and those questions were raised in some of the papers underlying the proposals and discussions of yesterday. But I think they, too, are minor relative to the risk we would take in altering our basic procedures. Yes, the notion that we have no more room to move rates down may be one of the issues we can address in the Humphrey-Hawkins testimony without necessarily going too far. At least we can knock down the presumption of a 75 basis point limit that a lot of people have brought up. I think we could do that without breaking too much crockery, if I may put it that way. President McTeer.

MR. MCTEER. I agree with your recommendation and with Governor Bernanke's suggestion just now.

CHAIRMAN GREENSPAN. President Minehan.

MS. MINEHAN. I support your recommendation, too. Along with Bob Parry and Al Broaddus, I certainly can see the theory behind getting ahead of lower rates of inflation and a high output gap and trying to stem the tide before the economy actually falls into deflation. But I personally think a reduction of 25 basis points has some advantages. I think it's a more normal way to operate in an environment where there are some signs of growth. Granted, to a large degree that's only a forecast, but things are looking up more than they were the last time we met.

So in view of that environment, I'm very much in favor of the 25 basis points. A 25 basis point move would also tend to moderate a bit the degree to which people might believe that we are going to be constrained in future actions if we need to take them. I believe it is also more consistent with looking at disinflation rather than deflation as a concern right now.

I would agree with Governor Bernanke that a communication that we're operating as normal and that we still have 100 basis points to go is appropriate. We need to indicate that there's a lot of stimulus in this environment and that there are signs of a pickup in economic activity. That is the way to handle the situation at this stage, both in terms of our actions and how we communicate our actions.

Finally, the task force approach to communication may be a good way of proceeding. But I also thought, given the papers we received yesterday, that we were going to have an opportunity as a group to discuss communication issues—and maybe even before January. I find them extraordinarily complex. A discussion somewhat like the one we had yesterday would be helpful to me in setting a basis for how to think about these issues. Then if we want, we could follow that with a task force to look at this in more detail and to come up with some recommendations. I don't think we have an immediate, crying need for decisions here—at least I hope we don't. I believe there's some time to look at this thoughtfully and to move forward in a measured way.

CHAIRMAN GREENSPAN. That certainly should be on the agenda for a future meeting. The majority is clearly in favor of a 25 basis point reduction and retaining, not exactly but in similar words, the balance of risk assessment that we put into the May 6 statement. Would you read the appropriate words?

MR. BERNARD. The wording is on page 13 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 1 percent." With regard to the three sentences for the press statement: "The risks to the Committee's outlook for sustainable economic growth over the next several quarters are balanced. The risks to its outlook for inflation over the next several quarters are weighted toward the downside. And, taken together, the balance of risks to its objectives are weighted toward the downside in the foreseeable future."

CHAIRMAN GREENSPAN. Would you call the roll?

MR. BERNARD.

Chairman Greenspan	Yes
Governor Bernanke	Yes
Governor Bies	Yes
President Broaddus	Yes
Governor Ferguson	Yes
Governor Gramlich	Yes
President Guynn	Yes
Governor Kohn	Yes
President Moskow	Yes
Governor Olson	Yes
President Parry	No
First Vice President Stewart	Yes

CHAIRMAN GREENSPAN. The members of the Federal Reserve Board will have to discuss the issue of the discount rate. Please distribute the draft statement to the Reserve Bank presidents, and they can look at it while we adjourn temporarily. We will reconvene shortly.

[Recess]

CHAIRMAN GREENSPAN. The Board of Governors has accepted the recommendation of a number of Federal Reserve Banks to reduce the discount rate to 2 percent. We accepted the

requests of the Boston, New York, St. Louis, Kansas City, and San Francisco Banks. At this point I think we need to give the Board members some time to read the draft press release.

MS. MINEHAN. Isn't it called the primary credit rate as opposed to the discount rate?

MR. FERGUSON. Yes, it's the primary credit rate.

MR. REINHART. We had a request from the folks in our Public Affairs office to continue referring to it as the discount rate because some reporters have expressed confusion about the new terminology. So we've indicated that we would call it the discount rate.

MS. MINEHAN. Well, okay. What about the letter that is being sent to our Banks? Will that call it something different?

CHAIRMAN GREENSPAN. We send the Banks a legal sheet of paper and in that we need to get it right.

MR. REINHART. If the Committee has a different view, the terminology in the press statement can be changed. In the previous system we had multiple discount rates; we had the adjustment program, the seasonal program, and the extended program. But the actions taken were adjustments to what we termed colloquially "the discount rate."

MS. MINEHAN. Right.

MR. REINHART. It's the same situation now except that it's the primary credit rate that we refer to as the discount rate.

CHAIRMAN GREENSPAN. I assume everyone has had a chance at this stage to read the statement. Is it acceptable?

MR. MCTEER. Would you accept one little suggestion?

CHAIRMAN GREENSPAN. I don't know! [Laughter]

MR. MCTEER. I would suggest changing the word "sustainable" to "sufficient."

MR. PARRY. "Acceptable."

MR. MCTEER. Or "acceptable."

CHAIRMAN GREESPAN. You want to take out "sustainable" and put in "acceptable"?

MR. PARRY. Yes.

MR. POOLE. I would argue against that on the ground that it will raise a lot of questions about what that means in these circumstances. I'd leave it alone.

CHAIRMAN GREENSPAN. Yes, I think it's a word of art in this type of statement. We've used it before; and in the context of what we've done, it becomes clear.

MR. MCTEER. I always thought we used "sustainable" to mean low enough, and we're talking here about growth not being high enough.

CHAIRMAN GREENSPAN. No, "sustainable" means any rate of growth for which the internal dynamic of that growth has the capability of continuing. Now, there are disagreements as to where that rate is. But for the purposes of this statement, we're saying that all of the signs plus the additional stimulus would suggest a significant acceleration in economic activity. At the moment, however, we'd be hard pressed to argue that the data we have seen thus far could be characterized as self-perpetuating.

MR. GUYNN. Mr. Chairman?

CHARIMAN GREENSPAN. Yes.

MR. GUYNN. I know you're trying to strike a balance between a number of different views, but when I read the words "unwelcome substantial fall in inflation" they sound more menacing, more troubling, and indicative of greater concern than I think most of us have. I wonder if there's a way to take the edge off of that wording a bit.

MR. HOENIG. I agree with that.

MR. GUYNN. Are those the same words we used last time?

CHAIRMAN GREENSPAN. You want to take the word "substantial" out? Is that what you're arguing?

MR. HOENIG. Yes, we have a different projection now, a much stronger projection.

CHAIRMAN GREENSPAN. Well, it is a projection.

MR. HOENIG. I realize that.

CHAIRMAN GREENSPAN. Let me put it this way. These are the words we've used in the past; and in this environment, the fewer words we change, the better. In August we can change the wording. It is perfectly conceivable to me that, by the time we get to our August meeting, we will be looking at an economy that is comparable to that in the Greenbook forecast. It's conceivable that a lot of things will change. But I would hope that we could stay with this language for today. Yes, President Parry.

MR. PARRY. In the first sentence of the second paragraph you list the reasons that there is strength. When we talked about it earlier in the meeting, we were citing three reasons: monetary policy, productivity, and the stimulus from fiscal policy. The last one is missing from the statement.

CHAIRMAN GREENSPAN. That's because the fiscal policy hasn't kicked in yet. We're saying that recent signs point to a firming in spending. In other words, it hasn't happened yet. We're trying to indicate that, as we look at what is going on, we see an economy that is soft and whose growth hasn't taken on the condition of cumulative sustainability. But I would certainly think that by August we're going to have to address that question. Why don't we go with this as is, fill in the appropriate names of the Reserve Banks, and show the dissent.

The next meeting is August 12. Let me remind you before we close that Dave Stockton would appreciate receiving any changes in your forecasts by close of business on July 3. Let's go to lunch.

END OF MEETING