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Remarks by

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Chairman

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The past decade has been extraordinary for the American economy. The synergies of key technologies markedly elevated prospective rates of return on high-tech investments, led to a surge in business capital spending, and significantly increased the underlying growth rate of productivity. The capitalization of those higher expected returns boosted equity prices, contributing to a substantial pickup in household spending on a broad range of goods and services, especially on new homes and durable goods. This increase in spending exceeded even that of the enhanced rise in real incomes.

By early 2000, the surge in household and business spending had lifted the growth of the stocks of many types of consumer durable goods and business capital equipment to rates that could not be continued. The elevated level of light vehicle sales, for example, implied a rate of increase in the number of vehicles on the road hardly sustainable for a mature industry. And even though demand for a number of high-tech products was doubling or tripling annually, in some cases new supply was coming on even faster. Overall, capacity in high-tech manufacturing industries rose nearly 50 percent last year, well in excess of its already rapid rate of increase over the previous three years. Hence, a temporary glut in these industries and falling prospective rates of return were inevitable at some point. Clearly, some slowing in the pace of spending was necessary and expected if the economy was to progress along a more balanced growth path.

But the adjustment has occurred much faster than most businesses anticipated, with the slowdown likely intensified by the rise in the cost of energy that has drained businesses and households of purchasing power. Growth of outlays of consumer durable goods slowed in the middle of last year and shipments of capital equipment, excluding aircraft, have declined since late in the year.

Moreover, weakness emerged more recently among our trading partners in Europe, Asia, and Latin America. The interaction of these developments has led to a broader softening than each of the individual economies would have experienced on its own.

Because the extent of the slowdown was not anticipated by businesses, it induced some backup in inventories, especially in the United States. More advanced supply-chain management and flexible manufacturing technologies have enabled our firms in recent years to adjust production levels more rapidly to changes in sales, but apparently these improvements have not yet solved the thornier problem of anticipating demand. In the event, inventory-sales ratios rose only moderately; but relative to desired levels, at least as inferred from their downtrend over the past decade, these ratios implied that considerable imbalances had emerged. Confirming this impression, manufacturing purchasing managers reported that inventories in the hands of their customers had risen to excessively high levels.

As a result, a round of inventory rebalancing took hold, and the slowdown in the economy that began in the middle of 2000 intensified. The adjustment process began late last year when manufacturers cut output sharply to stem the accumulation of unwanted inventories. As output declined further, liquidation apparently took hold early this year in a number of sectors.

Much of the inventory reduction in the first quarter reflected a dramatic scaling back of motor vehicle assemblies, which removed excess cars and light trucks from dealer showrooms and lots. By the end of March, the inventory of cars and trucks had fallen to a more satisfactory 61 days supply, though some uptick in light truck inventories was apparent in April.

Inventories of computers, semiconductors, and communication products also backed up, and by contrast, these stocks are only belatedly being brought under control. Inventories of semiconductors and computers have fallen, but less progress appears to have been made with respect to communications equipment. Overall, inventory investment of high-tech producers has probably turned negative, but a period of substantial liquidation still appears ahead for these products.

For all inventories, the rate of liquidation appears to have increased this winter, and limited data suggest that it has remained sizable this spring. Although a not inconsequential proportion of the current liquidation undoubtedly is of imported products, and thus will presumably affect foreign production, much of the adjustment has fallen on domestic producers.

At some point, inventory liquidation will come to an end, and its termination will boost production and promote recovery. Of course, the timing and force with which that process plays out will depend on the behavior of final demand. In that regard, consumer spending has been soft but seems, for the moment at least, not unduly so.

The demand for capital equipment, however, is more problematic. Despite evidence that expected rates of return on the newer technologies remain high, investment in equipment and software has slowed. As I already noted, some adjustment from the earlier unsustainable pace of capital accumulation was inevitable. But the weakening appears to have gone beyond this adjustment, reflecting a deterioration in short-term profitability and cash flow.

Pressures on profit margins and cash flows have been unrelenting. The earnings estimates of securities analysts for the S&P 500 in 2001, which presumably reflect the guidance that these analysts are getting from corporate management, have been revised downward by

nearly 1 percent per week since February. To be sure, the pace of downward revision has slowed this month, but the adjustments remain negative. Earnings weakness is evident pretty much across the board but especially for high-tech firms, where the previous extraordinary pace of expansion has left oversupply in its wake.

Much of the profit squeeze results from a rise in unit labor costs. Gains in compensation per hour picked up over the past year, responding to a long period of very tight labor markets and the effects of an energy-induced run-up in consumer prices. Faster increases in hourly compensation, coupled with the cyclical slowdown in the growth of output per hour, have elevated the rate of increase in unit labor costs. In effect, fixed costs, both labor and nonlabor, are being spread over a smaller production base for many industries.

The sharp rise in energy costs has also pressed down directly on profit margins, especially in the fourth and first quarters. A substantial portion of the rise in total costs of nonfinancial, non-energy corporations between the second quarter of last year and the first quarter of this year reflected the increase in energy costs. Prices paid for natural gas and petroleum products by these corporations continued to rise into the first quarter, but have eased this spring. Electric power prices, however, continued to rise sharply through last month. Going forward, the prospect for higher electricity costs is most pronounced, of course, in California.

The rise in natural gas prices last quarter contributed directly and indirectly (through its effect on the cost of electrical power generation) much of the rise in overall energy costs for nonfinancial, non-energy corporations. Because we import little natural gas, higher prices largely result in a transfer of income from natural gas users to natural gas producers. Nonetheless, these

higher prices are likely to weigh on the economy in the short run because the increase in capital spending by energy producers is unlikely to offset the drag on spending by energy consumers.

If overall final demand holds up reasonably well, the rate of inventory liquidation must begin to slow as inventory levels shrink toward operational targets. Production and imports, taken together, would rise toward the level of final sales as inventories are brought into the desired alignment with sales.

In the past, such episodes -- with their associated increases in employment, household incomes, and profits -- would engender a cycle of expansion, including a pickup in investment. While such a scenario is likely to develop at some point in the period ahead, there are, nonetheless, considerable uncertainties about its timing and magnitude.

Even after its recent decline, overall investment in equipment and software remains sufficiently elevated to be able to contract further for a time and still maintain an impressive uptrend in capital accumulation. Despite the marked softening in the flow of new orders into high-tech manufacturing firms in recent months, the level of these new bookings was still higher than in early 1999, a period of emerging euphoria. Indeed, at the end of March, the level of unfilled orders for domestic establishments producing computers and communication equipment was still close to a record high, though unfilled orders of producers of electronic components, while still elevated, were well off their peaks. These data, of course, include a number of the large established firms whose experience has not been as adverse as that of the more visible recent high flyers.

Whether the well-advanced inventory cycle provides support for recovery, or whether a further weakening of investment and consumption demand undercuts that support, should

become increasingly evident in the weeks and months ahead. The persuasive evidence that the growth of structural productivity remains well maintained and that prospective long-term rates of return probably have been only marginally diminished suggests a solid underpinning to capital spending.

At some point, one hopes sooner rather than later, the high-tech correction will abate, and this set of industries will reestablish itself as a solidly expanding, though less frenetic, part of our economy. At that point, rather than returning to the outsized 50 percent annual growth rates of last year, a more sustainable pace should be expected.

Of course, investment demands ultimately depend on the strength of the consumer markets for goods and services. Here too, longer-run advances in real income and spending resulting from an acceleration of productivity and real wages should provide support over time. But there are also downside risks to consumer spending over the next few quarters. Importantly, the same downward pressure on profits and the heightened sense of risk that have restrained investment have also lowered equity prices and reduced household wealth. We can expect the decline in wealth that has occurred over the past year to restrain household spending relative to the growth of income, just as the previous increase gave an extra boost to household demand. Furthermore, most survey measures suggest consumer sentiment, while having stabilized recently, remains fragile.

More recent concerns have arisen with respect to possible effects of higher gasoline prices on the economy. A rise in these prices this summer, as many fear, would, as always, act as a tax on household's incomes and spending, hardly welcome in today's context. However, while wholesale and retail prices for gasoline have surged in recent months, crude prices have not.

Apparently, owing to a shortage of operating refining capacity in the United States, gross refining margins have widened by about 20 cents per gallon seasonally adjusted since February. With some temporarily closed refining capacity coming back on-line, and with higher gasoline prices likely to curb consumption and draw in product imports, market forces seem to be poised to contain further price increases at the pump. Presumably this is the reason that gasoline prices for future wholesale delivery are well below current elevated levels.

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The economic developments of the last couple of years have been a particular challenge for monetary policy. Once the financial crises of late 1998 that followed the Russian default eased, efforts to address Y2K problems and growing optimism--if not euphoria--about profit opportunities produced a surge in investment, particularly in high-tech equipment and software. This upswing outstripped what we could finance on a sustainable basis from ongoing domestic saving and funds we could attract from abroad.

The shortfall of saving to finance investment showed through in a significant rise in average real long-term corporate interest rates starting in early 1999. By June of that year, it was evident to the Federal Open Market Committee that to continue to hold the funds rate at the then-prevailing level of 4-3/4 percent in the face of rising real long-term corporate rates would have required a major infusion of liquidity. This would have added fuel to an economy that was already threatening to overheat. In fact, the 175 basis point increase in our target federal funds rate through May of 2000 barely slowed the expansion of liquidity, judging from the growth in M2 money supply, which declined only modestly through the tightening period.



By summer of last year, it was finally becoming apparent that the growth of demand was slowing and its evident excess over the growth of potential supply, as proxied by a diminishing pool of available labor, was being contained. Nominal and real long-term corporate rates eased off somewhat in June and July and then were stable until much later in the year. This stability suggested that a rough balance between investment and saving plans was being foreseen by the markets. To have disturbed that balance with a decline in the targeted federal funds rate at that time, in our judgment, would have risked cutting short the adjustments needed to sustain long-term economic growth.

Had we moved the funds rate lower at the first sign of economic slowing, we would have created distortions threatening an even greater economic adjustment at a later date. It was well into autumn before one could be more confident that the balance of desired investment and saving was being durably restored. Even as late as mid-November, futures rates on federal funds and Eurodollar deposits indicated that the money market did not expect, or apparently see as necessary, a significant change in policy over coming months. Only in late November and early December did expected near-term federal funds rates finally slip noticeably under the prevailing 6-1/2 percent rate, arbitraging other short-term rates downward.

By our December meeting, the Federal Open Market Committee decided that the time to press against cumulative economic weakness probably had arrived. We altered our assessment of the risks to the economy and with incoming information following the meeting continuing to be downbeat, we took our first easing action on January 3. Owing to the evident accelerated pace of economic adjustment, largely a consequence of the technology-enhanced speed and volume of

information flows, we have quickened our pace of policy adjustment this year. Last week, we lowered the federal funds rate to 4 percent, 250 basis points below its level at the turn of the year.

As many commentators have observed, the yield curve has steepened appreciably since the beginning of the year, and especially since mid-March. How does one read this market behavior? Is the steepening wholly a reflection of an expected firming in economic activity, or are rising inflation expectations lurking in the figures?

In the case of corporate yields, much of the steepening, including the most recent uptilt, reflects a fall in short-term rates, such as those on commercial paper; nominal BBB ten-year yields fell slightly through mid-March and have risen only modestly since then. The Treasury yield curve, however, has steepened more appreciably of late as ten-year rates, for example, rose by somewhat more than corporate rates. The outsized increase in Treasury long-term yields relative to private yields probably reflects some expectation that the decline in the supplies of outstanding marketable Treasury debt may not be as dramatic as earlier thought.

Still, the spread between rates on nominal ten-year Treasury notes and inflation-indexed ten-year maturities has risen about half a percentage point since mid-March--not an insignificant change. Interestingly, despite some apparent deterioration in actual and expected CPI inflation, there has been little acceleration in the broader index of core personal consumption expenditure prices.

In that regard, the lack of pricing power reported overwhelmingly by business people underscores an absence of inflationary zest. Undoubtedly businesses are feeling the effects of diminished pressures in product markets. With energy inflation probably peaking and the easing

of tightness in labor markets expected to damp wage increases, prices seem likely to be contained.

We have often pointed before to the essential role that low inflation expectations play in containing price pressures and promoting growth. Any evident tendency in financial markets or in household and business attitudes for such expectations to trend higher would need to factor importantly into our policy decisions. Forecasts of the suppression or re-emergence of inflation, like all forecasts, do not have an enviable record. Faced with this inevitable uncertainty, a central bank's vigilance against inflation is more than a monetary policy cliché, it is, of course, the way we fulfill our ultimate mandate to promote maximum sustainable growth.

A central bank can contain inflation over time under most conditions. But do we have the capability to eliminate booms and busts? Can fiscal and monetary policy acting at their optimum eliminate the business cycle, as some of the more optimistic followers of J.M. Keynes seemed to believe several decades ago?

The answer, in my judgment, is no, because there is no tool to change human nature or to predict human behavior with great confidence. History suggests that risk premiums fall as the perceived threat of an economic downturn progressively fades. The longer an economy expands at a solid rate, the more people are likely to project that rate forward, eroding previous caution. This is a perfectly rational response. If people were accustomed to a three-year business cycle, they would exhibit far greater caution going into the third year of an expansion than if their normal experiences tended more to ten-year cycles.

The dimensions of any expansion of course will be significantly affected by technological trends, wholly independent of people's evaluation of risk. And variations in technology and risk

will appropriately affect asset prices to allocate capital efficiently in a market system. But, on occasion, asset prices can vary by more than can be attributed to underlying fundamentals. As risk premiums fall in an expansion, asset values and capital investment tend to be boosted, the economy experiences additional impetus, remembrances of recession fade, and risk premiums fall still further--sometimes to levels below any credible justification.

There is, of course, a downside limit--somewhat above zero--where declines in risk premiums end. At that point, confidence ceases to expand, inducing at least a momentary period of stability. Economic stability, not at all a bad state, is, nonetheless, less ebullient than the one that had existed as risk premiums were falling. Asset prices lose their upside potential and come under downward pressure as investors reevaluate risk and revise expectations for outsized gains.

Monetary policy, as we currently practice it, endeavors to lean against the propensities for economic overshooting, from whatever source, by changing interest rates. But we are unlikely ever to be entirely successful. For example, it is not possible to foresee how far risk premiums will fall or when that decline will stop and reverse. Risk premiums cannot move ever lower, and the end of the decline will adversely alter psychology. A bursting speculative bubble has historically too often been the end result of this process.

As I have indicated on previous occasions, identifying bubbles and their ultimate demise is exceptionally difficult. Indeed, as I already noted, movements in asset prices most often reflect changing underlying fundamentals. Forecasts that an increase in an asset price is a bubble would likely run counter to the conventional wisdom of a large segment of the investment community, or asset prices would not be so high.

Policy cannot fully anticipate the buildup or the ending of speculative excesses. Indeed, were we to lower overnight rates in advance of an expected break in asset prices, we would, presumably, only exacerbate the economic and financial imbalances. Our only realistic alternative is to lean against the economic pressures that may accompany a rise in asset prices, bubble or not, and address forcefully the consequences of a sharp deflation of asset prices.

While we are limited in our ability to anticipate and act on asset price bubbles, expectations about future economic developments overall inevitably play a crucial role in our policymaking. If we only react to past or current developments, lags in the effects of monetary policy could end up destabilizing the economy, as history has amply shown.

Because accurate point forecasts are extraordinarily difficult to fashion, we are forced also to consider the probability distribution of possible economic outcomes. Against these distributions, we endeavor to judge the consequences of various alternative policy scenarios, especially the consequences of a policy mistake.

The center of the forecast distribution, of necessity, is still important to our deliberations, but more than many people realize, policymaking is to a substantial extent focused on the potential deviations from the central forecast and the costs should those outcomes prevail. In short, our policy behavior is the result of examining the implications of the interaction of probability distributions and loss functions. We do not engage in the formal mathematics of such a model, of course, but we do follow its underlying philosophy. While we are constantly exploring ways to improve our policy procedures, we believe our current regime has served us well to date.

In reducing the federal funds rate this year by 250 basis points in a compressed period, we have been responding to our judgment that a good part of the weakening of demand was likely to persist for a while, and that there were significant downside risks even to a weaker central tendency forecast. Moreover, with inflation low and likely to be contained, the main threat to satisfactory economic performance appeared to come from excessive weakness in activity. So we took out the restraint inherent in our previous policy stance and have moved policy to a more accommodative posture to counter the effects of the downshift in demand.

As a consequence, some of the stringent financial conditions evident late last year have been eased. Real interest rates are down substantially in a wide variety of borrowing instruments. Private rates have benefitted from a narrowing of risk premiums in many markets, like those for riskier commercial paper and high-yield bonds. And the growth of liquidity, as measured by M2, has picked up.

Owing to the variable and long lags of monetary policy, the effect of our recent policy initiatives will take time to strengthen financial portfolios and spill over into demand for goods and services. The period of sub-par economic growth is not yet over, and we are not free of the risk that economic weakness will be greater than currently anticipated, requiring further policy response. But we also need to be aware that our front-loaded policy actions this year should be providing substantial support for a strengthening of economic activity later this year.

Moreover, with all our concerns about the next several quarters, there is still, in my judgment, ample evidence that we are experiencing only a pause in the investment in a broad set of innovations that has elevated the underlying growth rate in productivity to a level significantly above that of the two decades preceding 1995.

By all evidence, we are not yet dealing with maturing technologies that, after having sparkled for a half decade, are now in the process of fizzling out. To the contrary, once the forces that are currently containing investment initiatives dissipate, new broadened applications of innovative technologies should again strengthen demand for capital equipment and restore solid economic growth.