

Statement by

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I am pleased to appear before this Committee to present the Federal Reserve's report on the economic situation and monetary policy

The recent performance of the economy, characterized by strong growth and low inflation, has been exceptional--and better than most anticipated. During the first quarter of 1997, real gross domestic product expanded at nearly a 6 percent annual rate, after posting a 3 percent increase over 1996. Activity apparently continued to expand in the second quarter, albeit at a more moderate pace. The economy is now in the seventh consecutive year of expansion, making it the third longest post-World-War-II cyclical upswing to date.

Moreover, our Federal Reserve Banks indicate that economic activity is on the rise, and at a relatively high level, in virtually every geographic region and community of the nation. The expansion has been balanced, in that inventories, as well as stocks of business capital and other durable assets, have been kept closely in line with spending, so overhangs have been small and readily corrected.

This strong expansion has produced a remarkable increase in work opportunities for Americans. A net of more than thirteen million jobs has been created since the current period of growth began in the spring of 1991. As a consequence, the unemployment rate has fallen to 5 percent--its lowest level in almost a quarter century. The expansion has enabled many in the working-age population, a large number of whom would have otherwise remained out of the labor force or among the longer-term unemployed, to acquire work experience and improved skills. Our whole economy will benefit from their greater productivity. To be sure, not all segments of our population are fully sharing in the economic improvement. Some Americans still have trouble finding jobs, and for part of our work force real wage stagnation persists.

In contrast to the typical postwar business cycle, measured price inflation is lower now than when the expansion began and has shown little tendency to rebound of late, despite high rates of resource utilization. In the business sector, producer prices have fallen in each of the past six months. Consumers also are enjoying low inflation. The consumer price index rose at less than a 2 percent annual rate over the first half of the year, down from a little over 3 percent in 1996.

With the economy performing so well for so long, financial markets have been buoyant, as memories of past business and financial cycles fade with time. Soaring prices in the stock market have been fueled by moderate long-term interest rates and expectations of investors that profit margins and earnings growth will hold steady, or even increase further, in a relatively stable, low-inflation environment. Credit spreads at depository institutions and in the open market have remained extremely narrow by historical standards, suggesting a high degree of confidence among lenders regarding the prospects for credit repayment.

The key questions facing financial markets and policymakers are what is behind the good performance of the economy, and will it persist. Without question, the exceptional economic situation reflects some temporary factors that have been restraining inflation rates. In addition, however, important pieces of information, while just suggestive at this point, could be read as indicating basic improvements in the longer-term efficiency of our economy. The Federal Reserve has been aware of this possibility in our monetary policy deliberations and, as always, has operated with a view to supplying adequate liquidity to allow the economy to reach its highest potential on a sustainable basis.

Nonetheless, we also recognize that the capacity of our economy to produce goods and services is not without limit. If demand were to outrun supply, inflationary imbalances would eventually develop that would tend to undermine the current expansion and inhibit the long-run growth potential of the economy. Because monetary policy works with a significant lag, policy actions are directed at a future that may not be clearly evident in current experience. This leads to policy judgments that are by their nature calibrated to the relative probabilities of differing outcomes. We moved the federal funds rate higher in March because we perceived the probability of demand outstripping supply to have increased to a point where inaction would have put at risk the solid elements of support that have sustained this expansion and made it so beneficial.

In making such judgments in March and in the future, we need to analyze carefully the various forces that may be affecting the balance of supply and demand in the economy, including those that may be responsible for its exceptional recent behavior. The remainder of my testimony will address the various possibilities

#### *Inflation, Output, and Technological Change in the 1990s*

Many observers, including us, have been puzzled about how an economy, operating at high levels and drawing into employment increasingly less experienced workers, can still produce subdued and, by some measures even falling, inflation rates. It will, doubtless, be several years before we know with any conviction the full story of the surprisingly benign combination of output and prices that has marked the business expansion of the last six years.

Certainly, public policy has played an important role. Administration and Congressional actions to curtail budget

deficits have enabled long-term interest rates to move lower, encouraging private efficiency-enhancing capital investment. Deregulation in a number of industries has fostered competition and held down prices. Finally, the preemptive actions of the Federal Reserve in 1994 contained a potentially destabilizing surge in demand, short-circuiting a boom-bust business cycle in the making and keeping inflation low to encourage business innovation. But the fuller explanation of the recent extraordinary performance may well lie deeper.

In February 1996, I raised before this Committee a hypothesis tying together technological change and cost pressures that could explain what was even then a puzzling quiescence of inflation. The new information received in the last eighteen months remains consistent with those earlier notions; indeed, some additional pieces of the puzzle appear to be falling into place.

A surge in capital investment in high tech equipment that began in early 1993 has since strengthened. Purchases of computer and telecommunications equipment have risen at a more than 14 percent annual rate since early 1993 in nominal terms, and at an astonishing rate of nearly 25 percent in real terms, reflecting the fall in the prices of this equipment. Presumably companies have come to perceive a significant increase in profit opportunities from exploiting the improved productivity of these new technologies.

It is premature to judge definitively whether these business perceptions are the harbinger of a more general and persistent improvement in productivity. Supporting this possibility, productivity growth, which often suffers as business expansions mature, has not followed that pattern. In addition, profit margins remain high in the face of pickups in compensation

growth, suggesting that businesses continue to find new ways to enhance their efficiency. Nonetheless, although the anecdotal evidence is ample and manufacturing productivity has picked up, a change in the underlying trend is not yet reflected in our conventional data for the whole economy.

But even if the perceived quicker pace of application of our newer technologies turns out to be mere wheel-spinning rather than true productivity advance, it has brought with it a heightened sense of job insecurity and, as a consequence, subdued wage gains. As I pointed out here last February, polls indicated that despite the significant fall in the unemployment rate, the proportion of workers in larger establishments fearful of being laid off rose from 25 percent in 1991 to 46 percent by 1996. It should not have been surprising then that strike activity in the 1990s has been lower than it has been in decades and that new labor union contracts have been longer and have given greater emphasis to job security. Nor should it have been unexpected that the number of workers voluntarily leaving their jobs to seek other employment has not risen in this period of tight labor markets.

To be sure, since last year, surveys have indicated that the proportion of workers fearful of layoff has stabilized and the number of voluntary job leavers has edged up. And, indeed, perhaps as a consequence, wage gains have accelerated some. But increases in the Employment Cost Index still trail behind what previous relationships to tight labor markets would have suggested, and a lingering sense of fear or uncertainty seems still to pervade the job market, though to a somewhat lesser extent.

Consumer surveys do indicate greater optimism about the economy. However, it is one thing to believe that the economy,

indeed the job market, will do well overall, but quite another to feel secure about one's individual situation, given the accelerated pace of corporate restructuring and the heightened fear of skill obsolescence that has apparently characterized this expansion. Persisting insecurity would help explain why measured personal saving rates have not declined as would have been expected from the huge increase in stock market wealth. We will, however, have a better fix on savings rates after the coming benchmark revisions to the national income and product accounts.

The combination in recent years of subdued compensation per hour and solid productivity advances has meant that unit labor costs of nonfinancial corporations have barely moved. Moreover, when you combine unit labor costs with nonlabor costs -- which account for one-quarter of total costs on a consolidated basis -- total unit costs for the year ended in the first quarter of 1997 rose only about half a percent. Hence, a significant part of the measured price increase over that period was attributable to a rise in profit margins, unusual well into a business expansion. Rising margins are further evidence suggesting that productivity gains have been unexpectedly strong, in these situations, real labor compensation usually catches up only with a lag.

While accelerated technological change may well be an important element in unraveling the current economic puzzle, there have been other influences at play as well in restraining price increases at high levels of resource utilization. The strong dollar of the last two years has pared import prices and constrained the pricing behavior of domestic firms facing import competition. Increasing globalization has enabled greater specialization over a wider array of goods and services, in effect allowing comparative advantage to hold down costs and enhance efficiencies. Increased deregulation of

telecommunications, motor and rail transport, utilities, and finance doubtless has been a factor restraining prices, as perhaps has the reduced market power of labor unions. Certainly, changes in the health care industry and the pricing of health services have greatly contributed to holding down growth in the cost of benefits, and hence overall labor compensation.

Many of these forces are limited or temporary, and their effects can be expected to diminish, at which time cost and price pressures would tend to reemerge. The effects of an increased rate of technological change might be more persistent, but they too could not permanently hold down inflation if the Federal Reserve allows excess liquidity to flood financial markets. I have noted to you before the likelihood that at some point workers might no longer be willing to restrain wage gains for added security, at which time accelerating unit labor costs could begin to press on profit margins and prices, should monetary policy be too accommodative.

When I discuss greater technological change, I am not referring primarily to a particular new invention. Instead, I have in mind the increasingly successful and pervasive application of recent technological advances, especially in telecommunications and computers, to enhance efficiencies in production processes throughout the economy. Many of these technologies have been around for some time. Why might they be having a more pronounced effect now?

In an intriguing paper prepared for a conference last year sponsored by the Federal Reserve Bank of Boston, Professor Nathan Rosenberg of Stanford documented how, in the past, it often took a considerable period of time for the necessary synergies to develop between different forms of capital and technologies. One example is the invention of the dynamo in the mid 1800s.



Rosenberg's colleague Professor Paul David had noted a number of years ago that it wasn't until the 1920s that critical complementary technologies of the dynamo -- for example, the electric motor as the primary source of mechanical drive in factories, and central generating stations -- were developed and in place and that production processes had fully adapted to these inventions

What we may be observing in the current environment is a number of key technologies, some even mature, finally interacting to create significant new opportunities for value creation. For example, the applications for the laser were modest until the later development of fiber optics engendered a revolution in telecommunications. Broad advances in software have enabled us to capitalize on the prodigious gains in hardware capacity. The interaction of both of these has created the Internet

The accelerated synergies of the various technologies may be what have been creating the apparent significant new profit opportunities that presumably lie at the root of the recent boom in high-tech investment. An expected result of the widespread and effective application of information and other technologies would be a significant increase in productivity and reduction in business costs.

We do not now know, nor do I suspect can anyone know, whether current developments are part of a once or twice in a century phenomenon that will carry productivity trends nationally and globally to a new higher track, or whether we are merely observing some unusual variations within the context of an otherwise generally conventional business cycle expansion. The recent improvement in productivity could be just transitory, an artifact of a temporary surge in demand and output growth. In view of the slowing in growth in the second quarter and the more

moderate expansion widely expected going forward, data for profit margins on domestic operations and productivity from the second quarter on will be especially relevant in assessing whether recent improvements are structural or cyclical

Whatever the trend in productivity and, by extension, overall sustainable economic growth, from the Federal Reserve's point of view, the faster the better. We see our job as fostering the degree of liquidity that will best support the most effective platform for growth to flourish. We believe a noninflationary environment is such a platform because it promotes long-term planning and capital investment and keeps the pressure on businesses to contain costs and enhance efficiency.

The Federal Reserve's policy problem is not with growth, but with maintaining an effective platform. To do so, we endeavor to prevent strains from developing in our economic system, which long experience tells us produce bottlenecks, shortages, and inefficiencies. These eventually create more inflation, which undermines economic expansion and limits the longer-term potential of the economy.

In gauging the potential for oncoming strains, it is the effective capacity of the economy to produce that is important to us. An economy operating at a high level of utilization and growing 5 percent a year is in little difficulty if capacity is growing at least that fast. But a fully utilized economy growing at 1 percent will eventually get into trouble if capacity is growing less than that.

Capacity itself, however, is a complex concept, which requires a separate evaluation of its two components, capital and labor. It appears that capital, that is, plant and equipment, can adapt and expand more expeditiously than in the past to meet

demands. Hence, capital capacity is now a considerably less rigid constraint than it once was.

In recent years, technology has engendered a significant compression of lead times between order and delivery for production facilities. This has enabled output to respond increasingly faster to an upsurge in demand, thereby decreasing the incidence of strains on capital capacity and shortages so evident in earlier business expansions.

Reflecting progressively shorter lead times for capital equipment, unfilled orders to shipment ratios for nondefense capital goods have declined by 30 percent in the last six years. Not only do producers have quicker access to equipment that embodies the most recent advances, but they have been able to adjust their overall capital stock more rapidly to increases in demand.

The current lack of material shortages and bottlenecks, despite the high level and recent robust expansion of demand, is striking. The effective capacity of production facilities has increased substantially in recent years in response to strong final demands and the influence of cost reductions possible with the newer technologies. Increased flexibility is particularly evident in the computer, telecommunications, and related industries, a segment of our economy that seems far less subject to physical capacity constraints than many older-line establishments, and one that is assuming greater importance in our overall output. But the shortening of lags has been pervasive even in more mature industries, owing in part to the application of advanced technologies to production methods.

At the extreme, if all capital goods could be produced at constant cost and on demand, the size of our nation's capital stock would never pose a restraint on production. We are

obviously very far from that nirvana, but it is important to note that we are also far from the situation a half-century ago when our production processes were dominated by equipment such as open hearth steel furnaces, which had very exacting limits on how much they could produce in a fixed time frame and which required huge lead times to expand their capacity.

Even so, today's economy as a whole still can face capacity constraints from its facilities. Indeed, just three years ago, bottlenecks in industrial production -- though less extensive than in years past at high levels of measured capacity utilization -- were nonetheless putting significant upward pressures on prices at earlier stages of production. More recently vendor performance has deteriorated somewhat, indicating that flexibility to meet demands still has limits. Although further strides toward greater facilities flexibility have occurred since 1994, this is clearly an evolutionary, not a revolutionary, process.

### *Labor Markets*

Moreover, technology and management changes have had only a limited effect on the ability of labor supply to respond to changes in demand. To be sure, individual firms have acquired additional flexibility by increased use of outsourcing and temporary workers. In addition, smaller work teams can adapt more readily to variations in order flows. While these techniques put the right workers at the right spots to reduce bottlenecks, they do not increase the aggregate supply of labor. That supply is sensitive to changes in demand, but to a far more limited extent than for facilities. New plants can almost always be built. But labor capacity for an individual country is constrained by the size of the working-age population, which,

except for immigration, is basically determined several decades in the past

Of course, capital facilities and labor are not fully separate markets. Within limits, labor and capital are substitutes, and slack in one market can offset tightness in another. For example, additional work shifts can expand output without significant addition to facilities, and similarly more labor-displacing equipment can permit production to be increased with the same level of employment.

Yet despite significant increases in capital equipment in recent years, new additions to labor supply have been inadequate to meet the demand for labor. As a consequence, the recent period has been one of significant reduction in labor market slack.

Of the more than two million net new hires at an annual rate since early 1994, only about half have come from an expansion in the population aged 16 to 64 who wanted a job, and more than a third of those were net new immigrants. The remaining one million plus per year increase in employment has been pulled from those who had been reported as unemployed (600 thousand annually) and those who wanted, but had not actively sought, a job (more than 400 thousand annually). The latter, of course, are not in the official unemployment count.

The key point is that continuously digging ever deeper into the available work age population is not a sustainable trajectory for job creation. The unemployment rate has a downside limit if for no other reason than unemployment, in part, reflects voluntary periods of job search and other frictional unemployment. There is also a limit on how many of the additional 5 million who wanted a job last quarter but were not actively seeking one could be readily absorbed into jobs -- in

particular, the large number enrolled in school, and those who may lack the necessary skills or face other barriers to taking jobs. The rise in the average workweek since early 1996 suggests employers are having increasingly greater difficulty fitting the millions who want a job into available job slots. If the pace of job creation continues, the pressures on wages and other costs of hiring increasing numbers of such individuals could escalate more rapidly.

To be sure, there remain an additional 34 million in the working-age population (age 16 - 64) who say they do not want a job. Presumably, some of these early retirees, students, or homemakers might be attracted to the job market if it became sufficiently rewarding. However, making it attractive enough could also involve upward pressures in real wages that would trigger renewed price pressures, undermining the expansion.

Thus, there would seem to be emerging constraints on potential labor input. Even before we reach the ultimate limit of sustainable labor supply growth, the economy's ability to expand employment at the recent rate should rapidly diminish. The availability of unemployed labor could no longer add to growth, irrespective of the degree of slack in physical facilities at that time. Simply adding new facilities will not increase production unless output per worker improves. Such improvements are possible if worker skills increase, but such gains come slowly through improved education and on-the-job training. They are also possible as capital substitutes for labor, but are limited by the state of technology. More significant advances require technological breakthroughs. At the cutting edge of technology, where America finds itself, major improvements cannot be produced on demand. New ideas that matter are hard won.

*The Economic Outlook*

As I noted, the recent performance of the labor markets suggests that the economy was on an unsustainable track. Unless aggregate demand increases more slowly than it has in recent years -- more in line with trends in the supply of labor and productivity -- imbalances will emerge. We do not know, however, at what point pressures would develop -- or indeed whether the economy is already close to that point.

Fortunately, the very rapid growth of demand over the winter has eased recently. To an extent this easing seems to reflect some falloff in growth of demand for consumer durables and for inventories to a pace more in line with moderate expansion in income. But some of the recent slower growth could simply be a product of abnormal weather patterns, which contributed to a first-quarter surge in output and weakened the second quarter, in which case the underlying trend could be somewhat higher than suggested by the second-quarter data alone. Certainly, business and consumer confidence remains high and financial conditions are supportive of growth. Particularly notable is the run-up in stock market wealth, the full effects of which apparently have not been reflected in overall demand, but might yet be.

Monetary policymakers, balancing these various forces, forecast a continuation of less rapid growth in coming quarters. For 1997 as a whole, the central tendency of their forecasts has real GDP growing 3 to 3-1/4 percent. This would be much more brisk than was anticipated in February, and the upward revision to this estimate largely reflects the unexpectedly strong first quarter. The central tendency of monetary policymakers' projections is that real GDP will expand 2 to 2-1/2 percent in 1998. This pace of expansion is expected to keep the unemployment rate close to its current low level.

We are reasonably confident that inflation will be quite modest for 1997 as a whole. The central tendency of the forecasts is that consumer prices will rise only 2-1/4 to 2-1/2 percent this year. This would be a significantly better outcome than the 2-3/4 to 3 percent CPI inflation foreseen in February.

Federal Open Market Committee members do see higher rates of inflation next year. The central tendency of the projections is that CPI inflation will be 2-1/2 to 3 percent in 1998 -- a little above the expectation for this year. However, much of this increase is presumed to result from the absence of temporary factors that are holding down inflation this year. In particular, the favorable movements in food and energy prices of 1997 are unlikely to be repeated, and non-oil import prices may not continue to decline. While it is possible that better productivity trends and subdued wage growth will continue to help damp the increases in business costs associated with tight labor markets, this is a situation that the Federal Reserve plans to monitor closely.

I have no doubt that the current stance of policy -- characterized by a nominal federal funds rate around 5-1/2 percent -- will need to be changed at some point to foster sustainable growth and low inflation. Adjustments in the policy instrument in response to new information are a necessary and, I should like to emphasize, routine aspect of responsible policymaking. For the present, as I indicated, demand growth does appear to have moderated, but whether that moderation will be sufficient to avoid putting additional pressures on resources is an open question. With considerable momentum behind the expansion and labor market utilization rates unusually high, the Federal Reserve must be alert to the possibility that additional



action might be called for to forestall excessive credit creation

The Federal Reserve is intent on gearing its policy to facilitate the maximum sustainable growth of the economy, but it is not, as some commentators have suggested, involved in an experiment that deliberately prods the economy to see how far and fast it can grow. The costs of a failed experiment would be much too burdensome for too many of our citizens.

Clearly, in considering issues of monetary policy we need to distinguish carefully between sustainable economic growth and unsustainable accelerations of activity. Sustainable growth reflects the increased capacity of the economic system to produce goods and services over the longer run. It is largely the sum of increases in productivity and in the labor force. That growth contrasts with a second type, a more transitory growth. An economy producing near capacity can expand faster for a short time, often through unsustainably low short-term interest rates and excess credit creation. But this is not growth that promotes lasting increases in standards of living and in jobs for our nation. Rather, it is a growth that creates instability and thereby inhibits the achievement of our nation's economic goals.

The key question is how monetary policy can best foster the highest rate of sustainable growth and avoid amplifying swings in output, employment, and prices. The historical evidence is unambiguous that excessive creation of credit and liquidity contributes nothing to the long-run growth of our productive potential and much to costly shorter-term fluctuations. Moreover, it promotes inflation, impairing the economy's longer-term potential output.

Our objective has never been to contain inflation as an end in itself, but rather as a precondition for the highest possible

long-run growth of output and income -- the ultimate goal of macroeconomic policy

In considering possible adjustments of policy to achieve that goal, the issue of lags in the effects of monetary policy is crucial. The evidence clearly demonstrates that monetary policy affects the financial markets immediately but works with significant lags on output, employment, and prices. Thus, as I pointed out earlier, policy needs to be made today on the basis of likely economic conditions in the future. As a consequence, and in the absence of once-reliable monetary guides to policy, there is no alternative to formulating policy using risk-reward tradeoffs based on what are, unavoidably, uncertain forecasts.

Operating on uncertain forecasts, of course, is not unusual. People do it every day, consciously or subconsciously. A driver might tap the brakes to make sure not to be hit by a truck coming down the street, even if he thinks the chances of such an event are relatively low; the costs of being wrong are simply too high. Similarly, in conducting monetary policy the Federal Reserve needs constantly to look down the road to gauge the future risks to the economy and act accordingly.

#### *Growth of Money and Credit*

The view that the Federal Reserve's best contribution to growth is to foster price stability has informed both our tactical decisions on the stance of monetary policy and our longer-run judgments on appropriate rates of liquidity provision. To be sure, growth rates of monetary and credit aggregates have become less reliable as guides for monetary policy as a result of rapid change in our financial system. As I have reported to you previously, the current uncertainties regarding the behavior of the monetary aggregates have implied that we have been unable to

employ them as guides to short-run policy decisions. Accordingly, in recent years we have reported annual ranges for money growth that serve as benchmarks under conditions of price stability and a return to historically stable patterns of velocity.

Over the past several years, the monetary aggregates -- M2 in particular -- have shown some signs of reestablishing such stable patterns. The velocity of M2 has fluctuated in a relatively narrow range, and some of its variation within that range has been explained by interest rate movements, in a relationship similar to that established over earlier decades. We find this an encouraging development, and it is possible that at some point the FOMC might elect to put more weight on such monetary quantities in the conduct of policy. But in our view, sufficient evidence has not yet accumulated to support such a judgment.

Consequently, we have decided to keep the existing ranges of growth for money and credit for 1997 and carry them over to next year, retaining the interpretation of the money ranges as benchmarks for the achievement of price stability. With nominal income growth strong relative to the rate that would likely prevail under conditions of price stability, the growth of M2 is likely to run in the upper part of its range both this year and next, while M3 could run a little above its cone. Domestic nonfinancial sector debt is likely to remain well within its range, with private debt growth brisk and federal debt growth subdued. Although any tendency for the aggregates to exceed their ranges would not, in the event, necessarily call for an examination of whether a policy adjustment was needed, the Federal Reserve will be closely examining financial market prices and flows in the context of a broad range of economic and price

indicators for evidence that the sustainability of the economic expansion may be in jeopardy

*Concluding Comment*

The Federal Reserve recognizes, of course, that monetary policy does not determine the economy's potential. All that it can do is help establish sound money and a stable financial environment in which the inherent vitality of a market economy can flourish and promote the capital investment that in the long run is the basis for vigorous economic growth. Similarly, other government policies also have a major role to play in contributing to economic growth. A continued emphasis on market mechanisms through deregulation will help sharpen incentives to work, save, invest, and innovate. Similarly, a fiscal policy oriented toward limited growth in government expenditures, producing smaller budget deficits and even budget surpluses, would tend to lower real interest rates even further, also promoting capital investment. The recent experience provides striking evidence of the potential for the continuation and extension of monetary, fiscal, and structural policies to enhance our economy's performance in the period ahead.