FEDERAL RESERVE'S FIRST MONETARY POLICY REPORT FOR 1998

HEARING

BEFORE THE

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS UNITED STATES SENATE

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

ON

OVERSIGHT ON THE MONETARY POLICY REPORT TO CONGRESS PURSUANT TO THE FULL EMPLOYMENT AND BALANCED GROWTH ACT OF 1978

FEBRUARY 25, 1998

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FEDERAL RESERVE'S FIRST MONETARY POLICY REPORT FOR 1998

WEDNESDAY, FEBRUARY 25, 1998

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
Washington, DC.

The Committee met at 10:10 a.m., in room SD–538 of the Dirksen Senate Office Building, Senator Alfonse M. D'Amato (Chairman of the Committee) presiding.

OPENING STATEMENT OF SENATOR RICHARD C. SHELBY

Senator SHELBY [presiding]. The Committee will come to order.

I have been told that Senator D'Amato has been detained, but should be here any minute.

Chairman Greenspan, we again welcome you to the Committee.

Chairman GREENSPAN. Thank you, Senator.

Senator SHELBY. I usually take this time to reiterate my conviction that monetary policy should strive for price stability and zero inflation. However, Chairman Greenspan, with the Consumer Price Index at 1.7 percent and the Producer Price Index at −1.8 percent for the entire year of 1997, I think we should actually congratulate you and the Federal Reserve Board for achieving the goal of price stability.

I believe the performance of monetary policy over the last year proves the benefits of a strong and independent central bank. I also believe we should remain vigilant in the fight against inflation, Chairman Greenspan, because, after all, inflation is nothing more than a tax. Monetary policy has performed exceptionally well over the last year, and I hope the Fed understands that this just increases the world's expectations of price stability in the future.

Chairman Greenspan, not only would we welcome a repeat performance in 1998, but some of the markets even expect it. I know it will be an interesting year.

Senator Faircloth, do you have an opening statement?

OPENING STATEMENT OF SENATOR LAUCH FAIRCLOTH

Senator FAIRCLOTH. Thank you, Senator Shelby.

I want to thank Alan Greenspan for his leadership at the Federal Reserve. I believe much of the favorable economy we have today is due to his steady hand at the Federal Reserve.

Mr. Chairman, let me make a few comments about the economy as I see it. First, I am pleased that we finally have a surplus "on paper" for the Federal budget, but we still have a long way to go. We have to stop borrowing from Social Security and we still have

a $5 trillion debt. We have to tackle these problems before we can start thinking about adding new Federal spending programs.

Second, we have to start thinking about a surplus for American families. Many people I talk to are comfortable, but worried. They have demands such as saving for their children's college education, their own retirement, and possibly having to care for an elderly parent.

They know these are the good times, but that the business cycle will not last forever. They remain worried about their own future. The job market is full, but not necessarily stable. Technology is changing so rapidly that many workers remain nervous about their skills in the future.

My point is that while we have the Government's fiscal house finally under control, we shouldn't be complacent because the Government is taking a combined 38 percent of every family's income, which is simply too high. In my opinion, the result of the large tax burden and the high cost of living is that Americans are having to rely too much on borrowed funds, be it credit cards or home equity loans, to meet their daily demand.

This leads me to my final point, which Chairman Greenspan touches on in his testimony, the risk of unsound loans being made by the banking system in these otherwise good times. One of, I believe, the best bankers in this country, John Medlin, told me that these are the worst credit standards he has ever seen in 40 years of banking.

If we have a downturn in the economy, these debt burdens could present a real crisis for us. I think this Committee has to keep a close watch on this issue.

Thank you, Mr. Chairman.

Senator SHELBY. Senator Johnson.

OPENING STATEMENT OF SENATOR TIM JOHNSON

Senator JOHNSON. Thank you, Mr. Chairman. I'll be very brief.

I want to welcome Chairman Greenspan here today and I join my colleagues in thanking you for joining us and for the work that you have done.

I have come to look forward to these biannual reports, and I'm pleased to note that there's largely good news to be imparted today. The American people are enjoying a virtually unprecedented time of sustained economic growth, low unemployment, and price stability. The middle-class families of this country are paying less in Federal payroll taxes now than they have in over 20 years.

We have finally put the era of red ink behind us by passing a balanced budget without the need to resort to amending the Constitution. Certainly, we appreciate very much the stewardship and guidance of Chairman Greenspan and the efforts of those both in the Administration and Congress that have brought us to this economic circumstance.

While we're all aware of the long-term challenges awaiting us with the great need to deal with the entitlement crisis that will be upon us with the retirement of the baby boomers, the revised forecast for the next several years reveals what has to be deemed a remarkable accomplishment. For the first time in decades, overall spending is in fact in line with overall revenues, although I would

share with my colleague from North Carolina concern that those who are giddy over how to use those surpluses are, I believe, premature in their enthusiasm. As Chairman Greenspan has cautioned, continued budget discipline and restraint is in order for the Budget Committee, for the Banking Committee, and for Congress in general, not just for purposes of stabilizing the future of Social Security, but for our concern for continued investment in economic growth over the long term.

I'm also concerned and look forward to Chairman Greenspan's insights on the role of the problems with the Asian economies and the impact it may have in the United States, particularly if no further help through the International Monetary Fund is forthcoming. I look forward to that discussion.

Again, I want to thank Chairman Greenspan for his presence here today.

OPENING STATEMENT OF CHAIRMAN ALFONSE M. D'AMATO

The CHAIRMAN. Chairman Greenspan, it's good to see you.

First of all, I want to apologize to you for not being here. We had a meeting with Senator Lott on the ISTEA legislation and the prospects for getting that bill up.

I also want to announce that two of our colleagues, Senator Sarbanes and Senator Dodd, will not be here because they are at the funeral of former Senator Ribicoff. I just wanted you to know that. Otherwise, they would have been here. They asked me to express their regrets that they couldn't be here to hear you.

Chairman Greenspan, at this time I would like to recognize and call upon Senator Mack.

OPENING STATEMENT OF SENATOR CONNIE MACK

Senator MACK. Thank you very much, Mr. Chairman, and welcome, Mr. Greenspan.

I have a prepared statement that I would like to have included in the record.

The CHAIRMAN. Certainly.

Senator MACK. Mr. Greenspan, I'm a little bit confused as to the message that was reported yesterday. I must apologize. I didn't see your testimony directly.

I hear it's reported as storm clouds out of Asia, and maybe it's just my coming back from Florida, but storm clouds make me particularly nervous.

[Laughter.]

When I hear of storm clouds, I think about being prepared. What do you need to do to protect yourself from the coming storm?

But I also saw a statement about interest rates, in essence, holding things right where they are. The key question going forward is whether the restraint building from the turmoil in Asia will be sufficient to check inflationary tendencies.

Most people today don't seem to be recognizing the inflationary tendencies. The message seems to be one of a continued downward movement in inflation.

I'm particularly interested in trying to get an understanding about where this balance is and where you see the economy going with respect to these storm clouds.

I guess, again, bottom line, what I would be thinking is that, in preparation for an oncoming storm, there may in fact be a need to make some adjustment in monetary policy. I would be interested in your thoughts.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Allard.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. Thank you, Mr. Chairman.

Again, I would like to welcome you, Mr. Greenspan, before the Committee. I served on the Budget Committee in the House and now serve on the Banking Committee here in the Senate. I have always appreciated your remarks and think you do a good job. I think we're fortunate that during this time in our country's history, we have you where you are. I have a lot of respect for what you have to say. I will be interested to hear how you respond to Senator Mack's questions and concerns.

I believe we are going through a time of tremendous economic growth and prosperity. The projections, if they hold up, are that we will get rid of the deficit this year, at least for 1 year.

I have been one who has felt that it's particularly important to begin to pay down the debt. As a matter of fact, I have introduced a piece of legislation that has a schedule on how we can do that within 30 years. It's pretty much along the same lines as a home mortgage, which most Americans, at some point in time, have had to deal with.

I feel it's very important to get the debt paid down. I would be interested in hearing what comments you might have in that regard and what it would do as far as the value of the dollar with respect to other currencies. For example, I'm interested in what your long-term view of what may happen might be, if we should be successful and actually get the debt eliminated.

I'm looking forward to your comments today. I thank you very much for coming before our Committee.

Thank you, Mr. Chairman.

The CHAIRMAN. Chairman Greenspan, before I call upon you, which I'm going to do very shortly, I want you to know how very much we appreciate your cooperation, your stewardship, and your leadership.

I know you will touch on a number of those areas we are interested in, particularly the international events, those in Southeast Asia, and what the impact may or may not be. I know my colleagues are interested with respect to that.

I see that Senator Reed has just arrived. Senator Reed, would you like to make a statement?

OPENING COMMENTS OF SENATOR JACK REED

Senator REED. Thank you, Mr. Chairman.

I would like to welcome Chairman Greenspan here today and to join my colleagues in thanking him for the good work he has done. I look forward to hearing his testimony.

The CHAIRMAN. OK. With that, Chairman Greenspan, we look forward to hearing from you.

OPENING STATEMENT OF ALAN GREENSPAN CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Chairman GREENSPAN. Thank you very much, Mr. Chairman. I welcome this opportunity, as always, to present the Federal Reserve's semiannual report on economic conditions and the conduct of monetary policy.

The American economy delivered another exemplary performance in 1997. Over the four quarters of last year, real gross domestic product expanded close to 4 percent, its fastest annual increase in 10 years. To produce that higher output, about 3 million Americans joined the Nation's payrolls, in the process contributing to a reduction in the unemployment rate to 4¾ percent, its lowest sustained level since the late 1960's.

Last year also saw strong growth of the real income of workers and corporations. This was not unrelated to the economy's continued good performance on inflation. When changes in the general price level are small and predictable, households and firms can plan more securely for the future, encouraging investment and fostering efforts to enhance productivity. Productivity, as you know, is the ultimate source of rising standards of living, and we witnessed a notable pickup in this measure in the past 2 years.

The dramatic improvements in computing power and communication and information technology appear to have been a major force behind this beneficial trend. Those innovations, together with fierce competitive pressures in our high-technology industries to make them available to as many homes, offices, stores, and shop floors as possible, have produced double-digit annual reductions in prices of capital goods embodying new technologies.

With these new high-technology tools, American businesses have shaved transportation costs, managed their production and use of inventories more efficiently, and broadened market opportunities. The threat of rising costs in tight labor markets has imparted a substantial impetus to efforts to take advantage of any and all possible efficiencies. In my Humphrey-Hawkins testimony that I gave last July, I discussed the likelihood that the sharp acceleration in capital investment in advanced technologies beginning in 1993 reflected synergies of new ideas, embodied in increasingly inexpensive new equipment, that have elevated expected returns and have broadened investment opportunities.

Much more recent evidence also remains consistent with the view that this capital spending has contributed to a noticeable pickup in productivity—and probably by more than can be explained by usual business cycle forces. For one, the combination of continued low inflation and stable to rising domestic profit margins implies quite subdued growth in total consolidated unit business costs. With labor costs constituting more than two-thirds of those costs, and labor compensation per hour accelerating, productivity must be growing faster, and that step-up must be roughly in line with the increase in compensation growth. For another, our more direct observations on output per hour roughly tend to confirm that productivity has picked up significantly in recent years, although how much the ongoing trend of productivity has risen remains an open question.

The acceleration in productivity, however, has been exceeded by the strengthening of demand for goods and services. As a consequence, employers had to expand payrolls at a pace well in excess of the growth of the working-age population that profess a desire for a job, including new immigrants. Indeed, by December 1997, the sum of the officially unemployed and those not actively seeking work but desirous of working had declined to 6 percent of the working-age population, the lowest ratio since detailed information on this series first became available in 1970.

Rapidly rising demand for labor has had enormous beneficial effects on our labor force. Previously low- or unskilled workers have been drawn into the job market and have obtained training and experience that will help them even if they later change jobs. Large numbers of the underemployed have been moved up the career ladder to match their underlying skills, and many welfare recipients have been added to payrolls as well, to the benefit of their long-term job prospects.

The recent acceleration of wages likely has owed in part to the ever-tightening labor market and in part to rising productivity growth, which, through competition, induces firms to grant higher wages. It is difficult at this time, however, to disentangle the relative contributions of these factors. What is clear is that, unless demand growth softens or productivity growth accelerates even more, we will gradually run out of new workers who can be profitably employed.

Should demand for new workers continue to exceed new supply, we would expect wage gains increasingly to exceed productivity growth, squeezing profit margins and eventually leading to a pickup in inflation. Were a substantial pickup in inflation to occur, it could, by stunting economic growth, reverse much of the remarkable labor market progress of recent years.

For most of last year, the evident strains on resources were sufficiently severe to steer the Federal Open Market Committee toward being more inclined to tighten than to ease monetary policy. Indeed, in March, when it became apparent that strains on resources seemed to be intensifying, the Federal Open Market Committee imposed modest incremental restraint, raising its intended Federal funds rate ¼ percentage point, to 5½ percent.

We did not increase the Federal funds rate again during the summer and fall, despite further tightening of the labor market. Even though the labor market heated up and labor compensation rose, measured inflation fell, owing to the appreciation of the dollar, weakness in international commodity prices, and faster productivity growth.

Although the nominal Federal funds rate was maintained after March, the apparent drop in inflation expectations over the balance of 1997 induced some firming in the stance of monetary policy by one important measure—the real Federal funds rate, or the nominal Federal funds rate less a proxy for inflation expectations. While the tightening may have been "passive," in a sense, it was by no means inadvertent. Members of the FOMC took some comfort in the upward trend of the real Federal funds rate over the year and the rise in the foreign exchange value of the dollar because such additional restraint was viewed as appropriate given the strength

of spending and building strains on labor resources. They also recognized that in virtually all other respects, financial markets remained accommodative and, indeed, judging by the rise in equity prices, were providing additional impetus to domestic spending.

There can be no doubt that domestic demand retained considerable momentum at the outset of this year. Production and employment have been on a strong uptrend in recent months. Confident households, enjoying gains in income and wealth and benefiting from the reductions in intermediate- and longer-term interest rates to date, should continue to increase their spending. Firms should find financing available on relatively attractive terms to fund profitable opportunities to enhance efficiency by investing in new capital equipment. By itself, this strength in spending would seem to presage intensifying pressures in labor markets and on prices. Yet, the outlook for total spending on goods and services produced in the United States is less assured of late because of storm clouds massing over the Western Pacific and heading our way.

With the crisis curtailing the financing available in foreign currencies, many Asian economies have had no choice but to cut back their imports sharply. Disruptions to their financial systems and economies more generally, will further damp demands for our exports of goods and services. American exports should be held down as well by the appreciation of the dollar, which will make the prices of competing goods produced abroad much more attractive, just as foreign-produced goods will be relatively more attractive to buyers here at home. As a result, we can expect a worsening net export position to exert a discernible drag on total output in the United States.

In addition, in the wake of weakness in Asian economies and of lagged effects of the appreciation of the dollar more generally, the dollar prices of our non-oil imports are likely to decline further in the months ahead. These lower import prices are apparently already making domestic producers hesitant to raise their own prices for fear of losing market share, further contributing to the restraint on overall prices.

The key question going forward, Mr. Chairman, is whether the restraint building from the turmoil in Asia will be sufficient to check inflationary tendencies that might otherwise result from the strength of domestic spending and tightening labor markets. The depth of the adjustment abroad will depend on the extent of weakness in the financial sectors of Asian economies and the speed with which structural inefficiencies in the financial and nonfinancial sectors of those economies are corrected. If, as we suspect, the restraint coming from Asia is sufficient to bring the demand for American labor back into line with the growth of the working-age population desirous of working, labor markets will remain unusually tight, but any intensification of inflation should be delayed, very gradual, and readily reversible. However, we cannot rule out two other, more worrisome possibilities. On the one hand, should the momentum to domestic spending not be offset significantly by Asian or other developments, the U.S. economy would be on a track along which spending could press too strongly against available resources to be consistent with contained inflation. On the other, we also need to be alert to the possibility that the forces from Asia

might damp activity and prices by more than is desirable by exerting a particularly forceful drag on the volume of net exports and the prices of imports.

When confronted at the beginning of this month with these, for the moment, finely balanced, though powerful forces, the members of the Federal Open Market Committee decided that monetary policy should most appropriately be kept on hold. With the continuation of a remarkable 7-year expansion at stake and with so little precedent to go by, the range of our intelligence-gathering in the weeks ahead must be wide and especially inclusive of international developments.

Before closing, Mr. Chairman, I would like also to flag a few areas of concern about the economy beyond those mentioned already regarding Asian developments.

Without any doubt, lenders have provided important support to spending in the past few years by their willingness to transact at historically small margins and in large volumes. Equity investors have contributed as well by apparently pricing in the expectation of substantial earnings gains and requiring modest compensation for the risk that those expectations could be mistaken. This is understandable in an economic environment that, contrary to historical experience, has become increasingly benign.

But we must be concerned about becoming too complacent about evaluating repayment risks. All too often, the loans that banks extend at this stage of the business cycle later make up a disproportionate share of total nonperforming loans. In addition, quite possibly, 12 or 18 months hence, some of the securities purchased on the market currently could be looked upon with some regret by investors. As one of the Nation's bank supervisors, the Federal Reserve will make every effort to encourage banks to apply sound underwriting standards in their lending. Prudent lenders should consider a wide range of economic situations in evaluating credit; to do otherwise would risk contributing to potentially disruptive financial problems down the road.

A second area of concern involves our Nation's continuing role in the new high-tech international financial system. By joining with our major trading partners and international financial institutions in helping to stabilize the economies of Asia and promoting needed structural changes, we are also encouraging the continued expansion of world trade and global economic and financial stability on which the ongoing increase of our own standards of living depends. If we were to cede our role as a world leader, or backslide into protectionist policies, we would threaten the source of much of our own sustained economic growth.

A third risk is complacency about inflation prospects. The combination and interaction of significant increases in productivity-improving technologies, of sharp declines in budget deficits, and of disciplined monetary policy has damped product price changes, bringing them to near stability. While part of this result owes to good policy, part is the product of the fortuitous emergence of new technologies and of some favorable price developments in imported goods. However, as history counsels, it is unwise to count on any string of good fortune to continue indefinitely. At the same time, though, we should recognize that some of what we now see helping

rein in inflation pressures is more likely to occur in an environment of stable prices and price expectations that thwarts producers from indiscriminately passing on higher costs, puts a premium on productivity enhancement, and that rewards more effectively investment in physical and human capital.

Mr. Chairman, by continuing to make progress toward price stability, we will raise the odds that the outstanding performance of our Nation's economy in recent years can be sustained.

I have a much longer prepared statement, Mr. Chairman, and would appreciate that being included for the record.

Thank you.

The CHAIRMAN. Chairman Greenspan, I want to thank you for your testimony. I want to note that I feel a lot better because of a statement you made that the Federal Reserve will make every effort to encourage banks to apply sound underwriting standards in their lending.

I think a number of us have become concerned about the quality of those loans. I am pleased that in your statement you have indicated, obviously, your own concern, and that the Federal Reserve will be watching this very carefully. I think that is very important.

I am going to recognize Senator Shelby.

Senator SHELBY. Thank you, Mr. Chairman.

Chairman Greenspan, why should Congress authorize additional monies to the IMF if we have no ability to enforce free-market policies on countries that many people have said have consciously chosen to adopt socialistic industrial policies in order to prey on U.S. businesses?

Chairman GREENSPAN. Senator, that is a very important question. You have to put the issue in broader context. As you know, I support Secretary Rubin and the Administration's request for an $18 billion increase in effectively——

Senator SHELBY. My question is just one of information to share with——

Chairman GREENSPAN. Yes, I understand that.

Let me just say that one of the things that's come out of this Asian crisis is an increasing awareness that market capitalism, as practiced in the West, especially in the United States, is turning out to be the superior model if rising standards of living and continuous growth is the standard.

In East Asia, there has been a very considerable amount of adherence to various forms of market capitalism, but it has lacked some rather important elements in the sense, as I have indicated elsewhere, of a very high propensity to have government-directed investment with the banking systems brought along in order to finance those investments.

It's been very difficult over the years to try to explain to anyone theoretically why that system cannot work indefinitely when they are producing 10 percent per annum real growth rates. Now that the inevitable breakdown—inevitable, in my terms—has occurred, there is a significant growing awareness, indeed, in some cases, shock, in East Asia that their form of economic model is incomplete. In many respects, the economic advisors and those who are setting up their economies are now endeavoring to move much more rapidly toward the type of system we have.

The IMF effectively is working in that direction, trying to assist them, in part. If I thought that the IMF was essentially trying to support this type of what we call crony-capitalism and the like, I would be very strongly in opposition to any further funding of that institution. But that is in fact not the case.

I cannot say to you it's never been the case over the years, but it is not the case now. As a consequence, I think the IMF will be working with those of us in the West who have seen the importance of shifting to more market forces, less government controls, and less government-directed investment in East Asia.

Senator SHELBY. Chairman Greenspan, you get at the heart of what concerns not only many of us in Congress that will be called upon to vote or not vote for more money for the IMF, but also many people in America whom, I believe, are asking the question you have just answered. If we send more money, give more money, contribute more money to the IMF, will it go down a rat hole?

I think most people in America understand how important international trade is. They understand how important a sound monetary system is to international trade. But they have been down that road before, that road you have just alluded to, what we call industrial policy, and so forth, and it hasn't worked.

Now, if the IMF is able, and I think that they're moving in that direction, to get concessions out of the various countries in Asia that they're dealing with—Korea, Indonesia, and so forth—how will they enforce the agreement or contract there? I think that's very important. Will it just be a temporary deal in order to get the money?

Chairman GREENSPAN. If I thought that, indeed, it was being enforced in the sense in which you put it, and that as soon as the tranches run out from the IMF lending, they would be reverting to old policies——

Senator SHELBY. To old habits.

Chairman GREENSPAN. —I would say that it's wasted effort. But I think what's happening is a significant recognition on the part of the Asians as to what's the right thing to do.

For example, the just-inaugurated President of Korea is, from what I can judge, really quite remarkably aware of what the faults of the Korean system have been, and I think he is very strenuously endeavoring to move his economy, his society, in a direction of freer markets and more working economy.

I would grant you, if it's an enforcement issue, they are sovereign nations. You can't enforce that. It's to their self-interest——

Senator SHELBY. How can you make it work if you aren't able to enforce it?

Chairman GREENSPAN. I don't think you can. You have to make a judgment as to whether in fact the self-interest of those particular countries, as exhibited by what they're doing and the people with whom we deal all the time, gives you that impression.

I can say to you, Senator, having met with large numbers of the people who are in charge of the operations there—now let me emphasize very strongly, the young people who have been educated here or in the West generally—they see the advantages of market capitalism that we practice here and they know that it's to their advantage to move in that direction.

Can I guarantee it? Of course not.

Senator SHELBY. I know.

Chairman GREENSPAN. But I personally feel, frankly, sufficiently confident to be willing to move ahead as we are doing.

Senator SHELBY. We appreciate that comment and your commitment and words of wisdom, but there will still have to be political will in the various countries to carry out an economic change that will work in the long run. In the short term, a lot of people will hate to feel the pain.

Is that correct?

Chairman GREENSPAN. Absolutely. Without getting into detail, since I have carried this on longer than I think the Chairman probably wants us to, a crucial issue that's going to be important is their acceptance of what we call transparency: that is, of publishing all of the data that are involved in the central banks, the governments, and the companies.

One of the things that is, I would say, a key characteristic of these closed crony-capitalist systems is you don't tell anybody what you're doing. As a consequence, you can do lots of things without people knowing what's happening that is wrong.

Once you start to publish all of this information, the political pressures to be delaying and foot-dragging cease to become effective because now everyone can see exactly what you're doing, and it turns the politics around so that the incentives change.

There are numbers of things that can happen here which will ensure, to the extent that one can with a sovereign nation, that they will be effectively employing IMF resources to the extent that they are being offered.

Senator SHELBY. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator.

Senator Moseley-Braun.

OPENING STATEMENT OF SENATOR CAROL MOSELEY-BRAUN

Senator MOSELEY-BRAUN. Thank you, Mr. Chairman, and thank you, Chairman Greenspan.

I am delighted to hear your report again. It's once again good news and that's very different than when we started this back in 1992. That was a different time altogether.

I want to touch on something going to the climate of opinion that your reports cause in the country generally. That is to say, not just in Government, but in the private sector as well. Specifically, with regard to your comments about the tightening labor market.

Of course, this is something that everybody has talked about, the fact that unemployment is so low is very good news for the country. But, looking at your comments today, you reference 6 percent of the working-age population who want to work but do not have jobs that can be added to the payrolls, that the labor markets have now tightened so that we're down to 6 percent of employable, theoretically employable, people overall.

I don't challenge that number at all. That's the number that has been accepted.

Chairman GREENSPAN. That's the number from the Bureau of Labor Statistics.

Senator MOSELEY-BRAUN. It's a BLS number, that's correct. But at the same time, I'm continually confounded by the apparent invisibility of the inner-city unemployed. There are parts of Robert Taylor Homes, for example, parts in the city of Chicago where you don't have 6 percent unemployed. In fact, if anything, one of the census tracks on the south side of Chicago has 1 percent private employment and over 60 percent unemployment among teenage males.

This represents a huge body of a potential workforce that, quite frankly, it seems to me, rather than looking to renewed and increased immigration or something else, we could very well intensify efforts to educate and employ. These inner-city residents, who want to work and, post-welfare reform, are going to have to work, would welcome that opportunity.

The results are still quite dramatic here at home in terms of the conduct—my brother is a police officer and he says they're already seeing an upsurge in really off-the-wall, bizarre street crime—of people who are that desperate. That's not reflected in 6 percent unemployment.

I understand you're talking about the big picture instead of the specifics. But, again, I come back to the point in terms of setting a climate so that these people are not so invisible in the minds of policymakers, in the minds of employers and the people who create jobs in this country because we're doing very well in terms of job creation.

I believe this body of the population should not be further forgotten and just written off because it seems to me, we have to do something about that.

Chairman GREENSPAN. Senator, I think things are improving. I certainly don't question some of the figures that you give me because I've seen numbers which are quite equivalent to that. Indeed, if you take a look at the subaggregates of the Bureau of Labor Statistics, of which that 6 percent overall figure of people seeking work comes from, there are very large parts of the society in which that number is not 6 percent, but 1 percent, and some very tight markets where you basically have only what we call frictional unemployment in the sense of people who have left a job and have not chosen yet to accept another job, where it's just a question of time.

A lot of that 6 percent are not people who are available to work. They want to work, but not quite yet.

There are two types of problems here. One is that 6 percent is an add mixtures of some very low numbers and some very high numbers.

I think considerable progress has been made in the inner cities, but, clearly, it's still a substantial problem which I would scarcely want to underestimate.

I think, however, the importance of having tight labor markets is that it gradually inexorably squeezes those numbers down because there are certain human beings, no matter how low their skills, who are far more valuable in producing goods and services than any piece of equipment. What you get is that it really pays to train, even at a very minimal level, to get human intelligence involved in the system, and that there's no better incentive than to have a really tight labor market.

You can see it all over the place. It's work at all different levels, and that's the reason why I think it's so terribly important that we keep this thing going.

Senator MOSELEY-BRAUN. I quite agree, Chairman Greenspan, and I thank you for your comments.

You're right, there is an inexorable effect of having tight labor markets and that is bringing people in that might otherwise be left out because of competition for scarcer slots. That's one part.

Again, in terms of creating an example of what we're talking about, the frictionally unemployed, those people who are between jobs, are referenced. But there's no reference to those people who are the hard-core unemployed. We haven't done enough to reach out to train and educate these people.

What I've heard from employers back in Illinois, in my State, is that there may be workers, but they can't get to the jobs or they're not trained or educated for the jobs. What can those people do? We wind up with this disconnection.

I believe, for policy purposes, it's very important that we keep talking about getting rid of the disconnection as part and parcel of helping that inexorable process along.

Chairman GREENSPAN. I agree with you.

Senator MOSELEY-BRAUN. Mr. Chairman, I would like to have my written statement placed in the record.

The CHAIRMAN. So ordered.

Senator MOSELEY-BRAUN. Thank you.

The CHAIRMAN. The statement will be included in the record as if read in its entirety.

Senator Mack.

Senator MACK. Thank you, Mr. Chairman. I want to continue with what I was saying in my opening statement a little while ago, in trying to get a sense of where the Fed is with respect to the Asian crisis and how it will affect the U.S. economy.

I looked at the statement you were reading from and examined the forecast. It appears to me that the forecast the Fed has put forward, between 2 and 2¾ percent growth, inflation and unemployment relatively in the same area as 1997, is what everyone has concluded.

Chairman Greenspan, you have tried to analyze the situation in Asia and have concluded that there are probably not any significant, serious consequences for the U.S. economy.

Is that a fair conclusion?

Chairman GREENSPAN. Do you mean from Asia?

Senator MACK. From Asia.

Chairman GREENSPAN. That's our tentative conclusion. In fact, that's been our conclusion really since the Asian crisis emerged. We had the sense that it was going to have a measurable impact on the United States, but not an overwhelming one.

As I indicated in my prepared remarks, there is a certain tentativeness about that conclusion because we haven't seen a phenomenon like this in the American economy. In other words, to see two effectively countervailing forces impinging on the economic outlook, and they are really quite disparate. On one hand, we have the Asian export-import price relationships with volumes associated with that. On the other, we have a continuous excess of labor de-

mand over potential underlying supply. Those two issues are quite different. They don't interconnect except at the total growth rate of the economy and the sets of pressures involved.

I understand that when I talk about storm clouds over the Western Pacific, it is figurative; whereas, in your case it is not. With the storm clouds coming, you're going to get rain or worse, figuratively speaking. Putting it in economic terms, we think there's a question of balancing going on here. Right now, it is as close to a balanced trade-off as you can get.

Senator MACK. Let me ask you this. What specific concerns do you have?

I assume Japan, for example, is one. Do you think Japan is doing enough to stimulate its economy, to increase consumer demand?

We are the ones who are going to be looked at this next year for absorbing all of this production from Asia. Is Japan doing enough?

Chairman GREENSPAN. I don't think so. Japan has two problems. One, it has a very substantial set of nonperforming loans in its commercial banking system which have been there for years and which only now they really formally and fairly aggressively are coming to grips with.

To the extent they are able to essentially excise that substantial amount of risk-engendering nonperforming loans and put them aside as we did during the S&L crisis with the Resolution Trust Corporation, they will then have a more viable financial intermediary system which will then enable the type of increased fiscal expansion through tax cuts, which a lot of people have been talking about to effectively create an acceleration of growth.

At the moment, the Japanese economy seems to be shrinking, meaning that the level of economic activity seems to be moving downward ever so slightly. If they are able to do this one-two type of operation, they will have a major impact on the stabilization of East Asia, and clearly have an impact here in the United States as well.

Are we concerned about Japan? I was more concerned, I must say, 6 months ago, basically because I was not envisaging them coming to grips with the problems as they finally seem to be doing. But I would not want to argue at the moment that they're over the hump because they're still looking at a very unusual situation in which the Japanese banks pay a premium for yen-denominated deposits over Western banks in London. That tells you that there is some difficulty in funding these financial institutions.

They are acutely aware of that, and that's one of the reasons I think they are moving forward. Until we basically see that premium disappear and see a viable financial system functioning, it's going to be difficult for them to be an engine of Asian progress.

Senator MACK. What are some of the other concerns? For example, some of my colleagues have mentioned, and also Comptroller Ludwig, that there is a signal out there flagging some concerns over the quality of loan portfolios. Usually, when you see a heating economy, you hear all kinds of speculation.

Would you give me a sense, both internationally and within our own country, of the concerns you're looking at, of the things we should be aware of, as we're observing the economy?

Chairman GREENSPAN. When you have had 7 years of continuous expansion, but an expansion, as I point out in my prepared testimony, which has been increasingly benevolent and tranquil, as distinct from unbalanced and inflation-eroding, you understandably begin to get quite confident about the immediate or intermediate future.

If things are continuously getting more benign, people tend to extrapolate that and they think that things are in a new plateau and will continue indefinitely. As a consequence of that, you tend to require less in the way of risk premiums, and what we see are yield spreads against U.S. Treasuries which, on average, would be exceptionally high because they're junk bonds or high-risk types of operations. Those are squeezed down very substantially.

In the bank-lending area, what we see is that margins on loans are narrowing. We also observe a sense of tranquility, which is perfectly appropriate if the 7-year expansion continues into the eighth and the ninth year, as we hope it will. Then, clearly, there's no risk there.

What we have found, however, over the years, is that this is the time during the business cycle expansion when loans are made which turn out to be disproportionately nonperforming. It is very rare that at the bottom of a recession bankers make bad loans. They are very cautious. You need all sorts of collateral to get a loan, and those loans don't go bad.

Senator MACK. I understand. The question, though, is, are we seeing any signals at this period in time that bankers are making loans they shouldn't be making?

Chairman GREENSPAN. Bankers are always making loans they shouldn't be making.

[Laughter.]

The question is, do we have any immediate evidence that the quality of loans is significantly deteriorating, as Senator Faircloth was quoting from his friend in North Carolina?

We see some, but I cannot say to you that it's the type of situation which requires us to say we're on the edge of some really serious problems. I can't say that.

It's just that I'm merely repeating that history suggests that we tend to get a breakdown in lending standards invariably at this stage, and there are innumerable examples of that, but they're all anecdotal.

There's nothing at this stage which says that our banking system is unsound. On the contrary, banks are very well capitalized. They are very profitable, and they are doing exceptionally well.

I raise concerns only in the context that I want to make sure we continue that way. I'm not saying that the situation is getting significantly negative. I am saying that now is the time when you make the loans which you wish you hadn't.

Senator MACK. I have been there.

The CHAIRMAN. Senator Johnson.

Senator JOHNSON. Thank you, Mr. Chairman.

Chairman Greenspan, while most of the economic indicators you have discussed today are excellent, and I want to say that I'm very appreciative of your strong expression of support for IMF funding, there is one indicator that is troubling to a great many Americans.

That is the balance of trade between the United States and our trading partners around the world, a balance that many people viewed negative even prior to the decline of the Asian economies, but which one would assume would be accelerated now with the decline in their economic growth and changes in their currencies.

Would you elaborate a bit on your view of what a trade imbalance does or doesn't do to the economy, whether this is a matter of great concern to you?

Is there a threshold of imbalance beyond which it causes you greater concern? I would appreciate your observations on that.

Chairman GREENSPAN. As a general proposition, we shouldn't be terribly concerned about our trade balance in the sense that if we are sitting here at a 4¾ percent unemployment rate, even if we have a large trade deficit, it's saying, in a sense, to the extent that one can generalize on these things, that we're clearly not losing jobs as a consequence of the issue of trade imbalance.

Indeed, remember that what that trade imbalance implies is that American consumers are purchasing a lot of goods more cheaply, presumably, than they can be produced in the United States, and it's an element in our standard of living. I would never in that regard think in terms of a trade balance, either plus or minus, as having a significant effect on the economy.

I am not one of those who subscribes to the issue that the whole question of trade relates to jobs. I think that is a mistaken view. Most economists don't hold that view. But it's such an easy view to hold, even though, at the end of the day, it is false.

Where there is a problem is somewhere else. And that is in the broader notion of trade—namely, our current account deficit. We have had a very substantial current account deficit for a very protracted period of time which effectively has moved us from a very major international net creditor to a very large net debtor.

We have a significant amount of net interest payments that we pay on that debt which are added to our trade imbalance and create still larger current account deficits, and still larger net debt.

One can clearly say that there is a question as to where is the equilibrium over the longer term on that? The reason we're able to do that is because there is a very significant demand for dollars in the world. Effectively, when you have a current account deficit, you are borrowing from abroad or, more exactly, people are investing in the United States from abroad.

The desire to hold U.S. dollars or claims on the United States is very strong. This is a very sound economy. In that sense, there is no near-term problem, nor, in fact, any obvious economic difficulty that one can infer from the existence of this current account balance. It's just that the arithmetic over the very long run creates a big question mark as to whether that is sustainable indefinitely in the future.

I must say to you that in recent years, that is one of the issues that the Federal Reserve has been spending a considerable amount of time thinking our way through to make certain that if we spot any material erosion which suggests that this stability is subject to unwinding, we will have some significant advance notice on it.

We do not see any of that at the moment. There is no evidence of weakening demand for dollars or accumulation of dollars as a

store of value throughout the world. Indeed, if anything, it's going up, not down.

Senator JOHNSON. Thank you. I yield back my time.

The CHAIRMAN. Senator Allard.

Senator ALLARD. Thank you, Mr. Chairman.

Chairman Greenspan, I have two questions for you and they're pretty much on domestic policy.

If Congress would put in place a disciplined plan which would, over a 30-year period, result in no debt at all, would you comment on what impact that would have on our economy for the long run, and maybe even for the short term?

Chairman GREENSPAN. Do you mean no debt to the public?

Senator ALLARD. Yes.

Chairman GREENSPAN. We have not been in that state since, I think, the 1830's or earlier.

[Laughter.]

I have commented elsewhere, Senator, that I believe that a not immaterial part of declines in long-term interest rates and the economic growth of recent years is attributable to the decline in the Federal budget deficit and the reduction in the net claim annually we have had for years of large amounts of savings being drawn out of the system by the Federal Government to finance the deficit.

As that has gone down, the pressure has eased, interest rates have fallen, and the economy has been given some significant positive pressure. I believe that if we were to continue to move toward surplus in the unified budget, the pressures for lower long-term interest rates would continue and I think that would be a very important material effect.

Obviously, the means by which you pay off the debt is to run very substantial unified budget surpluses. What happens when you do that is you shift the issue of debt from the public to the private sector. There are very major benefits from that occurring.

I do wish to point out, however, that you cannot do that unless you have a very large, ongoing unified budget surplus for a number of years of a very large order of magnitude.

We have to pay off, effectively, $3½ trillion in debt owed to the public—$3.8 trillion, I think the figure is. That will take quite a considerable period of time to do. It is doable.

If you ask me, are there very considerable reasons not to do it, I'm sure you're going to find an innumerable number of economists who would raise very strong objections to that, who consider Federal debt a very beneficial factor in our financial system. There are arguments that a lot of people would make, and I think with some credibility.

I'm not one of the strong believers of that. Were we to substitute private credit for public credit, the efficiency of the financial system would improve measurably and, while we are at the moment discussing a highly hypothetical situation, I enjoy this conversation.

[Laughter.]

Senator ALLARD. Now that we're looking at a time when we may not even have a deficit, in my view, as long as we have a debt, we really don't have surpluses. It seems to me that we should at least begin to talk about this and begin to pay that down.

There was one time when many people in Congress felt that we would never have a zero balance on the deficit, too.

Chairman GREENSPAN. I have to admit, after I said what I just said, I recalled my discussing the hypothetical notion of a balanced budget a number of years ago.

Senator ALLARD. Yes.

[Laughter.]

But it seems to me, if it became a realization that Congress was really going to pay down this debt, it would cause a considerable amount of benefit as far as our economic growth is concerned.

I have even put together an amortization schedule which shows that in approximately 11 years, the savings on the interest begins to amount to the amount of dollars you have to dedicate to pay down the debt. You begin to turn this thing around so that it's geometrically decreasing.

Chairman GREENSPAN. That's like the self-amortizing mortgage.

Senator ALLARD. Yes. One of the other things that at least one subcommittee of the Banking Committee is looking at is Social Security reform.

Would you comment on your thoughts, if we were to put in place a system which gave the Social Security recipient the option as to how they wanted to invest their dollars, in stocks, bonds, and Treasury notes, and giving current retirees the option to continue with the current system if they wanted to, what kind of impact this might have on our system, perhaps even on the stock market?

Chairman GREENSPAN. Senator, in recent years, I have been trying to point out that we have to distinguish two things.

First, there is the issue of new savings in the system to finance Social Security, Medicare, and other things, which make big demands on our fiscal system in later years, and second, the means of financing. The notion that you were suggesting earlier that to pay down the debt creates a very large amount of saving in the system, a very big window to do a lot in the area of Social Security, if you go in that direction, for example.

But we have to be a little careful about recognizing if we are not changing the actual level of saving in the system, we can increase the rate of return on Social Security trust funds by investing in equities or in corporate bonds which have yields higher than, say, U.S. Treasuries. But the effect of that is essentially to draw those equities and corporate bonds from private pension funds. In other words, it's really a swap of U.S. Treasuries for private instruments with the private pension fund system, so that while the Social Security rate of return goes up, the private rate of return goes down. That, as a first approximation, and I emphasize first approximation because there are a lot of secondary consequences, does not materially improve the overall total rates of return going to the aggregate national retirement system. You need to create some different types of incentives to increase national saving. I think you do that if you go toward private systems with full funding associated with them, either on a defined contribution basis, or especially on a defined benefit basis.

But I would hesitate to merely think in terms of increasing the source of funding in the Social Security system without doing anything else because I think it's a zero sum game.

Senator ALLARD. Thank you, Chairman Greenspan. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator.

Senator Reed.

Senator REED. Thank you, Mr. Chairman.

Chairman Greenspan, thank you for your testimony. I noted in your prepared remarks you indicated that the real Federal funds rate has actually risen over the last several months, even though nominal rates appear unchanged.

Is there any combination of factors in the next year that would lead the Fed to reduce the nominal interest rates? Could you indicate what those factors might be?

Chairman GREENSPAN. As I have indicated, we are very finely balanced at this stage in the sense of seeing forces which are essentially countervailing.

Indeed, as I indicated in my prepared remarks, if we are underestimating the negative effects that are coming from Asia and they are indeed much more forceful so that they significantly weaken the economy more than one would anticipate, looking at the existing state of East Asia and their flows, then there could be conditions under which monetary policy would have to respond to that. In the same vein, we are also concerned about the system going in the other direction.

Until we have a better sense of how this is all balancing out, we won't have a really firm judgment as to what the outlook is.

I basically said in one of the sentences I put in, which I think is a very important one, that I don't think, to paraphrase myself, this is going to be a very stable, easy-going year. We are going to find some forces which appear to be a little bit more active than we have seen in the past. It's not going to be a simple continuation of what we have had over the last year. I certainly hope that's the case, that is indeed what our forecast is. But to expect another year of extraordinary improvement of the type that 1997 was—and, to a large extent I must say was not fully anticipated—to continuously expect that and continuing to get it, is to press the edge of Murphy's Law. Murphy's Law at this stage has been almost repealed. I don't believe Murphy feels very happy with that thought.

[Laughter.]

Senator REED. In response to Senator Johnson's question, you mentioned one of the reasons we can be somewhat sanguine about the trade imbalance is because of the desire to hold U.S. dollars.

With the advent of the Euro, will that change? Broadly speaking, is the Federal Reserve actively considering the impact of the Euro on our performance?

Chairman GREENSPAN. Certainly. It's a major event in Europe. Its implications are going to be quite substantial. You cannot create a single currency in that large an area of that level of economic activity without significant impacts on the United States. As we have told our colleagues in Europe, we wish them well because the better they do, the better it is for us.

As far as I'm concerned, I would like to see nothing better than the Euro come into the market as a major new currency and compete with us. I think it would make us better. I think it will make

the world better. As best we can see at this stage, it's going to happen on January 1, 1999.

They're going to have, unquestionably, struggles to get it technically in place along with a variety of other associated problems. But over the long run, if they can make it work effectively, I cannot see how it cannot be a very positive force for not only us, but the Japanese and our Latin American partners as well.

Senator REED. It would not in any way precipitate this implicit problem with the imbalance of trade that we are running?

Chairman GREENSPAN. I should not think so. If we are going to run into a problem owing to a disinclination to hold the American dollar, it will occur because of things that we do wrong, not things which they do well.

As long as we maintain a stable, sound economy, stable prices, and an effectively functioning system, we have nothing to fear from competing currencies with respect to the question of maintaining current account imbalances.

Senator REED. I have one final question.

You pointed out the fact that this is the period historically when bad loans are made. One of the ways in which those bad loans become obvious is when the Fed raises interest rates because, typically, those types of loans are the first ones which suffer under variable interest rates going up.

Is that a factor that you would consider in terms of your interest policy?

Chairman GREENSPAN. Certainly. Obviously, interest rates have a fairly significant impact on the structure of loan portfolios and their impact on the system. Clearly, one of the things we do when we raise or lower rates is try to make judgments as to how that impacts on the financial system.

Senator REED. Thank you.

The CHAIRMAN. Thank you, Senator.

Senator Bennett.

OPENING STATEMENT OF SENATOR ROBERT F. BENNETT

Senator BENNETT. Thank you, Mr. Chairman.

Chairman Greenspan, I welcome you here and I have a sense of deja vu, but with a difference. When I used to sit where Senator Reed sits, as the lowest member of the Minority——

Senator REED. There's hope?

[Laughter.]

Senator BENNETT. Yes, there's hope.

[Laughter.]

—with all of the awe of a newly-elected Senator, to hear your presentations, from this side of the room, you were always subjected to charts and lectures about how you were ruining the recovery with your tight money policy and how you had to respond in ways that certain Members over here thought were appropriate, or we were headed for serious recession, but to come here now and hear you in a relaxed fashion with many of those Senators not even bothering to show up, let alone bring their charts, I think is a demonstration of the excellent way in which you have withstood political pressure.

Chairman D'Amato, I think we have to recognize that a large portion of the credit for this benign economic situation in which we currently bask is due to Chairman Greenspan. I believe it's appropriate that we make that acknowledgement on the record.

As I say, Chairman Greenspan, the absence of some of your previous tormentors is a clear indication that they, too, recognize the excellent job you have done.

The CHAIRMAN. If the Senator might yield for an observation.

Along with the conversion of some of his most outspoken.

Senator BENNETT. Yes.

The CHAIRMAN. Namely, the Chairman.

[Laughter.]

Senator BENNETT. OK. I won't pursue that any further.

[Laughter.]

I did want to make that——

The CHAIRMAN. I have to do my mea culpa publicly here.

[Laughter.]

Senator BENNETT. Chairman Greenspan, I have been fascinated by your testimony and more fascinated by your answers to some of the questions you have been given. I have written down a few of the comments you made because I want to go in a direction that I'm sure will not surprise you.

You stated that we haven't seen a phenomenon like this as you were describing certain aspects of the American economy. We have a phenomenon facing us now that we have never seen before, and I would like to pursue that. That is the Year 2000 problem or, in shorthand, the Y2K.

My wife asks me, what does Y2K stand for? I very knowledgeably reply, Year 2000. She asks, why do you use Y2K instead of using Year 2000? You only save a single syllable.

[Laughter.]

She's right. But we manage to confuse people and I guess that's our goal.

[Laughter.]

Last week, Governor Kelley from the Federal Reserve said the Federal Reserve believes that certain countries around the world have not embarked on aggressive compliance, supervision, and examination programs, so that there is a likelihood that banks in those countries have not yet begun to effectively address the problem and will now find it increasingly difficult to be ready.

Chairman Levitt of the Securities and Exchange Commission has expressed both publicly and, more emphatically, privately to me his concern about the inability of the financial institutions and, particularly in his case, the stock markets, to comply with the Y2K requirement.

We have had testimony before my Subcommittee, in which the Chairman has been active, more active than I think he is on other subcommittees because of his interest in this, that has suggested there is a significant chance that a worldwide recession could be triggered by the inability of companies to meet their supply deadlines, to meet their customer requirements, because of their computers being shut down due to Y2K problems.

As you look ahead to 1998 and 1999, have you started to factor in any concern about what might happen if there are banks, stock

exchanges, or large manufacturing companies, primarily outside of this country, that could fail to meet deadlines in the case of companies, or fail to clear financial instruments in the case of banks, and what effect that would have on the economy worldwide and in the United States?

Chairman GREENSPAN. Senator, you are quite correct in saying that this is a unique event and that we have no precedential capabilities of evaluating it. We do know certain things. If the Chairman is going to do a mea culpa, I'll do a mea culpa, too.

I'm one of the culprits who created this problem. I used to write those programs back in the 1960's and 1970's, and was proud of the fact that I was able to squeeze a few elements of space out of my program by not having to put a 19 before the year.

Back then, it was very important. We used to spend a lot of time running through various mathematical exercises before we started to write our programs so that they could be very clearly delimited with respect to space and the use of capacity.

It never entered our minds that those programs would have lasted for more than a few years. As a consequence, they are very poorly documented. If I were to go back and look at some of the programs I wrote 30 years ago, I would have one terribly difficult time working my way through step-by-step.

To try to infer how one reads a program, when there are lots of alternate ways of doing things, and all you have is the code in front of you, is not simple. It therefore is a very difficult problem to get your hands around.

We do know that if every individual institution were separate and not interrelated, we wouldn't care all that much. The trouble is that there is a perversity of incentive in this type of problem in that you can be extremely scrupulous in going through every single line of code in all of your computer operations, make all the adjustments that are required, and get essentially a system, whether you are a bank or an industrial corporation, and say, we have solved the Year 2000 problem, and then find that when the date arrives, all of the interconnects that are now built in start to break down.

It's not an issue of being worried that there is a large number of noncompliers who haven't gone through the system. You can end up with a very small number of noncompliers and still have a very large problem.

We know that a lot of the countries abroad have smaller problems than we do because a substantial part of their systems are newer equipment which already embodied much larger capacities and didn't have to use two digits, where it could use four digits for purposes of defining what year it was. It's conceivable that a lot of the newer equipment is without difficulty.

We, nonetheless, have such a large, high degree of uncertainty about what actually is out there, that we cannot but employ a very substantial amount of resources to find means to reduce the probability of the inevitable difficulties that are going to emerge.

In measuring the impact on the economy, we first try to evaluate the amount of resources which are being diverted from otherwise productive endeavors, especially in information processing, which must go to the Year 2000 problem, which means that productivity must be reduced. People are doing things which are no longer pro-

ductive, but merely maintenance. You get output, in a sense, but it's not increased productivity. It's not increased real standards of living. In that sense, we can measure the degree of the several hundred-billion dollars which are involved in trying to resolve the Year 2000 problem.

The difficulty is that we don't know what part of that several hundred-billion dollars would have been spent anyway. A lot of it would have been spent on new equipment, merely because the simplest way to resolve a problem which seems to be insoluble with respect to programs is to rip out the whole business and stick in something new.

It's hard to know which part of this is real loss effort. A good part of it is. How much, we don't know. There is automatically, before we reach the year 2000, an economic loss in the sense of the diversion of resources to nonproductive endeavors.

We do not know or cannot know realistically how to make an evaluation of what the economic impact is as a consequence of the breakdowns that may occur.

We do know the size. We do not know the contagion in interaction within the system. Also, we do not know how rapidly we can resolve the problem.

For example, one of the things that we at the Federal Reserve are very acutely aware of is there is a two-pronged issue here. One, to try to prevent the problem from happening, and two, what do you do when it happens?

We had a very major bank in the city of New York a number of years ago whose computer went out. The New York Federal Reserve Bank had to lend them over $20 billion overnight. Now, if we weren't there, I can tell you that the system would have been in very serious difficulty.

Part of what we're trying to do is to figure out what we can do to assuage whatever problems might arise. It's a difficult exercise because there's such a huge element of uncertainty in the nature of the problem itself. But we're trying to come to grips with it as best we can.

Senator BENNETT. Thank you.

Mr. Chairman, if I could be allowed an additional observation.

The CHAIRMAN. Certainly.

Senator BENNETT. Chairman Greenspan, the further I get into this, the more I realize that the uncertainty you refer to is the real problem here. You have summarized the issue as well as anybody I have ever heard. I congratulate you for that.

Let me give you an example to disturb you at night when you're not thinking of anything else. The power grid in the United States is completely integrated through the whole country, and if one portion of power goes down in one place, it can go down elsewhere. We have seen this before. We have even seen horror movies that are based on this.

What happens if at some choke point in the power grid where there is a computer, somebody hasn't found the Year 2000 problem, and we begin to get major power outages spreading throughout the economy?

You have talked about one bank whose computers went down where you had to lend them $20 billion overnight. What if there

is a major manufacturer that slips delivery schedules because of a power outage?

Now, not only is the bank unable to crank up its computers, but also General Motors can't meet an assignment, and the ripple effect spreads throughout the suppliers, customers, and so on.

We have had testimony before my Subcommittee that there is a 40 percent chance that there could be a worldwide recession triggered by this. I don't know if that's a good or bad percentage, but if I were the Fed, I would really be worried about it and paying attention to it.

You talked about the Euro, and in your response to Senator Reed you said that there will be struggles to put it technically into place. The very resources that you described in your statement about the challenges here, are being devoted right now to converting computer capacity in Europe and elsewhere to handle the switch to the Euro. Every currency trader who has a computer is having it reprogrammed so that it can handle the Euro. Every programmer available to deal with this Year 2000 problem is busy dealing with the Euro conversion.

I know there are a number of people who have raised the issue that the conversion to the Euro should be delayed until the Y2K problem has been taken care of. I'm one of them. I think, if I were a CEO of a company that had these kinds of technical challenges, I would be saying to my MIS people, do not do the Euro until you have taken care of the Year 2000 problem. The demand for your services and your capability is so great that you can't handle both problems simultaneously.

Could you comment on what you believe would happen if in fact policymakers were to decide to postpone the conversion to the Euro simply because of this, as you put it, struggle technically, or, to turn it around, the technical struggle that they have with respect to this?

Chairman GREENSPAN. They are now at a point where they have a very major dilemma of exactly this nature because if they postpone the January 1, 1999 date, it creates a lot of technical problems, not dissimilar to the Year 2000 computer problem, since a lot of their operations are gradually moving step-by-step to encompass changes in the system.

I suspect that if those were delayed, there would be some very major consequences within the payment system and within the way the European monetary system is evolving.

I do know that there are an awful lot of people in Europe who have the same concerns that you do for exactly the same reasons. I'm not sure how that will come out.

I do know that we at the Federal Reserve are aware of the fact that because of the tremendous amount of resources moving toward the single-currency implementation, other resources to confront the computer issues are lacking. We don't know how significant that is. It's a worrisome issue and I'm not sure, at this point in time, that there is a simple solution to it. I think it's a problem either way.

Senator BENNETT. Thank you, Chairman Greenspan. I appreciate your awareness of the issue. That's where we start. Let me close with this comment.

As you may know, I have had the GAO checking into the various regulators as to where they are with respect to both their own systems and the systems of the financial institutions they oversee. We haven't yet heard from the GAO with respect to the Fed, but the pattern developing from the GAO reports that have come in so far is that virtually all of the regulatory agencies are behind schedule in terms of their internal systems, the assessment, the remediation, and contingency planning for their in-house computers.

The external systems for which they have supervisory responsibility, the banks, credit unions, and so on, are also behind schedule with respect to corrective action and contingency planning. We look forward to examining the GAO report with respect to the Fed.

The good news is that virtually everybody who has reported has reported that as a result of the actions of this Committee and of those through our Subcommittee, the level of concern, activity, and awareness has gone up very dramatically. We're hoping that in the time we have left we can get this solved.

But the general trend has been that virtually every regulator is behind the curve in their own computers and they find that the institutions they regulate are also well behind the curve.

Thank you, Mr. Chairman.

The CHAIRMAN. I want to thank the Senator not only for his line of questioning, but also for his industriousness in, as you say, increasing the level of awareness. I think you have contributed substantially to dealing with this problem. I thank you for your efforts. You have done an outstanding job, Senator.

Senator BENNETT. Thank you, Mr. Chairman.

The CHAIRMAN. Chairman Greenspan, let me thank you for your graciousness, for your incisiveness, for your responsiveness, and for the manner in which you have continually made yourself and your colleagues available to this Committee, its Members, and staff.

We are deeply appreciative. I am very heartened by your presentation today. I think most of the Members are. I think you have touched on those areas of concern that are important—Southeast Asia, the economic consequences that may or may not unfold, and the question of the quality of loans. I think there are a number of my colleagues that have talked to that issue.

The necessity in terms of continuing a prudent policy on fiscal restraint and keeping the budget under control is another important issue which you addressed.

We are deeply appreciative. Again, we are well aware, as Senator Bennett has spelled out, that your stewardship has played a most significant role in the economic prosperity that we enjoy.

We want to commend you and again thank you for your leadership and for holding yourself available to this Committee and to the American people in the manner in which you have. We are very appreciative.

Chairman GREENSPAN. Thank you very much, Mr. Chairman.

The CHAIRMAN. We stand in adjournment.

[Whereupon, at 11:47 a.m., Wednesday, February 25, 1998, the hearing was adjourned.]

[Prepared statements, response to written questions, and additional material supplied for the record follow:]

PREPARED STATEMENT OF SENATOR RICHARD C. SHELBY

Mr. Chairman, I look forward to hearing the testimony of Chairman Greenspan. I usually take this time to reiterate my conviction that monetary policy should strive for price stability and zero inflation. However, with the Consumer Price Index at 1.7 percent and the Producer Price Index at a −1.8 percent for the entire year of 1997, we should actually congratulate the Federal Reserve Board for achieving the goal of price stability. I believe the performance of monetary policy over the last year proves the benefits of a strong and independent central bank.

Nevertheless, I believe we should remain vigilant in the fight against inflation because, after all, inflation is nothing more than a tax. While I do believe monetary policy has performed exceptionally well over the last year, I hope the Board understands this just increases the world's expectations of price stability in the future. In other words, Chairman Greenspan, not only would we welcome a repeat performance in 1998, but the markets expect it.

PREPARED STATEMENT OF SENATOR LAUCH FAIRCLOTH

I once again want to thank Alan Greenspan for his leadership at the Federal Reserve. I think much of the favorable economy we have today is due to his steady hand at the Federal Reserve.

Mr. Chairman, let me make a few comments about the economy. First, I am pleased that we finally have a surplus "on paper" for the Federal budget, but we still have a long way to go. We have to stop borrowing from Social Security and we still have a $5 trillion debt. We have to tackle these problems before we can start thinking about adding new Federal spending programs.

Second, we have to start thinking about a *surplus* for America's families. Many people I talk to are comfortable, but they are worried. They have demands to save for their children's college education, their own retirement, and possibly having to care for an elderly parent.

They know these are the good times, but that the business cycle won't last forever. They remain somewhat worried about there own future. The job market is full, but not necessarily stable. Technology is changing so rapidly that many workers remain nervous about their skills in the future.

My point is that, while we now have the Government's fiscal house finally under control, we shouldn't be complacent because the Government is taking a combined 38 percent of every family's income, and that is simply too high.

In my opinion, the result of the large tax burden and the high cost of living is that Americans are having to rely too much on borrowed funds—be it credit cards or home equity loans—to meet their daily needs.

This leads me to my final point—which Chairman Greenspan touches on in his testimony—the risk of unsound loans being made by the banking system in these otherwise good times. One of the best bankers in this country, John Medlin, told me that these are the worst credit standards he has ever seen in 40 years of banking. If we have a downturn in the economy, these debt burdens could present a real crisis for us. I think this Committee has to keep a close watch on this issue.

PREPARED STATEMENT OF SENATOR CONNIE MACK

Thank you, Chairman Greenspan, for appearing before this Committee. I always look forward to hearing your insights on monetary policy and the economy.

With continued turmoil in many foreign economies, it is comforting to know that the U.S. economy remains fundamentally sound and still growing. Our currency is strong, and we are enjoying low inflation, favorable growth, and good employment opportunities.

A great deal of our economic stability is the result of sound monetary policy that has kept inflation in check. Under your guidance, the Federal Reserve has done an excellent job of focusing on stable prices, which is the key to strong economic growth. There is no doubt that your solid leadership has produced confidence and certainty in the U.S. economy.

The focus on sound fiscal policy has also been a positive factor in our economy. Under a Republican Congress, the deficit outlook has changed dramatically, from a predicted deficit of $253 billion for next year, all the way down to the possibility of a surplus. This, I believe, has fostered lower interest rates that act as a major tax cut for millions of American families.

However, our current growth and positive fiscal statistics should not lure us into complacency. The Federal Reserve must remain focused on price stability—and Congress should remain focused on *preserving* budget balance, reducing or eliminating wasteful spending, and easing the tax burden. I will continue to work to reform the Humphrey-Hawkins Act and replace it with legislation that focuses on price stability as the Fed's primary goal.

I am very interested in hearing the Chairman's current views on the situation in Asia. Clearly, recent events there will pose problems for our economy, particularly in the export sector. By the end of 1997, U.S. exports made up almost 14 percent of GDP. However, the failure of many governments to keep their currencies stable means that the people in these countries will not be able to buy as much from the United States. In turn, this slowdown in the export sector may have a negative impact on corporate profit margins here, leading to fewer new jobs, a slowdown in wage growth, and less investment.

We have to come up with better ways to identify and prevent such crises—both in the near-term and in the future. Congress' role is to make sure that both the United States and the IMF promote pro-growth policies, including low tax rates, sound banking systems, and stable currencies.

Our country has a role to play in promoting economic growth, not just at home but also abroad. Why? Because our Nation strongly believes in freedom, justice, democracy, human rights, and capitalism—and we're the only Nation committed to exporting these ideas and principles around the globe.

I welcome Chairman Greenspan and I'm anxious to hear his analysis.

PREPARED STATEMENT OF SENATOR CAROL MOSELEY-BRAUN

Mr. Chairman, I am very pleased to have this opportunity to hear the distinguished Chairman of the Federal Reserve Board, Alan Greenspan, present his views on the conduct of monetary policy and the state of our economy.

While economic turmoil engulfs much of the Pacific Rim, the U.S. economic recovery continues to roll on. We have produced over 13 million new jobs since 1991. The economy has been expanding for over 7 years, and economic growth seems likely to continue into the future. Importantly, inflation was actually zero last month, which is just the latest evidence that inflation is under control.

The budget news is, if anything, even better. The President actually proposed a balanced budget this year. That is, it seems to me, an accomplishment worth celebrating, especially when you consider that the deficit was $280 billion just 7 years ago. Now we are actually talking about budget surpluses—perhaps 10 years of surpluses. We still have a number of major fiscal policy challenges to face—particularly the challenges related to the demographic changes now underway—but we have achieved a remarkable amount of progress since President Clinton was first elected in 1992.

This good news is also a tribute to the cooperation between the Administration and the Federal Reserve, and to a blend of fiscal and monetary policies that worked together to promote the interests of the American people. The President, Chairman Greenspan, and Secretary Rubin all deserve a commendation from this Committee for the roles they played in producing this economic and budget success.

Despite the fact that the economy is generally strong, inflation is in abeyance, and the budget deficit is in retreat, we do not have the time to be complacent. In fact, we are already rapidly running out of time to address the challenges now on the horizon. The time to act to ensure that Social Security and Medicare will be there for future generations of retirees is now. I therefore hope this Committee will go beyond the relatively good news that we can reasonably expect over the next few years, and begin to have an honest dialogue about what is on the horizon, and the challenges the future holds for us and our children.

As I have stated on this Committee before, I think we need to focus on two interrelated issues, enhancing retirement security and creating public policies that encourage greater efficiency in our economy and higher rates of economic growth. There is no issue more important than retirement security; there is no issue more important to the future of every American. The challenges we face in ensuring that future generations of Americans will be able to enjoy the same kind of retirement security that current retirees have are immense. Social Security, the cornerstone of retirement security in this country, is currently underfunded and needs substantial reform to fulfill its mission in a future where there will only be two working Americans for every retiree, instead of the three there are now, and the five there were not very many years ago. And ensuring that Social Security will continue to serve

the needs of Americans in the future becomes even more important as we consider the impact of the changeover in private pension plans from defined benefit plans to defined contribution plans—a change that could add to the uncertainty facing future generations of retirees. Despite the good news on the deficit reduction front, private savings rates in the United States are still far too low. Balancing the budget has yet to help increase the individual savings rate.

As we attempt to come to grips with these issues, however, it is worth keeping in mind that the health care and retirement programs, which, together with the huge run-up in debt service costs, are driving the increases in Federal spending, are amazing successes. Poverty among the elderly is currently at the lowest level since we have been keeping statistics, in no small part because of the retirement and health security provided by Social Security, Medicare, and Medicaid. It is impossible to underestimate the difference these Federal programs have made in the lives of literally tens of millions of Americans, and to our country generally. What makes the achievement even more remarkable is that we have accomplished this goal while holding Social Security administrative costs below 1 percent of benefits paid, and Medicare administrative costs below 3 percent of benefits paid—levels far below anything the private sector has been able to achieve.

We on this Committee can make an important contribution in addressing all of these issues. This Committee plays the key role in protecting the savings of the American people, and we have jurisdiction over our financial system, which is critically important to both our future economic health and the retirement security of American families. I hope we will meet our responsibilities, and play our part in addressing the challenges resulting from demographic changes and rising health care costs. If we do the right thing now, then we can be sure that the generations that will follow us will have what all of us have had—the opportunity to achieve more and live better than our parents did.

PREPARED STATEMENT OF ALAN GREENSPAN

CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

FEBRUARY 25, 1998

Introduction

Mr. Chairman and Members of the Committee, I welcome this opportunity to present the Federal Reserve's semiannual report on economic conditions and the conduct of monetary policy.

The U.S. Economy in 1997

The U.S. economy delivered another exemplary performance in 1997. Over the four quarters of last year, real GDP expanded close to 4 percent, its fastest annual increase in 10 years. To produce that higher output, about 3 million Americans joined the Nation's payrolls, in the process contributing to a reduction in the unemployment rate to 4¾ percent, its lowest sustained level since the late 1960's. And our factories were working much more intensively too: Industrial production increased 5¾ percent last year, exceeding robust additions to capacity.

Those gains were shared widely. The hourly wage and salary structure rose about 4 percent, fueling impressive increases in personal incomes. Unlike some prior episodes when faster wage rate increases mainly reflected attempts to make up for more rapidly rising prices of goods and services, the fatter paychecks that workers brought home represented real increments to purchasing power. Measured consumer price inflation came in at 1¾ percent over the 12 months of 1997, down about 1½ percentage points from the pace of the prior year. While swings in the prices of food and fuel contributed to this decline, both narrower price indexes excluding those items and broader ones including all goods and services produced in the United States also paint a portrait of continued progress toward price stability. Businesses, for the most part, were able to pay these higher real wages while still increasing their earnings. Although aggregate data on profits for all of 1997 are not yet available, corporate profit margins most likely remained in an elevated range not seen consistently since the 1960's. These healthy gains in earnings and the expectations of more to come provided important support to the equity market, with most major stock price indexes gaining more than 20 percent over the year.

The strong growth of the real income of workers and corporations is not unrelated to the economy's continued good performance on inflation. Taken together, recent evidence supports the view that such low inflation, as closely approaching price stability as we have known in the United States in three decades, engenders many

benefits. When changes in the general price level are small and predictable, households and firms can plan more securely for the future. The perception of reduced risk encourages investment. Low inflation also exerts a discipline on costs, fostering efforts to enhance productivity. Productivity is the ultimate source of rising standards of living, and we have witnessed a notable pickup in this measure in the past 2 years.

The robust economy has facilitated the efforts of Congress and the Administration to restore balance in the unified Federal budget. As I have indicated to Congress on numerous occasions, moving beyond this point and putting the budget in significant surplus would be the surest and most direct way of increasing national saving. In turn, higher national saving, by promoting lower real long-term interest rates, helps spur spending to outfit American firms and their workers with the modern equipment they need to compete successfully on world markets. We have seen a partial down payment of the benefits of better budget balance already: It seems reasonable to assume that the decline in longer-term Treasury yields last year owed, in part, to reduced competition—current and prospective—from the Federal Government for scarce private saving. However, additional effort remains to be exerted to address the effects on Federal entitlement spending of the looming shift within the next decade in the Nation's retirement demographics.

As I noted earlier, our Nation has been experiencing a much higher growth rate of productivity—output per hour worked—in recent years. The dramatic improvements in computing power and communication and information technology appear to have been a major force behind this beneficial trend. Those innovations, together with fierce competitive pressures in our high-tech industries to make them available to as many homes, offices, stores, and shop floors as possible, have produced double-digit annual reductions in prices of capital goods embodying new technologies. Indeed, many products considered to be at the cutting edge of technology as recently as 2 to 3 years ago have become so standardized and inexpensive that they have achieved near "commodity" status, a development that has allowed businesses to accelerate their accumulation of more and better capital.

Critical to this process has been the rapidly increasing efficiency of our financial markets—itself a product of the new technologies and of significant market deregulation over the years. Capital now flows with relatively little friction to projects embodying new ideas. Silicon Valley is a tribute both to American ingenuity and to the financial system's ever-increasing ability to supply venture capital to the entrepreneurs who are such a dynamic force in our economy.

With new high-tech tools, American businesses have shaved transportation costs, managed their production and use of inventories more efficiently, and broadened market opportunities. The threat of rising costs in tight labor markets has imparted a substantial impetus to efforts to take advantage of possible efficiencies. In my Humphrey-Hawkins testimony last July, I discussed the likelihood that the sharp acceleration in capital investment in advanced technologies beginning in 1993 reflected synergies of new ideas, embodied in increasingly inexpensive new equipment, that have elevated expected returns and have broadened investment opportunities.

More recent evidence remains consistent with the view that this capital spending has contributed to a noticeable pickup in productivity—and probably by more than can be explained by usual business cycle forces. For one, the combination of continued low inflation and stable to rising domestic profit margins implies quite subdued growth in total consolidated unit business costs. With labor costs constituting more than two-thirds of those costs and labor compensation per hour accelerating, productivity must be growing faster, and that step-up must be roughly in line with the increase in compensation growth. For another, our more direct observations on output per hour roughly tend to confirm that productivity has picked up significantly in recent years, although how much the ongoing trend of productivity has risen remains an open question.

The acceleration in productivity, however, has been exceeded by the strengthening of demand for goods and services. As a consequence, employers had to expand their payrolls at a pace well in excess of the growth of the working-age population that profess a desire for a job, including new immigrants. As I pointed out last year in testimony before Congress, that gap has been accommodated by declines in both the officially unemployed and those not actively seeking work but desirous of working. The number of people in those two categories decreased at a rate of about 1 million per year on average over the last 4 years. By December 1997, the sum had declined to a seasonally adjusted 10½ million, or 6 percent of the working-age population, the lowest ratio since detailed information on this series first became available in 1970. Anecdotal information from surveys of our 12 Reserve Banks attests to our ever-tightening labor markets.

Rapidly rising demand for labor has had enormous beneficial effects on our workforce. Previously low- or unskilled workers have been drawn into the job market and have obtained training and experience that will help them even if they later change jobs. Large numbers of underemployed have been moved up the career ladder to match their underlying skills, and many welfare recipients have been added to payrolls as well, to the benefit of their long-term job prospects.

The recent acceleration of wages likely has owed in part to the ever-tightening labor market and in part to rising productivity growth, which, through competition, induces firms to grant higher wages. It is difficult at this time, however, to disentangle the relative contributions of these factors. What is clear is that, unless the demand growth softens or productivity growth accelerates even more, we will gradually run out of new workers who can be profitably employed. It is not possible to tell how many more of the 6 percent of the working-age population who want to work but do not have jobs can be added to payrolls. A significant number are so-called frictionally unemployed, as they have left one job but not yet chosen to accept another. Still others have chosen to work in only a limited geographic area where their skills may not be needed.

Should demand for new workers continue to exceed new supply, we would expect wage gains increasingly to exceed productivity growth, squeezing profit margins and eventually leading to a pickup in inflation. Were a substantial pickup in inflation to occur, it could, by stunting economic growth, reverse much of the remarkable labor market progress of recent years. I will be discussing our assessment of these and other possibilities and their bearing on the outlook for 1998 shortly.

Monetary Policy in 1997

History teaches us that monetary policy has been its most effective when it has been preemptive. The lagging relationship between the Federal Reserve's policy instrument and spending, and, even further removed, inflation, implies that if policy actions are delayed until prices begin to pick up, they will be too late to fend off at least some persistent price acceleration and attendant economic instabilities. Preemptive policymaking is keyed to judging how widespread are emerging inflationary forces, and when, and to what degree, those forces will be reflected in actual inflation. For most of last year, the evident strains on resources were sufficiently severe to steer the Federal Open Market Committee (FOMC) toward being more inclined to tighten than to ease monetary policy. Indeed, in March, when it became apparent that strains on resources seemed to be intensifying, the FOMC imposed modest incremental restraint, raising its intended Federal funds rate ¼ percentage point, to 5½ percent.

We did not increase the Federal funds rate again during the summer and fall, despite further tightening of the labor market. Even though the labor market heated up and labor compensation rose, measured inflation fell, owing to the appreciation of the dollar, weakness in international commodity prices, and faster productivity growth. Those restraining forces were more evident in goods-price inflation, which in the CPI slowed substantially to only about ½ percent in 1997, than on service-price inflation, which moderated much less—to around 3 percent. Providers of services appeared to be more pressed by mounting strains in labor markets. Hourly wages and salaries in service-producing sectors rose 4½ percent last year, up considerably from the prior year and almost 1½ percentage points faster than in goods-producing sectors. However, a significant portion of that differential, but by no means all, traced to commissions in the financial and real estate services sector related to one-off increases in transactions prices and in volumes of activity, rather than to increases in the underlying wage structure.

Although the nominal Federal funds rate was maintained after March, the apparent drop in inflation expectations over the balance of 1997 induced some firming in the stance of monetary policy by one important measure—the real Federal funds rate, or the nominal Federal funds rate less a proxy for inflation expectations. Some analysts have dubbed the contribution of the reduction in inflation expectations to raising the real Federal funds rate a "passive" tightening, in that it increased the amount of monetary policy restraint in place without an explicit vote by the FOMC. While the tightening may have been passive in that sense, it was by no means inadvertent. Members of the FOMC took some comfort in the upward trend of the real Federal funds rate over the year and the rise in the foreign exchange value of the dollar because such additional restraint was viewed as appropriate given the strength of spending and building strains on labor resources. They also recognized that in virtually all other respects financial markets remained quite accommodative and, indeed, judging by the rise in equity prices, were providing additional impetus to domestic spending.

The Outlook for 1998

There can be no doubt that domestic demand retained considerable momentum at the outset of this year. Production and employment have been on a strong uptrend in recent months. Confident households, enjoying gains in income and wealth and benefiting from the reductions in intermediate- and longer-term interest rates to date, should continue to increase their spending. Firms should find financing available on relatively attractive terms to fund profitable opportunities to enhance efficiency by investing in new capital equipment. By itself, this strength in spending would seem to presage intensifying pressures in labor markets and on prices. Yet, the outlook for total spending on goods and services produced in the United States is less assured of late because of storm clouds massing over the Western Pacific and heading our way.

This is not the place to examine in detail what triggered the initial problems in Asian financial markets and why the subsequent deterioration has been so extreme. I covered that subject recently before several committees of Congress. Rather, I shall confine my discussion this morning to the likely consequences of the Asian crisis for demand and inflation in the United States.

With the crisis now curtailing the financing available in foreign currencies, many Asian economies have had no choice but to cut back their imports sharply. Disruptions to their financial systems and economies more generally will further damp demands for our exports of goods and services. American exports should be held down as well by the appreciation of the dollar, which will make the prices of competing goods produced abroad more attractive, just as foreign-produced goods will be relatively more attractive to buyers here at home. As a result, we can expect a worsening net export position to exert a discernible drag on total output in the United States. For a time, such restraint might be reinforced by a reduced willingness of U.S. firms to accumulate inventories as they foresee weaker demand ahead.

The forces of Asian restraint could well be providing another, more direct offset to inflationary impulses arising domestically in the United States. In the wake of weakness in Asian economies and of lagged effects of the appreciation of the dollar more generally, the dollar prices of our non-oil imports are likely to decline further in the months ahead. These lower import prices are apparently already making domestic producers hesitant to raise their own prices for fear of losing market share, further contributing to the restraint on overall prices. Lesser demands for raw materials on the part of Asian economies as their activity slows should help to keep world commodity prices denominated in dollars in check. Import and commodity prices, however, will restrain U.S. inflation only as long as they continue to fall, or to rise at a slower rate than the pace of overall domestic product prices.

The key question going forward is whether the restraint building from the turmoil in Asia will be sufficient enough to check inflationary tendencies that might otherwise result from the strength of domestic spending and tightening labor markets. The depth of the adjustment abroad will depend on the extent of weakness in the financial sectors of Asian economies and the speed with which structural inefficiencies in the financial and nonfinancial sectors of those economies are corrected. If, as we suspect, the restraint coming from Asia is sufficient to bring the demand for American labor back into line with the growth of the working-age population desirous of working, labor markets will remain unusually tight, but any intensification of inflation should be delayed, very gradual, and readily reversible. However, we cannot rule out two other, more worrisome possibilities. On the one hand, should the momentum to domestic spending not be offset significantly by Asian or other developments, the U.S. economy would be on a track along which spending could press too strongly against available resources to be consistent with contained inflation. On the other, we also need to be alert to the possibility that the forces from Asia might damp activity and prices by more than is desirable by exerting a particularly forceful drag on the volume of net exports and the prices of imports.

When confronted at the beginning of this month with these, for the moment, very finely balanced, though powerful forces, the members of the Federal Open Market Committee decided that monetary policy should most appropriately be kept on hold. With the continuation of a remarkable 7-year expansion at stake and so little precedent to go by, the range of our intelligence-gathering in the weeks ahead must be wide and especially inclusive of international developments.

The Forecasts of the Governors of the Federal Reserve Board and the Presidents of the Federal Reserve Banks

In these circumstances, the forecasts of the governors of the Federal Reserve Board and presidents of the Federal Reserve Banks for the performance of the U.S. economy over this year are more tentative than usual. Based on information available through the first week of February, monetary policymakers were generally of

the view that moderate economic growth is likely in store. The growth rate of real GDP is most commonly seen as between 2 and 2¾ percent over the four quarters of 1998. Given the strong performance of real GDP, these projections envisage the unemployment rate remaining in the low range of the past half year. Inflation, as measured by the four-quarter percent change in the Consumer Price Index, is expected to be 1¾ to 2¼ percent in 1998—near the low rate recorded in 1997. This outlook embodies the expectation that the effects of continuing tightness in labor markets will be largely offset by technical adjustments shaving a couple tenths from the published CPI, healthy productivity growth, flat or declining import prices, and little pressure in commodity markets. But the policymakers' forecasts also reflect their determination to hold the line on inflation.

The Ranges for the Debt and Monetary Aggregates

The FOMC affirmed the provisional ranges for the monetary aggregates in 1998 that it had selected last July, which, once again, encompass the growth rates associated with conditions of approximate price stability, provided that these aggregates act in accord with their pre-1990's historical relationships with nominal income and interest rates. These ranges are identical to those that had prevailed for 1997—1 to 5 percent for M2 and 2 to 6 percent for M3. The FOMC also reaffirmed its range of 3 to 7 percent for the debt of the domestic nonfinancial sectors for this year. I should caution, though, that the expectations of the governors and Reserve Bank presidents for the expansion of nominal GDP in 1998 suggest that growth of M2 in the upper half of its benchmark range is a distinct possibility this year. Given the continuing strength of bank credit, M3 might even be above its range as depositories use liabilities in this aggregate to fund loan growth and securities acquisitions. Nonfinancial debt should come in around the middle portion of its range.

In the first part of the 1990's, money growth diverged from historical relationships with income and interest rates, in part as savers diversified into bond and stock mutual funds, which had become more readily available and whose returns were considerably more attractive than those on deposits. This anomalous behavior of velocity severely set back most analysts' confidence in the usefulness of M2 as an indicator of economic developments. In recent years, there have been tentative signs that the historical relationship linking the velocity of M2—measured as the ratio of nominal GDP to the money stock—to the cost of holding M2 assets was reasserting itself. However, a persistent residual upward drift in velocity over the past few years and its apparent cessation very recently underscores our ongoing uncertainty about the stability of this relationship. The FOMC will continue to observe the evolution of the monetary and credit aggregates carefully, integrating information about these variables with a wide variety of other information in determining its policy stance.

Uncertainty About the Outlook

With the current situation reflecting a balance of strong countervailing forces, events in the months ahead are not likely to unfold smoothly. In that regard, I would like to flag a few areas of concern about the economy beyond those mentioned already regarding Asian developments.

Without doubt, lenders have provided important support to spending in the past few years by their willingness to transact at historically small margins and in large volumes. Equity investors have contributed as well by apparently pricing in the expectation of substantial earnings gains and requiring modest compensation for the risk that those expectations could be mistaken. Approaching the eighth year of the economic expansion, this is understandable in an economic environment that, contrary to historical experience, has become increasingly benign. Businesses have been meeting obligations readily and generating high profits, putting them in outstanding financial health.

But we must be concerned about becoming too complacent about evaluating repayment risks. All too often at this stage of the business cycle, the loans that banks extend later make up a disproportionate share of total nonperforming loans. In addition, quite possibly, 12 or 18 months hence, some of the securities purchased on the market could be looked upon with some regret by investors. As one of the Nation's bank supervisors, the Federal Reserve will make every effort to encourage banks to apply sound underwriting standards in their lending. Prudent lenders should consider a wide range of economic situations in evaluating credit; to do otherwise would risk contributing to potentially disruptive financial problems down the road.

A second area of concern involves our Nation's continuing role in the new high-tech international financial system. By joining with our major trading partners and international financial institutions in helping to stabilize the economies of Asia and promoting needed structural changes, we are also encouraging the continued expan-

sion of world trade and global economic and financial stability on which the ongoing increase of our own standards of living depends. If we were to cede our role as a world leader, or backslide into protectionist policies, we would threaten the source of much of our own sustained economic growth.

A third risk is complacency about inflation prospects. The combination and interaction of significant increases in productivity-improving technologies, sharp declines in budget deficits, and disciplined monetary policy has now damped product price changes, bringing them to near stability. While part of this result owes to good policy, part is the product of the fortuitous emergence of new technologies and of some favorable price developments in imported goods. However, as history counsels, it is unwise to count on any string of good fortune to continue indefinitely. At the same time, though, it is also instructive to remember the words of an old sage that "luck is the residue of design." He meant that to some degree we can deliberately put ourselves in position to experience good fortune and be better prepared when misfortune strikes. For example, the 1970's were marked by two major oil-price shocks and a significant depreciation in the exchange value of the dollar. But those misfortunes were, in part, the result of allowing imbalances to build over the decade as policymakers lost hold of the anchor provided by price stability. Some of what we now see helping rein in inflation pressures is more likely to occur in an environment of stable prices and price expectations that thwarts producers from indiscriminately passing on higher costs, puts a premium on productivity enhancement, and rewards more effectively investment in physical and human capital.

Simply put, while the pursuit of price stability does not rule out misfortune, it lowers its probability. If firms are convinced that the general price level will remain stable, they will reserve increases in their sales prices of goods and services as a last resort, for fear that such increases could mean loss of market share. Similarly, if households are convinced of price stability, they will not see variations in relative prices as reasons to change their long-run inflation expectations. Thus, continuing to make progress toward this legislated objective will make future supply shocks less likely and our Nation's economy less vulnerable to those that occur.

RESPONSE TO WRITTEN QUESTIONS OF SENATOR SHELBY FROM ALAN GREENSPAN

Q.1. The Bureau of Labor Statistics reported that fourth-quarter productivity in the nonfarm business sector only increased 2.2 percent from the same quarter a year ago and hourly compensation increased 4.1 percent. If we are indeed understating productivity in the services sector, it seems we are overstating the prices in this area as well. Is this true? If so, by how much?

A.1. Over the years, a number of researchers have noted the sizable divergence between productivity trends in the manufacturing sector and in the private nonfarm business sector. By inference, these researchers have concluded that productivity must be growing quite slowly outside of manufacturing. In earlier decades, some of this divergence was accounted for by measured declines in output per hour in the construction industry. For the past decade or so, the focus of attention has been on the services industry, where measured output (gross product originating) per hour has been on a pronounced downtrend.

The issue is whether this downtrend reflects the inadequacies of our statistical measurement system or whether these industries truly have failed to become more efficient year in and year out. The latter explanation seems highly implausible, and so we must turn to a careful examination of the data. There are three possible areas of mismeasurement: hours of work, nominal output, and the prices used for deflating nominal output. It seems unlikely that hours of work in the services industry are overstated; indeed, if anything, they may well be understated, which would mean that the productivity figures are biased *up* not down. With regard to the nominal output of the services industry, it could well be the case that the published estimates, which are measured from the income side of the national accounts, are understated. In particular, the invoices for some sales (especially by noncorporate businesses) may not be captured by the Commerce Department's statistical nets. But it seems unlikely that any progressive understatement of true nominal output growth could be large enough to fully account for the dreary long-term performance of productivity in the services industry. A more likely explanation is the problem of measuring prices—the subject of the next question.

Q.2. How much of the overstatement in the price indices is contained in the services area vs. the goods-producing area?

A.2. There is no well-accepted division of price measurement biases into portions associated with services and with goods. Indeed, to the extent that the "substitution" biases in the price indexes stem from failure to account for substitution *between* goods and services as the relative prices of these components change, those biases would not naturally fall into either category. However, regarding biases that stem from failure to capture adequately quality improvements and the introduction of new goods and services into the price indexes, one could, in principle, divide such biases into those two categories. Most economists believe that prices of services are harder to measure than prices of goods, suggesting that the bias might be larger in services. The answer may be more complicated than that, however. For example, going through the Boskin Com-

mission's estimates of quality-adjustment bias in the CPI item-by-item, one can calculate that the Commission views the biases in goods and services to be about the same. Clearly, more research is needed to address this question adequately.

Q.3. In your testimony you stated that, "productivity must be growing faster ... roughly in line with the increase in compensation growth." According to the Bureau of Labor Statistics, compensation costs grew 3.4 percent for the year ended 1997, while nonfarm business productivity increased only 1.7 percent. Does this mean productivity actually increased around 3.4 percent? Could you explain the discrepancy and what you believe the increase in productivity to actually be?

A.3. As I noted at the hearing: "The combination of continued low inflation and stable to rising domestic profit margins implies quite subdued growth in total consolidated unit business costs. With labor costs constituting more than two-thirds of those costs, and labor compensation per hour accelerating, productivity must be growing faster, and that step-up must be roughly in line with the increase in compensation growth." It is important to note that, given the reference to profit margins, the statement only refers to performance in the corporate sector (since noncorporate businesses, by definition, do not earn profits). Corporate earnings reports continue to show that profit margins are being maintained, while tight labor markets are pushing up hourly compensation, unit nonlabor costs are falling, and prices are rising little, if at all. Under these circumstances, the only way firms can maintain their profitability without raising prices is through increased productivity gains roughly in line with the increase in hourly compensation. Thus, this information provides a confirmation of a pickup in productivity from its earlier trends.

As to how fast productivity actually is growing, it is instructive, then, to look at data for the corporate sector only (as opposed to the entire nonfarm business sector). According to the Bureau of Labor Statistics, output per hour in the nonfinancial corporate sector rose 3.1 percent over the four quarters ending in 1997:Q3 (the latest available data), roughly in line with the 3.6 percent increase in compensation per hour. Although it will be some time before the current trend in productivity can be estimated with any precision, the accounting relationships among prices, profits, costs, and productivity make it seem very likely that the trend will be greater than the 1¾ percent performance posted over the quarter century ending in 1995.

Q.4. It is my understanding the Federal Reserve Board has studied the measurement of productivity in the services sector and the inadequacies of the current measurement. Is there any way you could share the work of the Board on that issue with the Committee as well as any conclusions?

A.4. The research by Larry Slifman and Carol Corrado, "Decomposition of Productivity and Unit Costs," is included in Additional Material Supplied for the Record.

Q.5. Your testimony discussed the lagged effects of the appreciation of the dollar. How long does it take for exports and imports to feel

the effect of the appreciation of the dollar? That is, what is the lag time?

A.5. Econometric analysis suggests that much of the impact of an appreciation of the dollar will be felt within six quarters, with a continuing impact for the subsequent six quarters.

DECOMPOSITION OF PRODUCTIVITY AND UNIT COSTS

L. Slifman and C. Corrado*

Board of Governors of the
Federal Reserve System

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* Associate Director, Division of Research and Statistics, and Chief, Industrial Output Section, Division of Research and Statistics. Other Federal Reserve staff contributors to this report were Mark Doms, Charles Fleischman, Gloria Fennell, Marc Fusaro, Fong Kiang, Elizabeth Vrankovich, and Beth Anne Wilson. The authors thank Robert Parker and Gerald Donahoe of the Bureau of Economic Analysis for providing unpublished income estimates, and Alan Greenspan, Alice Rivlin, David Stockton, P. A. Tinsley, and Ellen Dykes of the Federal Reserve Board as well as Edwin Dean (BLS), Michael Harper (BLS), Steven Landefeld (BEA), and Robert Parker (BEA) for helpful comments on an earlier draft. This paper does not necessarily reflect the views or opinions of the Board of Governors of the Federal Reserve System.

DECOMPOSITION OF PRODUCTIVITY AND UNIT COSTS

L. Slifman and C. Corrado

Labor productivity (output per hour) in the private business sector is reported to have been rising at an annual rate of about 1-1/4 percent since 1973. At the same time, output per hour in the nonfinancial corporate sector is estimated to have been increasing at a 1-3/4 percent annual rate. Given that the nonfinancial corporate sector is about two-thirds of the aggregate, these statistics imply that output per hour elsewhere in private business has not increased, on average, for more than two decades.

For the past fifteen years, productivity growth in manufacturing has been relatively robust. A BLS study concluded that all of the growth in private business multifactor productivity in the 1980s could be attributed to manufacturing.[1] Moreover, the published figures for private business and manufacturing labor productivity suggest that since the beginning of the 1990s output per hour in the nonmanufacturing sector of the economy has been disappointing.

Because it seems unlikely that major sectors of the economy have, in reality, failed to become more efficient year in and year out, it would be useful to try to identify at a more disaggregated level those segments of the economy with persistently dismal measured productivity performance. Moreover, for purposes of current analysis, one would like to have the data at a quarterly frequency. This paper presents such a disaggregation. The decompositions are by legal form of organization, with gross industry breaks within the corporate sector, and by detailed industry. For expository convenience, we refer to the former as the "sectoral" decomposition and the latter as the "industry" decomposition. An accompanying dataset contains the complete set of sectoral and industry estimates of labor productivity as well as a decomposition of sectoral data on unit costs and profits.

Decomposition of Productivity and Unit Costs by Sector

The sectoral decomposition develops product and income accounts for subsectors of the domestic business sector in the national income and product accounts (NIPAs). The basic idea underlying the decomposition is that the Commerce Department's Bureau of Economic Analysis (BEA) publishes quarterly income and product for the domestic business sector and for most of the corporate business sector. The BEA also publishes annual income and product for farms and owner-occupied housing. After making a few interpolations (and extrapolations) of these annual data, as well as constructing an implicit deflator for the output of financial corporations, one can calculate a complete quarterly income and product account for the nonfarm business

[1]William Gullickson, "Multifactor Productivity in Manufacturing Industries," *Monthly Labor Review* (October 1992); see especially page 29 and chart 2.

sector (as defined by BLS for official productivity estimates).[2] An income and product account for the noncorporate sector can then be calculated as a residual. The nonfarm, nonfinancial corporate sector is further disaggregated into manufacturing and nonmanufacturing; this disaggregation relies, in part, on BEA's annual series on gross product originating by industry (see below). A complete description of all the series that are part of the sectoral decomposition appears in Appendix 1.

What Does the Decomposition Comprise?

The sectoral decomposition breaks the nonfarm business sector (less housing) into the following sectors: nonfarm corporate business, financial corporations, nonfarm nonfinancial corporations, manufacturing corporations, nonmanufacturing corporations (excluding farm and financial corporations), and nonfarm noncorporations. The nonfarm noncorporate sector consists primarily of sole proprietorships and partnerships, with nearly half of the sector's income generated by businesses in the services industry.[3] In addition, nominal and real product for the total nonfarm business sector and for the nonfarm noncorporate business sector are recalculated on an "income basis" by subtracting the NIPA statistical discrepancy. Because the statistical discrepancy has swung from +$58 billion in 1993 to -$51 billion in 1996:Q2, the income-based measures of activity (and, hence, productivity) have been growing more rapidly than the output-based numbers in recent quarters.

Each sector is decomposed into the following product and income components: nominal gross product; real gross product; consumption of fixed capital (with capital consumption adjustment); indirect business taxes, business transfers, and net subsidies; compensation; profits (with inventory valuation adjustment and capital consumption adjustment); net interest; proprietors' income; and rental income.

When real sector product is divided by hours worked, the result is labor productivity, or output per hour.[4] When nominal sector product and its income components are divided by real sector product, the result is a complete unit cost (and profit) accounting that adds up to the implicit deflator for the sector. The unit cost decomposition for each sector is presented in the accompanying dataset.

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[2]The interpolations, extrapolations, and data constructions are based primarily on published quarterly NIPA series and are described in Appendix 1.

[3]The services industry share reflects calculations based on unpublished BEA data on domestic income by industry and legal form of business. See table 4, line 15, column 3.

[4]Note that the manufacturing sectoral real product estimates presented here are value-added measures and thus differ from sectoral output as calculated by BLS. See William Gullickson, "Measurement of Productivity Growth in U.S. Manufacturing," *Monthly Labor Review* (July 1995), pp. 13-28.

Highlights of the Sectoral Decomposition

Tables 1 and 2 summarize the results of the exercise. The upper portion of table 1 shows the annualized growth rate of real sector output over selected time periods and the next portion shows the corresponding growth rates of hours worked.[5] The third and fourth sections show labor productivity (output per hour) and unit labor costs by sector. As can be seen in line 16, the official measure of labor productivity in the nonfarm business sector slowed from an annual growth rate of 2.8 percent in the 1960s and early 1970s to a 0.9 percent rate during the 1990s. Even when measured on an income basis (line 17), the recent performance (1.2 percent per year) has been disappointing compared with that in the 1960s.

By sector, the decomposition suggests that the 1970s slowdown in measured productivity growth was concentrated in the corporate manufacturing and nonfarm noncorporate sectors (lines 21 and 23). Subsequently, output per hour in manufacturing recovered. But the level of output in the noncorporate sector, as implied by this decomposition, has continued to fall. Table 2 provides perspective on the relative size of each sector's domestic income, real output, and hours. As may be seen, the nonfarm noncorporate sector has accounted for just under one-fourth of nonfarm business activity in recent years.

Accompanying the lackluster behavior of productivity in the nonfarm noncorporate sector has been rapid growth in unit labor costs compared with those in the corporate sector (table 1, line 31 vs. line 26). At the same time, as shown in chart 1, the return to the owners of nonfarm noncorporate businesses (that is, proprietors' income plus rental income) as a share of either nominal gross sector product or domestic income has been well maintained in recent years.[6] Consequently, as illustrated by chart 2, since 1976 the implicit deflator for the nonfarm noncorporate sector has been rising much faster than the deflator for the nonfarm corporate sector -- 6.7 percent (annual rate) vs. 4 percent (annual rate).

A Caveat

A critical component of this decomposition is BEA's estimate of real nonfinancial corporate output. To calculate real nonfinancial corporate output, BEA deflates current-dollar nonfinancial corporate product using the implicit deflator for goods and structures, which may not accurately represent corporate product prices. For example, corporate product includes almost all of the output for services, such as purchased

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[5]For the most part, the figures on hours worked are those used in the BLS measures of output per hour for nonfarm business, nonfinancial corporations, and manufacturing. See Appendix 1 for a complete description.

[6]The domestic income of a sector is equal to the sector's gross product originating minus the consumption of fixed capital, indirect business taxes, and business transfers, plus net subsidies. See table A-1, line 6.

intercity transportation, household utilities, and motion pictures, as well as a portion of legal services. However, the quantity weights for the prices of these and other obviously excluded categories are relatively small for the nonfinancial corporate sector as a whole (see table 4, column 2).

In fact, as shown on chart 3, a nonfinancial corporate output price index constructed to reflect the two-digit industry composition of nonfinancial corporate product does not show a long-term trend that is significantly different from BEA's published deflator. The broad trends implied by the productivity and unit cost decompositions, which are based on the published estimates of real nonfinancial corporate product, would be little changed if current-dollar nonfinancial corporate product were deflated with the constructed price index. However, the chart does show the two deflators beginning to diverge in the 1990s, suggesting that in recent years the use of official statistics for the decomposition has caused a misallocation of a small portion of real product from the noncorporate sector to the nonmanufacturing corporate sector.

Decomposition of Productivity by Industry

The industry decomposition relies on one- and two-digit SIC industry output, employment, and hours data that are available as part of BEA's gross product by industry dataset.[7] An important caveat associated with using these data for longer-run historical comparisons is that the SIC system was changed in 1987. BEA's recommendations have been followed in combining certain two-digit industries to create reasonably continuous time series.[8] In any event, with these data, output per hour measures were calculated for detailed industries and aggregated to a measure for the nonfarm business sector less housing.[9]

Highlights of the Industry Decomposition

Table 3 summarizes the results of this exercise. As can be seen by comparing lines 1 and 2, growth rates of the constructed aggregate and the official series are quite close,

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[7]This decomposition is similar to analyses of output per hour by major industry presented in the 1988 *Economic Report of the President*, page 73, and in Zvi Griliches' introduction to the conference volume *Output Measurement in the Service Sectors*, University of Chicago Press, 1992, page 5. In addition to updating these earlier studies, this report presents productivity estimates at a more disaggregated level.

[8]See the August 1996 edition of the *Survey of Current Business* for a complete description of gross product by industry and BEA's recommendations for linking the data across the 1987 SIC change.

[9]Unlike the official BLS productivity series, the constructed aggregate includes output and hours from nonprofit institutions and paid private household workers. In addition, the constructed series excludes the entire government, and agriculture, forestry, and fishing industries rather than just excluding farm output and hours.

even though 25 percent of services industry domestic income is not in the business sector (table 5, column 3, line 15). Within the industry decomposition, the results are similar to those in the sectoral decomposition--that is, the level of measured output per hour in the services industry (line 16) has been falling continuously for the past two decades. Lines 17 to 28 provide additional detail and suggest that the disappointing reported productivity performance has been widespread across nearly all two-digit services industries.

Questions Raised by the Decomposition

As indicated above, the dataset shows that the profitability of noncorporate businesses, (proxied by proprietors' income plus rental income as a share of sector output) has been well maintained in the face of declining productivity over the past two decades. One question raised by the decomposition, then, is, Does such a confluence of events make economic sense? It seems unlikely that firms with declining long-term productivity would be able to avoid bankruptcy let alone maintain the rate of return to the owners. In theory, some firms could have low or declining measured output per hour and still be profitable, but it is hard to imagine this occurring on a widespread basis. To be sure, the noncorporate sector is not stagnant; it reflects many start-up businesses, the most successful of which eventually incorporate. But the confluence of events as described by this dataset requires the sector to have persistently harbored the economy's least efficient businesses since the mid-1970s, which seems inconsistent with the sector's continued profitability.

In an accounting sense, these apparently incompatible productivity and profitability trends can be reconciled by relatively rapid increases in the prices of the noncorporate sector's output. Is there an economic explanation for the rapid rise over two decades in the relative price of output from the noncorporate sector? Factors such as widespread price inelastic demand, barriers to entry, including nontransferable intellectual property rights, and so forth could possibly explain such trends. But it is hard to imagine the presence of these factors on a wide enough scale to account for a significant portion of the productivity slowdown in the noncorporate sector.

Alternatively, the sector's measured trends in productivity, profitability, and prices may not reflect actual economic developments. Thus, another question raised by the decomposition is, Do these inconsistent trends signify problems with our economic statistics?

One possible measurement problem is that nominal output could be understated. In particular, the invoices for some output may not be captured by the Commerce Department's statistical nets. But is the problem, if it exists, getting worse? The $100 billion swing in the statistical discrepancy since 1993 does raise the possibility that nominal output growth has been understated in recent years. Nevertheless, the income-based measures of output per hour presented on lines 17 and 23 of table 1 suggests that mismeasurement of nominal output is unlikely to account for much of

the dreary performance of productivity as indicated by published statistics over the past two decades.

A more likely statistical explanation for the implausible productivity, profitability, and price trends in the noncorporate sector is that they reflect problems in measuring prices. Indeed, the decomposition of national accounts data presented here can be viewed as providing a macroeconomic perspective on the problems of price measurement that many other researchers have noted from a microstatistical perspective.[10] It suggests that actual inflation in the economy is less than that shown by the published data, and, accordingly, actual growth of output and productivity is faster.

What is the possible magnitude of the overstatement of inflation that emerges from this dataset? As a benchmark thought experiment for making a judgment on this issue, one could assume that instead of falling for the past two decades, productivity in all declining two-digit service-producing industries has been flat. Such a calculation suggests that over the past two decades aggregate productivity growth would have been nearly half a percentage point faster per year than indicated by the published data and, that for a given nominal output, inflation would have been lower by the same amount.[11] This benchmark figure, which is derived independently, is within the range of estimates of CPI biases arising from the slow introduction of new products and deficiencies of quality adjustment that have been noted by many researchers (see footnote 10). Of course, one could argue that even the assumption of no productivity growth for these industries is unrealistic. Obviously, if one were to assume that productivity in these industries has actually been improving, aggregate output per hour would rise even faster and price inflation would be still lower.

A Concluding Thought

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[10]See, for example, the following studies: David E. Lebow, John M. Roberts, and David J. Stockton, "Monetary Policy and the Price Level," Federal Reserve Board, August 1994. J. Peterson, "Is the Growth of the CPI a Biased Measure of Changes in the Cost of Living?", Congressional Budget Office, 1994. Advisory Commission to Study the Consumer Price Index, "Toward a More Accurate Measure of the Cost of Living: Interim Report to the Senate Finance Committee," September 15, 1995. Mathew Shapiro and David W. Wilcox, "Mismeasurement in the Consumer Price Index: An Evaluation," NBER Working Paper 5590, May 1996.

[11]Seventeen industries were adjusted. Four of these industries were in the transportation sector: local and interurban passenger transit; trucking and warehousing; water transportation; and transportation services. Two of the adjusted industries were in finance, insurance, and real estate: insurance carriers; and insurance agents, brokers, and services. The remaining eleven adjusted were in the services industry: hotels and other lodging places; personal business services; business services; auto repair services and parking; miscellaneous repair services; motion pictures; amusement and recreation services; health services; legal services; education services; and social services.

Many observers have questioned how the influence of relentless technological progress appears so prominently in statistics on manufacturing, but not in those for services. Some have long questioned the accuracy of the statistics themselves.[12] Others suggest that the gains from new technologies take a long time to diffuse and that the productivity boost from information technology has yet to come.[13] Yet others look more closely at structural developments such as "downsizing" and "outsourcing" and suggest that these need not stimulate aggregate growth or efficiency; instead, such developments could just reflect a reallocation of resources within the economy. Clearly, the basic trend toward automation in manufacturing and distribution will result in a productivity gain in the aggregate economy only if the laid-off workers find new jobs in which they are as productive as they were in their old jobs. If human capital is lost when production workers move from one industry to another following firm downsizing, aggregate labor productivity will not necessarily increase.

However, many of the changes in manufacturing over the 1980s occurred as part of corporate restructuring that outsourced ancillary, labor-intensive, service activities of the basic enterprises. A related development is the increased tendency in the 1990s for manufacturers to purchase the services of temporary workers as labor on production lines. When a manufacturing or related enterprise decides to use temporary workers or to close down an ancillary activity (for example, a warehousing unit, a legal services department, or a research and development laboratory) and purchase the service on the market instead, value added in manufacturing is reduced and value added elsewhere in industry is increased. These changes reflect an alteration in the organization of production to meet a given pattern of final demand and do not necessarily result in an immediate increase in aggregate productive efficiency. Over time, however, contracting out ancillary activities means replacing own-account production by specialist production, which should eventually lead to an increase in productive efficiency for the economy as a whole. A final question, then, is How long does it take for these efficiency gains to occur, and when they do take place, will our economic statistics capture them?

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[12]See, for example, Zvi Griliches, "Productivity, R&D and the Data Constraint," *American Economic Review* (March 1994), pp. 1-23 and the references therein.

[13]Paul David, "The Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox," *American Economic Review: Papers and Proceedings* (May 1990), and Nathan Rosenberg, "Uncertainty and Technological Change," unpublished paper prepared for a conference sponsored by the Federal Reserve Bank of Boston, June 5-7, 1996.

Table 1

Sectoral Labor Productivity and Costs
(Percent change at an annual rate over period indicated)

	60:Q2 to 96:Q2	60:Q2 to 73:Q4	73:Q4 to 80:Q1	80:Q1 to 90:Q2	90:Q2 to 96:Q2
REAL OUTPUT					
1. Nonfarm business sector	3.3	4.5	3.0	2.9	2.1
2. Income-based	3.3	4.4	2.6	3.0	2.3
3. Nonfarm corporate	3.9	4.7	3.8	3.5	2.9
4. Financial	3.5	3.2	7.4	1.7	3.2
5. Nonfinancial	3.9	4.6	3.6	3.7	2.8
6. Manufacturing	2.9	4.2	1.9	2.5	1.8
7. Nonmanufacturing	4.6	5.4	4.6	4.3	3.3
8. Nonfarm noncorporate	1.4	3.6	-1.5	1.0	0.4
HOURS WORKED					
9. Nonfarm business sector	1.6	1.6	1.8	1.7	1.1
10. Nonfarm corporate	2.2	2.9	2.2	1.8	1.2
11. Financial	2.5	3.2	3.2	2.2	0.4
12. Nonfinancial	2.2	2.9	2.1	1.8	1.3
13. Manufacturing	0.3	1.4	-0.1	-0.5	-0.4
14. Nonmanufacturing	3.6	4.5	3.8	3.1	2.0
15. Nonfarm noncorporate	0.2	-1.1	0.5	1.5	0.9
LABOR PRODUCTIVITY					
16. Nonfarm business sector	1.7	2.8	1.2	1.1	0.9
17. Income-based	1.7	2.8	0.9	1.2	1.2
18. Nonfarm corporate	1.7	1.8	1.6	1.7	1.6
19. Financial	1.0	-0.0	4.1	-0.5	2.8
20. Nonfinancial	1.7	1.9	1.5	1.8	1.5
21. Manufacturing	2.6	2.6	2.0	3.1	2.3
22. Nonmanufacturing	1.0	0.9	1.0	1.2	1.2
23. Nonfarm noncorporate	1.2	4.8	-1.9	-0.5	-0.5
UNIT LABOR COSTS					
24. Nonfarm business sector	4.2	3.1	8.0	4.2	2.7
25. Income-based	4.2	3.1	8.3	4.0	2.5
26. Nonfarm corporate	3.8	3.3	7.3	3.5	1.9
27. Financial	5.7	5.6	4.5	8.0	3.3
28. Nonfinancial	3.7	3.2	7.5	3.2	1.8
29. Manufacturing	3.1	2.4	7.8	2.2	1.6
30. Nonmanufacturing	4.2	4.1	7.4	3.8	1.9
31. Nonfarm noncorporate	4.8	1.0	11.0	6.2	5.0

Table 2

Sectoral Income, Real Output and Hours
(Average percentage of total nonfarm business over period indicated)

	1960 to 1995	1960 to 1973	1974 to 1979	1979 to 1990	1990 to 1995
DOMESTIC INCOME					
1. Nonfarm business sector	100.0	100.0	100.0	100.0	100.0
2. Nonfarm corporate	76.7	74.8	77.8	78.2	77.4
3. Financial	5.5	4.3	4.9	6.0	7.9
4. Nonfinancial	71.2	70.5	73.0	72.2	69.5
5. Manufacturing	29.9	34.6	31.4	26.6	23.0
6. Nonmanufacturing	41.4	35.9	41.6	45.6	46.5
7. Nonfarm *noncorporate*	23.3	25.2	22.2	21.8	22.6
REAL OUTPUT[1]					
8. Nonfarm business sector	100.0	100.0	100.0	100.0	100.0
9. Nonfarm corporate	73.2	69.0	71.6	76.2	78.4
10. Financial	7.5	6.8	7.6	8.2	7.6
11. Nonfinancial	65.6	62.0	64.1	68.1	70.8
12. Manufacturing	24.4	26.1	24.4	23.6	22.4
13. Nonmanufacturing	41.1	35.6	39.7	44.6	48.4
14. Nonfarm noncorporate	28.4	34.3	30.3	24.1	21.6
HOURS					
15. Nonfarm business sector	100.0	100.0	100.0	100.0	100.0
16. Nonfarm corporate	72.7	67.9	74.5	76.2	76.3
17. Financial	4.4	3.8	4.5	5.0	4.9
18. Nonfinancial	68.3	64.1	70.0	71.2	71.4
19. Manufacturing	28.2	32.7	29.5	25.1	21.7
20. Nonmanufacturing	40.1	31.4	40.5	46.1	49.8
21. Nonfarm noncorporate	27.3	32.1	25.5	23.8	23.7

1. Figures for real output shares begin in 1961 and are relative to the income-based measure of total nonfarm business output.

Table 3

Real Gross Product Originating per Hour, 1977-94
(Percent change at an annual rate over period indicated)

	Industry	1977 to 1994	1980 to 1990	1990 to 1994
1	Nonfarm business sector, excluding housing (BLS)	0.95	1.14	1.12
2	Nonagricultural private industries (exc. housing)	0.89	1.17	1.03
3	Mining	2.62	5.00	4.58
4	Construction	-1.02	-0.68	0.77
5	Manufacturing	2.45	3.22	2.15
6	Durables	2.80	3.58	3.07
7	Nondurables	1.99	2.73	0.96
8	Transportation and utilities	1.51	1.29	2.58
9	Transportation	0.58	-0.05	2.34
10	Communications	4.53	4.02	5.20
11	Public utilities	0.65	1.21	2.80
12	Trade	2.06	2.49	2.37
13	Wholesale trade	3.30	3.34	5.42
14	Retail trade	1.29	2.04	0.60
15	Finance, ins., real estate (exc. housing)	0.16	0.10	0.88
16	Services	-0.56	-0.50	-1.11
17	Hotels and lodging	-1.53	-1.46	0.40
18	Personal services	-0.87	-0.53	-0.71
19	Business and other services	-0.42	-0.21	-1.12
20	Auto repair	-1.26	-1.04	-1.87
21	Miscellaneous services	-0.20	-1.22	-3.47
22	Motion pictures	1.65	1.68	-1.05
23	Amusement services	0.98	2.64	-4.75
24	Health services	-1.84	-1.82	-2.50
25	Legal services	-2.77	-2.58	-3.61
26	Education services	0.01	-0.53	0.23
27	Membership orgs. and social services	-0.18	-0.14	0.45
28	Private households	2.16	3.70	2.07

Notes: Hours of all persons in these calculations differ from hours of all persons as defined by the BLS because the calculations presented here include nonprofit institutions and private households. These calculations assume that self-employed workers in each industry work the same number of hours annually as full-time wage and salary employees.

Table 4

Distribution of Domestic Income across Private Nonagricultural Industries, by Legal Form of Organization, 1994[1]

	TOTAL	Corporations	Sole Proprietorships and Partnerships	Households and Nonprofit Institutions
1. Total	100.00	100.00	100.00	100.00
2. Mining	1.01	1.13	0.98	0.00
3. Construction	5.98	5.69	10.68	0.00
4. *Manufacturing*	*23.78*	*30.43*	*5.28*	*0.23*
5. Durables	13.76	17.73	2.49	0.02
6. Nondurables	10.02	12.69	2.77	0.20
7. Transportation and utilities	10.37	11.83	7.06	3.83
8. Transportation	4.59	5.04	3.24	3.22
9. Communications	2.97	3.45	2.21	0.28
10. Public utilities	2.80	3.35	1.60	0.32
11. Trade	18.44	21.48	14.09	0.17
12. Wholesale trade	7.59	9.36	3.36	0.08
13. Retail trade	10.84	12.12	10.73	0.09
14. Finance, insurance, and real estate	11.06	10.00	15.69	11.80
15. Services	29.36	19.44	46.25	83.97
16. Hotels and lodging	1.03	0.94	1.98	0.08
17. Personal services	0.98	0.65	3.07	0.00
18. *Motion pictures*	*0.54*	*10.42*	*1.41*	*0.00*
19. Amusement	1.02	0.78	1.72	1.81
20. Business and other	9.37	9.15	14.12	2.58
21. Auto repair	0.92	0.73	2.35	0.00
22. Miscellaneous repair	0.39	0.34	0.87	0.00
23. Health services	9.39	4.69	11.17	46.51
24. Legal services	2.20	1.09	8.66	0.10
25. Education services	1.20	0.12	0.20	12.34
26. Social services	2.06	0.53	0.71	17.59
27. Private households	0.26	0.00	0.00	2.95

1. These data are derived from unpublished BEA estimates.

Table 5

Distribution of Domestic Income within Private Nonagricultural Industries, by Legal Form of Organization, 1994[1]

		Corporations	Sole Proprietorships and Partnerships	Households and Nonprofit Institutions
1.	**TOTAL**	75.57	15.10	9.33
2.	Mining	84.50	15.50	0.00
3.	Construction	71.65	28.35	0.00
4.	Manufacturing	96.40	3.52	0.08
5.	Durables	97.10	2.88	0.02
6.	Nondurables	95.43	4.39	0.18
7.	Transportation and utilities	85.95	10.82	3.24
8.	Transportation	82.62	11.22	6.16
9.	Communications	87.34	11.82	0.84
10.	Public utilities	89.93	9.08	0.99
11.	Trade	87.78	12.14	0.08
12.	Wholesale trade	92.88	7.03	0.10
13.	Retail trade	84.21	15.72	0.07
14.	Finance, insurance, and real estate[2]	41.91	13.86	5.76
15.	Services	49.88	25.03	25.10
16.	Hotels and lodging	68.72	30.62	0.66
17.	Personal services	50.24	49.76	0.00
18.	Motion pictures†	58.72	41.28	0.00
19.	Amusement	57.81	26.66	15.53
20.	Business and other	73.63	23.95	2.42
21.	Auto repair	59.49	40.51	0.00
22.	Miscellaneous repair	64.67	35.33	0.00
23.	Health services	37.63	18.90	43.47
24.	Legal services	37.12	62.48	0.40
25.	Education services	7.21	2.63	90.16
26.	Social services	19.49	5.45	75.06
27.	Private households	0.00	0.00	100.00

1. These data are derived from unpublished BEA estimates.
2. Finance, insurance, and real estate add to less than 100 because of the omission of owner-occupied housing.

Chart 1

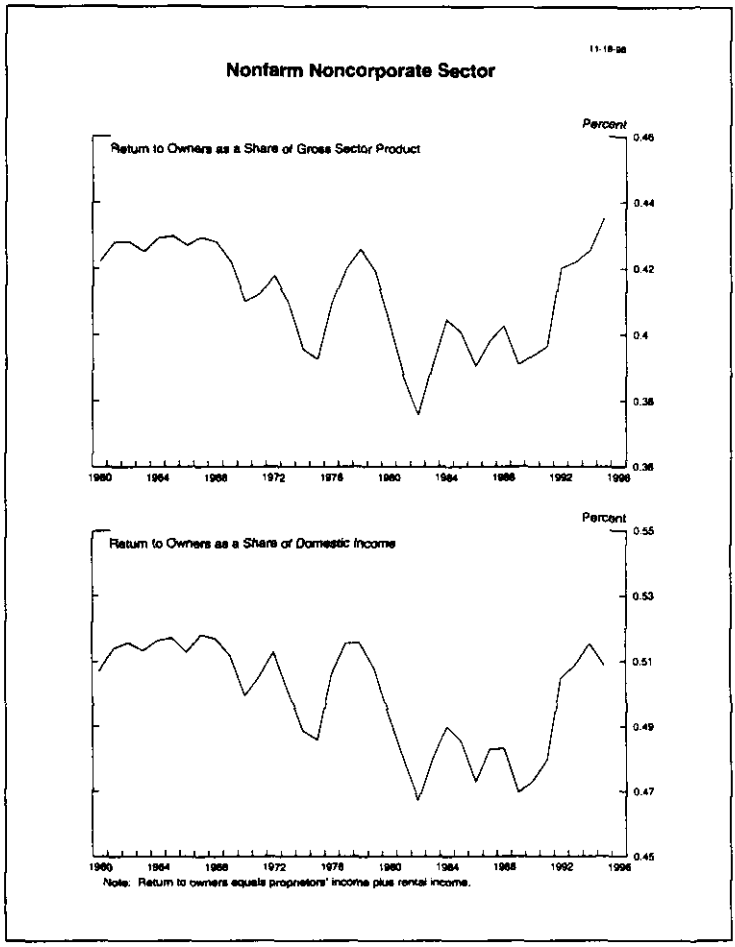


Chart 2

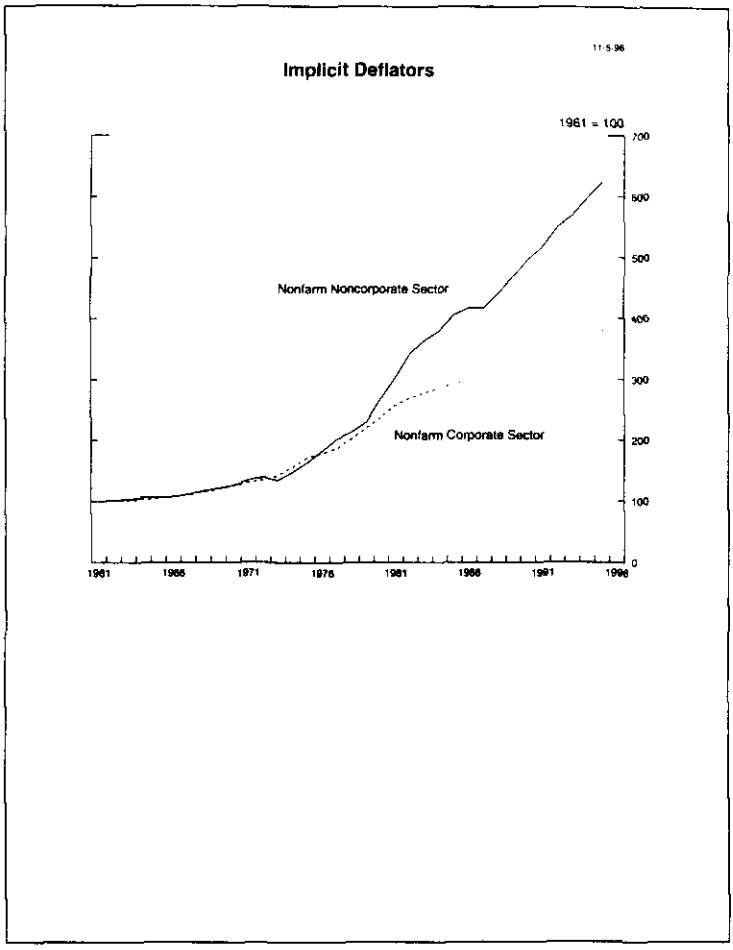
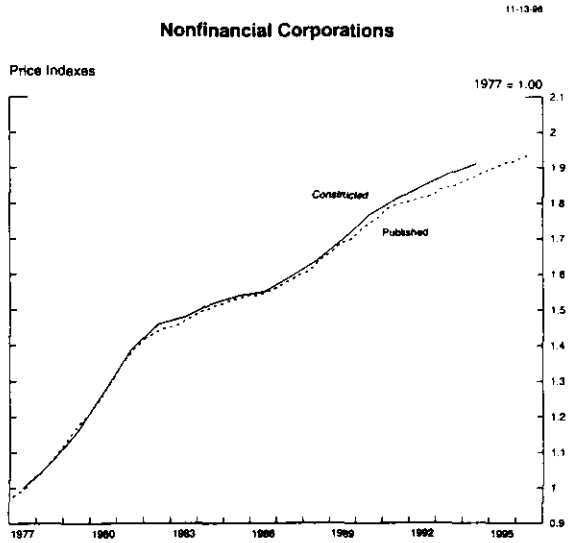


Chart 3



Note: BEA's published deflator for nonfinancial corporations is based on the implicit deflator for goods and structures. The constructed price measure is a Fisher index that weights two-digit GPO industry deflators by the corporate GPO for each industry.

Appendix 1

Detailed Description of the Sectoral Decomposition

Table A-1 presents the 1996:Q2 levels of the data used in the sectoral decomposition. Columns A through I contain the series of primary interest; columns J through Q contain the sectors needed to construct the series in the first nine columns. A description of the source data, accounting identity, or interpolation/exrapolation procedure used to construct each cell is given below.

Column A	*Nonfarm Business Less Housing, Product-based*
Lines 1-11:	Column J-Column O-Column P-Column Q. That is, the domestic business sector less the farm sector, owner-occupied housing, and the rental value of buildings and equipment owned by nonprofit institutions. The domestic business sector excludes output originating in private households, nonprofit institutions, and general government from total GDP.
Line 12:	BLS. Hours of all persons in the nonfarm business sector.
Column B	*Nonfarm Business Less Housing, Income-based*
Line 1:	A1 - NIPA statistical discrepancy for gross domestic product (NIPA 1.9, line 15).
Line 2:	B1/(A1/A2)
Line 3:	A3
Line 4:	A4-(NIPA 1.9, line 15)
Line 5:	A5-(NIPA 1.9, line 15)
Lines 6-12:	A6 through A12
Column C	*Nonfarm Corporate Business*
Lines 1-12:	Column E+Column D
Column D	*Financial Corporations*
Lines 1-12:	Column K-Column L
Column E	*Nonfarm Nonfinancial Corporations*
Lines 1-12:	Column L-Column N
Column F	*Manufacturing Corporations*
Line 1:	F4+F3
Line 2:	F1/(manufacturing deflator). The manufacturing deflator is the implicit gross product originating (GPO) deflator interpolated and extrapolated to the quarterly frequency using a deflator for nonfarm goods (calculated using NIPAs 1.3 and 1.4, lines 4 and 5, and NIPAs 1.7 and 1.8, line 6).

Line 3:	NIPA 6.22C, line 11, interpolated and extrapolated by the capital consumption allowance for nonfinancial corporations.
Line 4:	F5+F6
Line 5:	*M5*(F6/M6). This assumes that indirect business taxes, etc., for* manufacturing corporations are proportional to their income relative to the income of all manufacturing business (column M).
Line 6:	F7+F8+F9
Line 7:	M7*0.98
Line 8:	M8
Line 9:	M9*0.97 (This ratio is based on unpublished BEA data by legal form of business.)
Lines 10-11:	Not applicable
Line 12:	BLS. Hours of all employees in manufacturing*0.98 The 0.98 estimate for the corporate share of manufacturing hours is based on data provided by BEA for the distribution of labor compensation by legal form of organization and industry.

Column G	*Nonfarm Nonmanufacturing Corporations*
Lines 1-12:	Column E-column F. Note, line 2 is adjusted to take account of the residual that emerges from chain weight aggregation.
Column H	*Nonfarm Noncorporate Business*
Lines 1-12:	Column A-column D-column E. Note, line 2 is adjusted to take account of the residual that emerges from chain weight aggregation.
Column I	*Nonfarm Noncorporate Business, Income-based*
Lines 1-12:	Column B-column D-column E. Note, line 2 is adjusted to take account of the residual that emerges from chain weight aggregation.
Column J	*Domestic Business*
Line 1:	NIPA 1.7, line 2.
Line 2:	NIPA 1.8, line 2.
Line 3:	NIPA 1.9, line 6+line 11.
Line 4:	J1-J3.
Line 5:	NIPA 3.1, line 4+NIPA 1.9, line 14+NIPA 1.9, line 15-NIPA 3.2, line 25
Line 6:	J4-J5.
Line 7:	NIPA 1.14, line 2 - NIPA 3.7B, line 38 - NIPA 1.7, line 7 - NIPA 1.15, line 49. (The last item, rest of world compensation, is linearly interpolated to the quarterly frequency.)
Line 8:	NIPA 1.16, line 9.
Line 9:	J6-J7-J8-J10-J11
Line 10:	NIPA 1.14, line 9.
Line 11:	NIPA 1.14, line 17.
Line 12:	BLS. Hours of all persons in the business sector.

Column K	*Corporations*
Line 1:	NIPA 1.16, line 1
Line 2:	NIPA 1.16, line 36+(NIPA 1.16, line 18/financial deflator). The financial deflator is the implicit GPO deflator for banking, credit agencies other than banks, insurance carriers, and security and commodity brokers interpolated and extrapolated by the quarterly deflator for personal consumption expenditures on brokerage and bank service charges, services furnished without payment by financial intermediaries, and the expense of handling life insurance (NIPA 2.4, lines 61-64).
Lines 3-9:	NIPA 1.16, lines 2, 3, 4, 5, 6, 9, and 17.
Lines 10-11:	Not applicable.
Line 12:	L12 + (financial hours). The financial hours are calculated from BLS data on hours paid in the finance, insurance and real estate industry, excluding hours in SIC 64, 65, and 67, reduced by 6 percent to adjust for hours worked vs. hours paid. (This series is similar to BEA's annual series on employee hours for SICs 60, 61, and 63.)
Column L	*Nonfinancial Corporations*
Lines 1-9:	NIPA 1.16, lines 19, 36, 20-24, 27, and 35.
Lines 10-11	Not applicable.
Line 12:	BLS. Hours of all employees in the nonfinancial corporate sector.
Column M	*Manufacturing*
Line 1:	M3+M4
Line 2:	M1/(manufacturing deflator) (see F2).
Line 3:	NIPA 6.13C, line 7 + NIPA 6.22C, line 11, interpolated and extrapolated by the capital consumption allowance for nonfinancial corporations.
Line 4:	M5+M6
Line 5:	GPO data. Indirect business taxes are interpolated and extrapolated by manufacturing shipments; business transfers and subsidies are interpolated to the quarterly frequency using a cubic spline.
Line 6:	M7+M8+M9+M10
Line 7:	NIPA 2.1, line 5 + (NIPA 6.2C, line 13 - NIPA 6.3C, line 13), interpolated and extrapolated by NIPA 1.16, line 26 (supplements for all nonfinancial corporations).
Line 8:	NIPA 6.16C, line 14 (adjusted to be consistent with latest GPO figures).
Line 9:	NIPA 6.15C, line 6, interpolated and extrapolated by NIPA 1.16, line 35.
Line 10:	NIPA 6.12C, line 5, interpolated and extrapolated by manufacturing shipments.
Line 11:	Not applicable.
Line 12:	BLS. Hours of all persons in manufacturing.

Column N	*Farm Corporations*
Line 1:	N3+N4
Line 2:	N1/(O1/O2)
Line 3:	Flow of funds table F.104, line 4.
Line 4:	N5+N6.
Line 5:	O5*(N6/O6) This assumes that indirect business taxes and subsidies for farm corporations are proportional to their income relative to the income of all farm business(column O).
Line 6:	N7+N8+N9
Line 7:	O7* (the corporate share of farm sector compensation obtained from unpublished BEA annual data interpolated to the quarterly frequency).
Line 8:	O8
Line 9:	O9* (the corporate share of farm sector net interest obtained from unpublished BEA annual data interpolated to the quarterly frequency).
Lines 10-11:	Not applicable.
Line 12:	O12* (the corporate share of farm sector compensation (see N7)).
Column O	*Farm Business*
Line 1:	NIPA 1.7, line 6.
Line 2:	NIPA 1.8, line 6
Line 3:	Flow of funds table F.104, line 3.
Line 4:	O1-O3.
Line 5:	NIPA 8.8, line 17-NIPA 8.8, line 18. Note: both series are interpolated to a quarterly frequency using a cubic spline.
Line 6:	O4-O5.
Line 7:	NIPA 8.8, line 20, interpolated to a quarterly pattern using the sector's total domestic income less net interest and proprietors' income (O6-O9-O10).
Line 8:	O6-O7-O9-O10.
Line 9:	NIPA 8.8, line 26, interpolated to a quarterly frequency using a cubic spline.
Line 10:	NIPA 1.14, line 10.
Line 11:	Not applicable.
Line 12:	J12-A12. (BLS hours of all persons for the business less nonfarm business sectors)
Column P	*Owner-occupied Housing*
Line 1:	NIPA 8.19, line 89, interpolated to a quarterly frequency using PCE space rent for owner-occupied nonfarm dwellings (NIPA 2.4, line 24). [Data beginning in 1995Q4 are the unpublished BEA estimates supplied to BLS.]

Line 2:	P1 deflated by the implicit deflator for nonfarm housing product (NIPA 1.7, line 5/NIPA 1.8, line 5). [Data beginning in 1995Q4 are the unpublished BEA estimates supplied to BLS.]
Line 3:	NIPA 8.19, line 90, interpolated to a quarterly frequency using the consumption of fixed capital for the noncorporate sector (NIPA 1.9, line 6-NIPA 1.14, line 33).
Line 4:	P1-P3.
Line 5:	P4-P6.
Line 6:	P9+P11
Lines 7-8:	Not applicable.
Line 9:	NIPA 8.19, line 93, interpolated to a quarterly frequency using net interest for the noncorporate sector (NIPA 1.9, line 19-NIPA 1.16, line 17).
Line 10:	Not applicable.
Line 11:	NIPA 8.19, line 94, interpolated to a quarterly frequency using rental income of persons (NIPA 1.14, line 17).
Line 12:	Not applicable.

Column Q	*Building and Equipment Serving Nonprofit Institutions*
Line 1:	NIPA 8.19, line 102, interpolated to a quarterly frequency using nonfarm business output less housing (NIPA 1.7, line 4). Note: this is the convention used by BLS.
Line 2:	Q1 deflated by the implicit deflator for nonfarm business output less housing (NIPA 1.7, line 4/NIPA 1.8, line 4).
Line 3:	NIPA 8.19, 103, interpolated to a quarterly frequency using the consumption of fixed capital for the noncorporate sector (NIPA 1.9, line 6-NIPA 1.14, line 33).
Line 4:	Q1-Q3.
Line 5:	Q6-Q4.
Line 6:	Q9
Lines 7-8:	Not applicable.
Line 9:	NIPA 8.19, line 105, interpolated to a quarterly frequency using net interest for the noncorporate sector (NIPA 1.9, line 19-NIPA 1.16, line 17).
Lines 10-12:	Not applicable.

Table A-1

Sectoral Decomposition of Gross Product and Income -- 1996:Q2

		Nonfarm Bus. less housing, *product* based	Nonfarm Bus. less housing, *income* based	Nonfarm corporate business	Financial Corps.	Nonfarm Non-financial *corps.*	Mfg. corps.	Nonfarm Non-manufac-*turing* corps.	Nonfarm Non-corporate, *product* based	Nonfarm Non-corporate, *income* based
		A	B	C	D	E	F	G	H	I
1	Gross product: nominal	5714.4	5771.9	4552.5	484.0	4068.5	1242.2	2826.3	1161.9	1219.4
2	Gross product: $92	5256.9	5309.6	4247.7	427.4	3819.9	1187.8	2631.9	1016.9	1065.4
3	Cons. of fixed cap	601.8	601.8	466.8	31.1	437.7	152.6	285.1	132.9	132.9
4	Net dom. product	5112.6	5170.1	4063.7	452.9	3630.8	1089.6	2541.2	1029.0	1086.5
5	IBT+Bus. trans.-subs.	429.0	486.5	450.3	47.3	403.0	62.8	340.3	-21.3	36.2
6	Domestic income	4683.6	4683.6	3633.3	405.5	3227.8	1026.8	2201.0	1050.2	1050.2
7	Compensation	3320.9	3320.9	2938.2	241.9	2696.3	830.6	1865.7	382.8	382.8
8	Profits w/IVA&CCA	574.7	574.7	574.7	143.5	431.2	161.5	269.7		
9	Net interest	253.6	253.6	120.4	20.1	100.3	34.8	65.5	133.2	133.2
10	Prop. income	469.4	469.4						469.4	469.4
11	Rental income	65.0	65.0						65.0	65.0
12	Hours of persons	173.8	173.8	133.5	6.1	125.3	35.4	89.9	40.4	40.4

		Domestic business	Corp-orate (Total)	Non-financial corps. (Total)	Mfg. (Total)	Farm corps.	Farm (Total)	Owner-occupied *housing*	Rental value of *buildings* and equip. of non-profits
		J	K	L	M	N	O	P	Q
1	Gross product: nominal	6334.6	4585.6	4061.6	1298.3	13.1	97.6	476.5	48.2
2	Gross product: $92	5807.3	4258.4	3831.0	1241.4	11.1	82.8	425.1	42.5
3	Cons. of fixed cap	726.4	471.0	439.9	159.7	2.2	23.5	78.0	23.2
4	Net dom. product	5608.2	4094.6	3641.7	1138.6	10.9	74.1	398.5	23.0
5	IBT+Bus. trans.-subs.	552.8	450.3	403.0	65.6	-0.0	-0.1	114.4	9.4
6	Domestic income	5055.4	3644.3	3238.8	1073.0	11.0	74.2	284.1	13.5
7	Compensation	3338.9	2945.3	2703.4	847.5	7.1	18.0		
8	Profits w/IVA&CCA	577.3	577.3	433.8	161.5	2.6	2.6		
9	Net interest	501.5	121.6	101.5	35.9	1.2	9.9	224.5	13.5
10	Prop. income	515.2			28.2		45.8		
11	Rental income	124.5						59.5	
12	Hours of persons	178.6	135.6	127.4	37.1	2.1	4.7		

Board of Governors of the Federal Reserve System

Monetary Policy Report to the Congress Pursuant to the Full Employment and Balanced Growth Act of 1978

February 24, 1998

Letter of Transmittal

BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM
Washington, D.C., February 24, 1998

THE PRESIDENT OF THE SENATE
THE SPEAKER OF THE HOUSE OF REPRESENTATIVES

The Board of Governors is pleased to submit its Monetary Policy Report to the Congress, pursuant to the Full Employment and Balanced Growth Act of 1978.

Sincerely,

Alan Greenspan, Chairman

Table of Contents

Section 1: Monetary Policy and the Economic Outlook

The U.S. economy turned in another excellent performance in 1997. Growth was strong, the unemployment rate declined to its lowest level in nearly a quarter-century, and inflation slowed further. Impressive gains were also made in other important respects: The federal budget moved toward balance much more quickly than almost anyone had anticipated; capital investment, a critical ingredient for long-run growth, rose sharply further; and labor productivity, the ultimate key to rising living standards, displayed notable vigor.

Among the influences that have brought about this favorable performance are the sound fiscal and monetary policies that have been pursued in recent years. Budgetary restraint at the federal level has raised national saving, easing the competition for funds in our capital markets and thereby encouraging greater private investment. Monetary policy, for its part, has sought to foster an environment of subdued inflation and sustainable growth. The experience of recent years has provided additional evidence that the less households and businesses need to cope with a rising price level, or worry about the sharp fluctuations in employment and production that usually accompany inflationary instability, the more long-term investment, innovation, and enterprise are enhanced.

The circumstances that prevailed through most of 1997 required that the Federal Reserve remain especially attentive to the risk of a pickup in inflation. Labor markets were already tight when the year began, and nominal wages had started to rise faster than previously. Persistent strength in demand over the year led to economic growth in excess of the expansion of the economy's potential, intensifying the pressures on labor supplies. In earlier business expansions, such developments had usually produced an adverse turn in the inflation trend that, more often than not, was accompanied by a worsening of economic performance on a variety of fronts, culminating in recession.

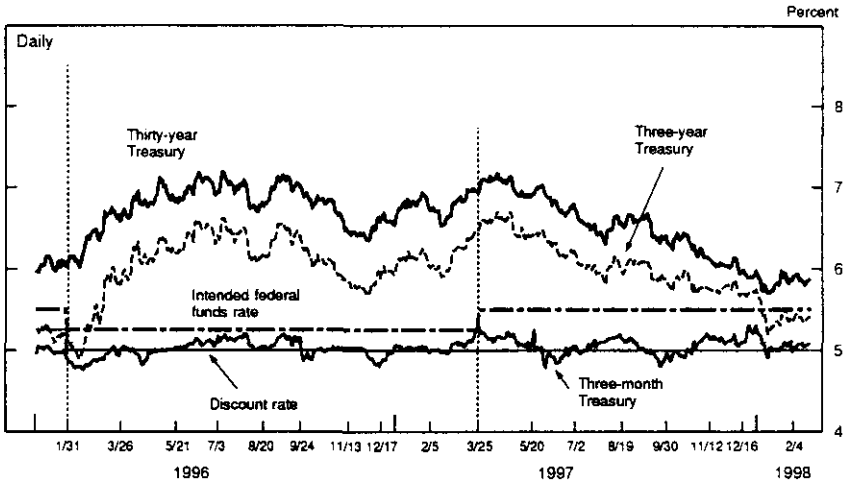
Robust growth of spending early in the year heightened concerns among members of the Federal Open Market Committee (FOMC) that growing strains on productive resources might touch off a faster rate of cost and price rise that could eventually undermine the expansion. Financial market participants seemed to share these concerns: Intermediate- and long-term interest rates began moving up in December 1996, effectively anticipating Federal Reserve action. When the FOMC firmed policy slightly at its March meeting by raising the intended federal funds rate from 5¼ percent to 5½ percent, the market response was small.

The economy slowed a bit during the second and third quarters, and inflation moderated further. In addition, the progress being made by the federal government in reducing the size of the deficit was becoming more apparent. As a consequence, by the end of September, longer-term interest rates fell ¾ percentage point from their peaks in mid-April, leaving them about ¼ percentage point below their levels at the end of 1996. The decline in interest rates along with continued reports of brisk growth in corporate profits sparked increases in broad indexes of equity prices of 20 percent to 35 percent between April and September.

Even with a more moderate pace of growth, labor markets continued to tighten, generating concern among the FOMC members over this period that rising costs might trigger a rise in inflation. Consequently, at its meetings from May through November, the Committee adopted directives for the conduct of policy that assigned greater likelihood to the possibility of a tightening of policy than to the possibility of an easing of policy. Even though the Committee kept the nominal federal funds rate unchanged, it saw the rise in the real funds rate resulting from declining inflation expectations, together with the increase in the exchange value of the dollar, as providing some measure of additional restraint against the possible emergence of greater inflation pressures.

In the latter part of the year, developments in other parts of the world began to alter the perceived risks attending the U.S. economic outlook. Foreign economies generally had seemed to be on a strengthening growth path when the Federal Reserve presented its midyear monetary policy report to the Congress last July. But over the remainder of the summer and during the autumn, severe financial strains surfaced in a number of advanced developing countries in Asia, weakening somewhat the outlook for growth abroad and thus the prospects for U.S. exports. Although the circumstances in individual countries varied, the problems they encountered generally resulted in severe downward pressures on the foreign exchange values of their cur-

Selected Interest Rates



Note. Dotted vertical lines indicate days on which the Federal Open Market Committee (FOMC) announced a monetary policy action. The dates on the horizontal axis are those on which the FOMC held scheduled meetings. Last observations are for February 20, 1998.

rencies; in many cases, steep depreciations occurred despite substantial upward movement of interest rates. Asset values in Asia, notably equity and real estate prices, also declined appreciably in some instances, leading to losses by financial institutions that had either invested in those assets or lent against them; nonfinancial firms began to encounter problems servicing their obligations. In many instances the debts of nonfinancial and financial firms were denominated in dollars and unhedged. Concerted international efforts to bring economic and financial stability to the region are under way, and some progress has been made, but it is evident that in several of the affected economies the process of adjustment will be painful. Meanwhile, economic activity in Japan stagnated, in part because of the developments elsewhere in East Asia, and the weaknesses in the Japanese financial system became more apparent.

The steep depreciations of many Asian currencies contributed to a substantial further appreciation of the U.S. dollar. Measured against a broad set of currencies that includes those of the advanced developing countries of Asia, the exchange value of the dollar, adjusted for relative consumer prices, has moved up about 8 percent since October and has increased about 16 percent from its level at the end of 1996. The dollar has also appreciated, on balance, against an index of currencies of the G-10 (Group of Ten) industrial countries; this G-10 trade-weighted index of dollar exchange rates is up about 13 percent in nominal terms since the end of 1996.

The difficulties in Asia contributed to additional declines of ¼ to ½ percentage point in the yields on intermediate- and long-term Treasury securities in the United States between mid-autumn and the end of the year. These decreases were due in part to an international flight to the safe haven of dollar assets, but they also reflected expectations that these difficulties would exert a moderating influence on the growth of aggregate demand and inflation in the United States. Equity prices were quite volatile but showed little trend in the fourth quarter. In light of the ongoing difficulties in Asia and the possible effects on the United States, the FOMC not only left interest rates unchanged in December, but shifted its instructions to the Manager of the System Open Market Account to symmetry between ease and tightening in the near term.

Some spillover from the problems in Asia has recently begun to appear in reports on business activ-

ity in the United States. Customers in the advanced developing countries reportedly have canceled some of the orders they had previously placed with U.S. firms, and companies more generally are expressing concerns about the possibilities of both reduced sales to Asia and more intense price competition here as the result of the sharp changes in exchange rates. Nonetheless, the available statistics suggest on balance that overall growth of output and employment has remained brisk in the early part of 1998.

Confronted with the marked cross-currents described above—involving both upside and downside risks to the growth of output and prospects for inflation—the FOMC earlier this month once again chose to hold its federal funds rate objective unchanged. In credit markets, interest rates have fallen further this year as the effects of the Asian turmoil seemed even more likely to restrain any tendencies toward unsustainable growth and greater inflation in the United States. With interest rates lower and the negative effects of the Asian problems seen by market participants as mostly limited to particular sectors, broad indexes of equity prices have risen appreciably, many to new highs.

Economic Projections for 1998

The outlook for 1998 is clouded with a greater-than-usual degree of uncertainty. Part of that uncertainty is a reflection of the financial and economic stresses that have developed in Asia, the full consequences of which are difficult to judge. But there are some other significant question marks as well, many of them growing out of the surprising performance of the U.S. economy in 1997: Growth was considerably stronger and inflation considerably lower than Federal Reserve officials and most private analysts had anticipated.

Some of the key forces that gave rise to this favorable performance can be readily identified. An ongoing capital spending boom, encouraged in part by declining prices of high-technology equipment, provided stimulus to aggregate demand and at the same time created the additional capacity to help meet that demand. A further jump in labor productivity that was fueled partly by the buildup of capital helped firms overcome the production and pricing challenges posed by tight labor markets. A surprisingly robust stock market bolstered the finances of households and enabled them to spend more freely. Falling world oil prices reduced the prices of petroleum products and helped hold down the prices of other energy-intensive goods. Finally, a rising dollar imposed additional restraint on inflation, as prices of imported goods fell appreciably. Circumstances as favorable as those of 1997 are not likely to persist, although several elements in the recent mix could help maintain, for some time, a more favorable economic performance than historical relationships would suggest.

In assessing the situation, the members of the Board of Governors and the Reserve Bank presidents, all of whom participate in the deliberations of the FOMC, think that the most likely outcome for 1998 will be one of moderate growth, low unemployment, and low inflation. Most of them have placed their point estimates of the rise in real GDP from the fourth quarter of 1997 to the fourth quarter of 1998 in the range of 2 percent to 2¾ percent. The civilian unemployment rate in the fourth quarter of 1998 is expected to be at about its recent level. For the most part, the forecasts have the total CPI for all urban consumers rising between 1¾ percent and 2¼ percent this year. These predictions do not differ appreciably from those recently put forth by the Administration.

Although developments in Asia over the past few months have not yet affected aggregate U.S. economic performance in a measurable way, these influences will likely become more visible in coming months. Growth of U.S. exports is expected to be restrained by weaknesses in Asian economies and by the lagged effects of the appreciation of the dollar since 1995. Moreover, with the rise in the dollar's value making imports less expensive, some U.S. businesses and consumers will likely switch from domestic to foreign sources for some of their purchases. But the timing and magnitude of these developments are hard to predict.

In contrast to the slower growth that seems to be in prospect for exports, domestic spending seems likely to maintain considerable strength in coming quarters. Households as a group are quite upbeat in their assessments of their personal finances—as might be expected in conjunction with expanding job opportunities, rising incomes, and huge gains in wealth. Recently, many households have taken advantage of lower long-term interest rates by refinancing their home mortgages, and this will provide a little additional wherewithal for spending. Moreover, the decline in mortgage rates is also bolstering housing construction.

Business outlays for fixed investment seem likely to advance at a relatively brisk pace in the coming year, although gains as large as those of the past

Economic Projections for 1998
Percent

Indicator	Federal Reserve governors and Reserve Bank presidents: Range	Federal Reserve governors and Reserve Bank presidents: Central tendency	Administration
Change, fourth quarter to fourth quarter[1]			
Nominal GDP	3½ to 5	3¾ to 4½	4.0
Real GDP[2]	1¾ to 3	2 to 2¾	2.0
Consumer price index[3]	1½ to 2½	1¾ to 2¼	2.2
Average level, fourth quarter			
Civilian unemployment rate	4½ to 5	about 4¾	5.0

1. Change from average for fourth quarter of 1997 to average for fourth quarter of 1998.
2. Chain-weighted.
3. All urban consumers.

couple of years may be difficult to match. Outlays for computers, which have dominated the investment surge of the past few years, should climb substantially further as businesses press ahead with new investment in the latest technologies, encouraged in part by ongoing price declines. With labor markets tight, firms continue to see capital investment as the key in efforts to increase efficiency and maintain competitiveness. Internally generated funds remain adequate to cover the bulk of businesses' investment outlays, and those firms turning to the debt and equity markets are most often finding financing generously available on good terms. Inventory growth will likely put less pressure on business cash flow this year; after adding to stocks at a substantial clip in 1997, businesses seem likely to scale back such investment somewhat, especially as they perceive a moderation in sales increases.

The Federal Reserve policymakers' forecasts of the average unemployment rate in the fourth quarter of 1998 are mostly around 4¾ percent. The persistence for another year of this degree of tightness in the labor market means that firms will likely continue to face difficulties in finding workers and that hiring and retaining workers could become more costly. Indeed, there are indications that wage inflation picked up further at the end of last year. Improvements in labor productivity have become more sizable in the past couple of years, and if such gains can be extended, wage increases of the magnitude of those of 1997 need not translate into greater price inflation. The more rapid growth in productivity is consistent with the high level of capital investment in recent years, but the extent to which the trend in productivity has picked up is still uncertain. Furthermore, if momentum in nominal wages continues to build, the pay increases will eventually squeeze profit margins and place upward pressures on prices, even with exceptional productivity gains. The strains in labor markets therefore constitute an ongoing inflationary risk that will have to be monitored closely.

In the near term, however, there are several factors that should lessen the risk of a step-up in inflation. Manufacturing capacity remains ample, and bottlenecks are not hampering production. The recent appreciation of the dollar should damp inflation both because of falling import prices and because the added competition from imports may induce domestic producers to hold down prices. Oil prices have weakened considerably since the latter part of 1997 in response to abundant supplies, the softening of demand in Asia, and a mild winter. Ample supplies and the prospect of softer global demand have been depressing the prices of many other commodities, both in agriculture and in industry. Perhaps most important, as the low level of inflation that has prevailed in recent years gets built into wage agreements, other contracts, and individuals' inflation expectations, it will provide an inertial force helping sustain the favorable price performance for a time.

Although many of the factors currently placing

Ranges for Growth of Monetary and Debt Aggregates
Percent

Aggregate	1996	1997	1998
M2	1 to 5	1 to 5	1 to 5
M3	2 to 6	2 to 6	2 to 6
Debt	3 to 7	3 to 7	3 to 7

Note. Change from average for fourth quarter of preceding year to average for fourth quarter of year indicated.

restraint on inflation are not necessarily long lasting, the Committee judged that their effect in 1998 would about offset the pressures from tight labor markets. Consequently, the Board members and Reserve Bank presidents anticipate that the rate of price inflation will change little this year. Again in 1998, the FOMC will be monitoring a variety of price measures in addition to the CPI for indications of changes in inflation and will be assessing movements in the CPI in the context of ongoing technical improvements by the Bureau of Labor Statistics that are likely to damp the reported 1998 rise in that index.

Money and Debt Ranges for 1998

In establishing the ranges for growth of broad measures of money over 1998, the Committee recognized the considerable uncertainty that still exists about the behavior of the velocities of these aggregates. The velocity of M3 (the ratio of nominal GDP to the monetary aggregate) in particular has proved difficult to predict. Last year, the growth of this aggregate relative to spending was affected by the rapid increase in depository credit and by the way in which that increase was funded, as well as by the changing cash management practices of corporations, which have been using the services of institution-only money funds in M3. These factors boosted M3 growth last year to 8¾ percent, 3 percentage points faster than nominal GDP—an unusually large decline in M3 velocity. Going forward, it seems likely that M3 growth will continue to be buoyed by robust credit growth at depositories and continuing shifts in cash management. Thus, its velocity is likely to decline further, though the amount of decline is difficult to predict.

The relationship of M2 to spending in recent years has come back more into line with historical patterns in which the velocity of M2 tended to be fairly constant, except for the effects of the changing opportunity cost of M2—the spread between yields that savers could earn holding short-term market instruments and those that they could earn holding M2. In the early 1990s, M2 velocity departed from this pattern, rising substantially and atypically. Even after the unusual shift of the early 1990s died out, M2 velocity continued to drift somewhat higher from 1994 into 1997. That drift probably reflected some continued, albeit more moderate, redirection of savings into bond and equity markets, especially through the purchase of mutual funds. However, last year the drift abated. There was little change, on balance, in the opportunity cost of holding M2, and M2 velocity also was about unchanged, as M2 grew 5½ percent, nearly the same as nominal GDP. Nevertheless, the upward drift could resume in the years ahead as financial innovations or perceptions of attractive returns lead households to further shift their savings away from M2 balances. Or velocity might be pushed downward if volatility or setbacks in bond and stock markets were to lead investors to seek the safety of M2 assets, which have stable principal.

In light of the uncertainties about the behavior of velocities, the Committee followed its practice of recent years and established the ranges for 1998 not as expectations for actual money growth, but rather as benchmarks for M2 and M3 behavior that would be consistent with sustained price stability, assuming velocity change in line with pre-1990 historical experience. Thus, the ranges for fourth-quarter to fourth-quarter growth are unchanged from those in 1997: 1 percent to 5 percent for M2, and 2 percent to 6 percent for M3. Given the central tendency of the Committee's forecast for growth of nominal GDP of 3¾ percent to 4½ percent, M2 is likely to be in the range, perhaps in the upper half, if short-term interest rates do not change much and velocity continues recent patterns. For M3, however, a continuation of

recent velocity behavior could imply growth around the upper end of, if not above, the price-stability range.

Debt of the nonfinancial sectors grew 4¾ percent in 1997, near the middle of the range of 3 percent to 7 percent established by the Committee last February. As with the monetary aggregates, the Committee has left the range for debt unchanged for 1998. The range it has chosen encompasses the likely growth of debt given Committee members' forecasts of nominal GDP. Except for the 1980s, the growth of debt has tended to be reasonably in line with the growth of nominal GDP.

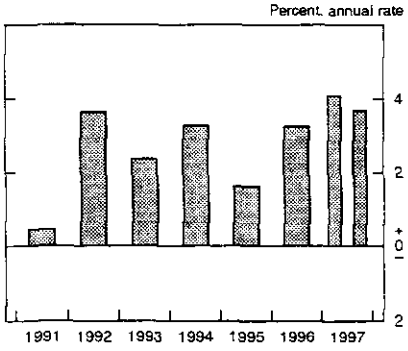
Although the ranges for money and debt are not set as targets for monetary policy in 1998, the behavior of these variables, interpreted carefully, can at times provide useful information about the economy and the workings of the financial markets. The Committee will continue to monitor the movements of money and debt—along with a wide variety of other financial and economic indicators—to inform its policy deliberations.

Section 2: Economic and Financial Developments in 1997 and Early 1998

The past year has been an exceptionally good one for the U.S. economy. Initial estimates indicate that real GDP increased nearly 4 percent over the four quarters of 1997. Household and business expenditures continued to rise rapidly, owing in part to supportive financial conditions, including a strong stock market, ample availability of credit, and, from April onward, declining intermediate- and long-term interest rates. In the aggregate, private domestic spending on consumption and investment rose nearly 5 percent on an inflation-adjusted basis. The strength of spending, along with a further sizable appreciation of the foreign exchange value of the U.S. dollar, brought a surge of imports, the largest in many years. Export growth, while lagging that of imports, also was substantial despite the appreciation of the dollar and the emergence after midyear of severe financial difficulties in several foreign economies, particularly among the advanced developing countries in Asia.

Meanwhile, inflation slowed from the already reduced rates of the previous few years. Although wages and total hourly compensation accelerated in a tight labor market, the inflationary impulse from that source was more than offset by other factors, including rising competition from imports, the price restraint from increased manufacturing capacity, and a sizable gain in labor productivity.

Change in Real GDP

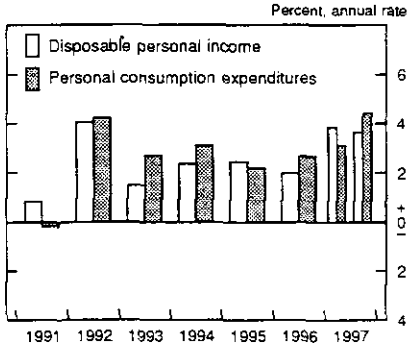


Note. In this chart and in subsequent charts that show the components of real GDP, changes are measured to the final quarter of the period indicated, from the final quarter of the previous period.

The Household Sector

Consumption Spending, Income, and Saving. Bolstered by increases in income and wealth, personal consumption expenditures rose substantially during 1997—about 3¾ percent, according to the initial estimate. Expenditures strengthened for a wide variety of durable goods. Real outlays on home computers continued to soar, rising even faster than they did over the previous few years. Strength also was reported in purchases of furniture and home appliances—products that tend to do well when home sales are strong. Consumer expenditures on motor vehicles rose moderately, on net, more than reversing the small declines of the previous two years. Real expenditures on services increased more than 4 percent in 1997, the largest gain of recent years. Personal service categories such as recreation, transportation, and education recorded large increases. Consumers also boosted their outlays for business services, including outlays related to financial transactions.

Change in Real Income and Consumption

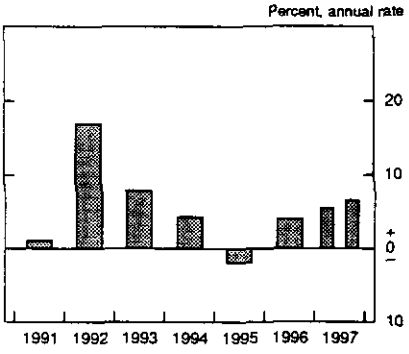


Real disposable personal income—after-tax income adjusted for inflation—is estimated to have increased about 3¾ percent during 1997, a gain that was exceeded on only one occasion in the previous decade. Income was boosted this past year by sizable gains in wages and salaries and by another year of large increases in dividends.

Measured in terms of annual averages, the personal saving rate fell further in 1997, according to current estimates. The 1997 average of 3.8 percent was about ½ percentage point below the 1996 average and roughly a full percentage point below the 1995 average. It also was the lowest annual reading in several decades. Various surveys of households show consumers to have become increasingly optimistic about prospects for the economy, and this rising degree of optimism may have led them to spend more freely from current income. Support for additional spending came from the further rise in the stock market, as the capital gains accruing to households increased the chances of their meeting longer-run net worth objectives even as they consumed a larger proportion of current income.

Residential Investment. Preliminary data indicate that real residential investment increased nearly 6 percent during 1997. Real outlays for the construction of new single-family structures rose moderately, and outlays for the construction of multifamily units continued to recover from the extreme lows that were reached earlier in the decade. Real outlays for home improvements and brokers' commissions, categories that have a combined weight of more than 35 percent in total residential investment, moved up substantially from the final quarter of 1996 to the final quarter of 1997. Spending on mobile homes, a small part of the total, also advanced.

Change in Real Residential Investment



The indicators of single-family housing activity were almost uniformly strong during the year. Sales of houses surged, driven by declines in mortgage interest rates and the increasingly favorable economic circumstances of households. Annual sales of new single-family houses were up about 5½ percent from the number sold in the preceding year, and sales of existing homes moved up about 3 percent. House prices moved up more quickly than prices in general. Responding to the strong demand, starts of new single-family units remained at a high level, only a touch below that of 1996; the annual totals for single-family units have now exceeded 1 million units for six consecutive years, putting the current expansion in single-family housing construction nearly on a par with that of the 1980s in terms of longevity and strength. In January of this year, starts of and permits for single-family units were both quite strong.

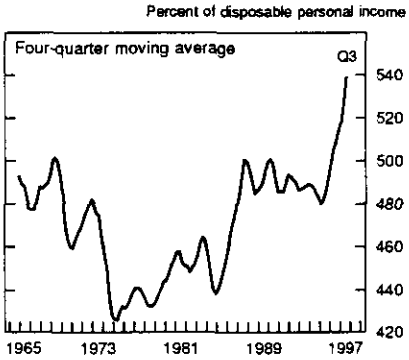
Starts of multifamily units increased in 1997 for the fourth year in a row and were about double the record low of 1993. The increased construction of these units was supported by a firming of rents, abundant supplies of credit, and a reduction in vacancy rates in some markets. The national vacancy rate came down only slightly, however, and it has reversed only a portion of the sharp run-up that took place in the 1980s. This January, starts of multifamily units fell back to about the 1997 average after having surged to an exceptionally high level in the fourth quarter.

The home-ownership rate—the number of households that own their dwellings divided by the total number of households—moved up further in 1997, to about 65¾ percent, a historical high. The rate had fallen in the 1980s but has risen almost 2 percentage points in this decade.

Household Finance. Household net worth appears to have grown roughly $3½ trillion during 1997, ending at its highest multiple relative to disposable personal income on record. Most of this increase in net worth was the result of upward revaluations of household assets rather than additional saving. In particular, capital gains on corporate equities accounted for about three-fourths of the increase in net worth. Flows of household assets into mutual funds, pensions, and other vehicles for holding equities indirectly were exceeded by outflows from directly held equities.

Household borrowing not backed by real estate, including credit card balances, auto loans, and other consumer credit, increased 4¾ percent in 1997. These obligations grew at double-digit rates in 1994 and 1995 but have slowed fairly steadily since then. Mortgage borrowing, by contrast, has experienced relatively muted swings in growth during the current expansion. Home mortgages are estimated to have grown 7 percent last year, only a bit slower than

Household Net Worth

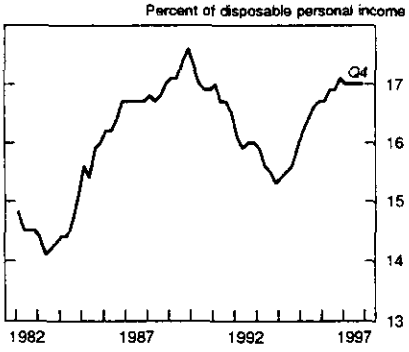


in 1996. Within this category of credit, however, home equity loans have advanced sharply, reflecting in part the use of these loans in refinancing and consolidating credit card and other consumer obligations.

An element in the slowing of consumer credit growth may have been assessments by some households that they were reaching the limits of their capacity for carrying debt and by some lenders that they needed to tighten selectively their standards for granting new loans. In the mid-1990s, the percentage of household income required to meet debt obligations rose to the upper end of its historical range, in large part because of a sharp rise in credit card debt. Between 1994 and 1996 personal bankruptcies grew at more than a 20 percent annual rate, to some extent because of households' rising debt burden; a change in the federal bankruptcy law and a secular trend toward associating less social stigma with bankruptcy also may have contributed. Over the same period, delinquency and charge-off rates on consumer loans increased significantly.

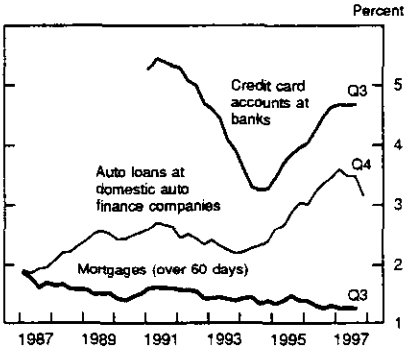
Last year, however, because the growth of household debt only slightly outpaced that of income while interest rates drifted lower, the household debt-service burden did not change. Reflecting, in part, the stability of the aggregate household debt burden, delinquency rates on many segments of consumer credit plateaued, although charge-off rates generally continued to rise somewhat. Personal bankruptcies advanced again last year but showed some signs of leveling off in the third quarter.

Household Debt-Service Burden



Note. Debt service is the sum of estimated required interest and principal payments on consumer and household-sector mortgage debt.

Delinquency Rates on Household Loans



Note. Data on credit-card delinquencies are from the Call Report; data on mortgage delinquencies are from the Mortgage Bankers Association.

Some of the apparent leveling out of household debt-repayment problems may also have resulted from efforts by lenders to stem the growth of losses on consumer loans. For the past two years, a large percentage of the respondents to the Federal Reserve's quarterly Senior Loan Officer Opinion Survey on Bank Lending Practices have reported tightened standards on consumer loans. But the percentages reporting tightening have fallen a bit in the last few surveys, suggesting that many banks feel that they have now altered their standards sufficiently.

Although banks pulled back a bit from consumer lending, most households had little trouble obtaining credit in 1997. Bank restraint has most commonly taken the form of imposing lower credit limits or raising finance charges on outstanding balances; credit card solicitations continued at a record pace. Furthermore, many respondents to the Federal Reserve's January 1998 survey of loan officers said their banks had eased terms and standards on home equity loans, providing consumers easier access to an alternative source of finance.

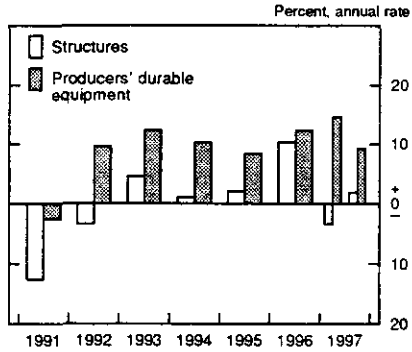
Mortgage rates fell last month to levels that led many households to apply for loan refinancing. When households refinance, they may choose among options that have differing implications for cash flow, household balance sheets, and spending. Some households may decide to reduce their monthly payments, keeping the size of their mortgages unchanged. Others may keep their monthly payments unchanged, either speeding up their repayments or increasing their mortgages and taking out cash in the process, perhaps to augment current expenditures. In any case, the wave of refinancings is likely having only a small effect on the overall economy because the current difference between the average rate on outstanding mortgages and the rate on new ones is not very large.

The Business Sector

Investment Expenditures. Adjusted for inflation, businesses' outlays for fixed investment rose about 8 percent during 1997 after gaining about 12 percent during 1996. Spending continued to be spurred by rapid growth of the economy, favorable financial conditions, attractive purchase prices for new equipment, and optimism about the future. Business outlays for equipment, which account for more than three-fourths of total business fixed investment, moved up about 12 percent this past year, making it the fourth year of the last five in which the annual gains have exceeded 10 percent. As in previous years of the expansion, real investment rose fastest for computers, the power of which continued to advance rapidly at the same time their prices continued to decline. Spending also moved up briskly for many other types of equipment, including communications equipment, commercial aircraft, industrial machinery, and construction machinery.

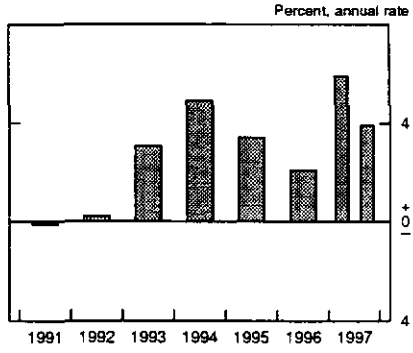
Real outlays for nonresidential construction, the remaining portion of business fixed investment, declined somewhat in 1997 after moving up in each of the four previous years. Construction of office buildings continued to increase in 1997, but sluggishness was apparent in the expenditure data for many other types of structures. Nonetheless, a tone of underlying firmness was apparent in other indicators of market conditions. Vacancy rates declined, for example, and rents seemed to be picking up. In some areas of the country, more builders have been putting up new office buildings on "spec"—that is, undertaking new construction before occupants have been lined up. The new projects are apparently being spurred to some degree by the ready availability of financing.

Change in Real Business Fixed Investment



Business inventory investment picked up considerably in 1997. According to the initial estimate, the level of inventories held by nonfarm businesses rose about 5 percent in real terms over the course of the year after increasing roughly 2 percent in 1996.

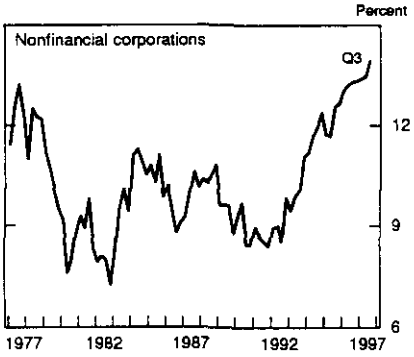
Change in Real Nonfarm Business Inventories



Accumulation was especially rapid in the commercial aircraft industry, in which production has been ramped up in response to a huge backlog of orders for new jets. With the rate of inventory growth outpacing the growth of final sales last year, the stock-to-sales ratio in the nonfarm sector ticked up slightly, after a small decline in the preceding year. Although inventory accumulation does not seem likely to persist at the pace of 1997, businesses in general do not appear to be uncomfortable with the levels of stocks that they have been carrying.

Corporate Profits and Business Finance. The economic profits of U.S. corporations (book profits after inventory valuation and capital consumption adjustments) increased at more than a 14 percent annual rate over the first three quarters of 1997, and profits of nonfinancial corporations from their domestic operations grew at a 13½ percent annual rate. In the third quarter, nonfinancial corporate profits amounted to nearly 14 percent of that sector's nominal output, up from 7¼ percent in 1982 and the highest share since 1969. The elevated profit share reflects both the high level of cash flow before interest costs, which also stands at a multiyear peak relative to output, and the reductions in interest costs that have taken place in the 1990s. Fourth-quarter profit announcements indicate that year-over-year growth in earnings was fairly strong; few corporations reported that they had experienced much fallout yet from the events in Asia, but many warned that profits in the first half of 1998 will be significantly affected.

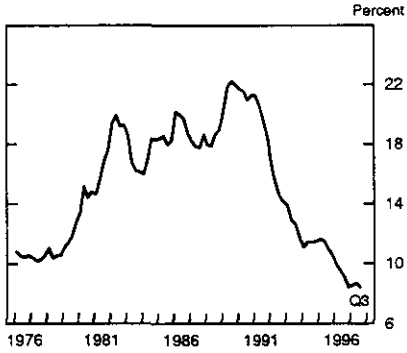
Before-Tax Profit Share of GDP



Note. Profits from the domestic operations of nonfinancial corporations, with inventory valuation and capital consumption adjustments, divided by the gross domestic product of the nonfinancial corporate sector.

Despite the rapid growth in profits, the financing gap for nonfinancial corporations—capital expenditures less internal cash flow—widened, reflecting the strong expansion of spending on capital equipment and inventories. Furthermore, on net, firms continued to retire a large volume of equity, adding further to borrowing needs, as substantial gross issuance was swamped by stock repurchases and merger-related retirements. Given these financing requirements, the growth of nonfinancial corporate debt picked up to more than a 7 percent rate last year.

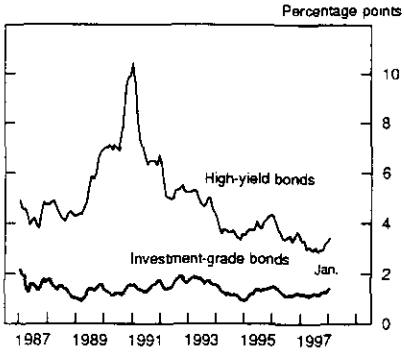
Net Interest Payments of Nonfinancial Corporations Relative to Cash Flow



With the debt of nonfinancial corporations advancing briskly, the ratio of their interest payments to cash flow was about unchanged last year, after several years of decline that had left it at quite a low level. Consequently, measures of debt-repayment difficulties also were very favorable last year: The default rate on corporate bonds remained extremely low, and the number of upgrades of debt about equaled the number of downgrades. Similarly, only small percentages of business loans at banks were delinquent or charged off. The rate of business bankruptcies increased a bit but was still fairly low.

Businesses continued to find credit amply supplied at advantageous terms last year. The spread between yields on investment-grade bonds and yields on Treasury securities of similar maturities remained narrow, varying only a little during the year. The spreads on below-investment-grade bonds fell over the year, touching new lows before widening a bit in the fall and early this year; the widening occurred in large part because these securities benefited less from the flight to U.S. assets in response to events in Asia

Spreads Between Yields on
Private and Treasury Securities



Note. The spread on high-yield bonds compares the yield on Merrill Lynch Master II Index of high-yield bonds with that on a seven-year Treasury note; the spread on investment-grade bonds compares the yield on Moody's index of A-rated investment-grade bonds with that on a ten-year Treasury note.

than did Treasury securities. Banks also appeared eager to lend to businesses. Large percentages of the respondents to the Federal Reserve's surveys, citing stiff competition as the reason, said they had eased terms—particularly spreads—on business loans last year. Much smaller percentages reported having eased standards on these loans. The high ratios of stock prices to earnings suggest that equity finance was also quite cheap last year. Nevertheless, the market for initial public offerings of equity was cooler than in 1996—new issues were priced below the expected range more often than above it, and first-day trading returns were smaller on average.

The pickup in business borrowing was widespread across funding sources. Outstanding commercial paper, which had declined a bit in 1996, posted strong growth in 1997, as did bank business loans. Gross issuance of bonds was extremely high, particularly bonds with ratings below investment grade. Such lower-rated bonds made up nearly half of all issuance, a new record. Although sales of new investment-grade bonds slowed a bit in the fall, corporations were apparently waiting out the market volatility at that time, and issuance picked back up in January. Banks, real estate investment trusts, and commercial-mortgage-backed securities were the most significant sources of funds for income properties—residential apartments and commercial buildings—the financing of which expanded further last year.

The Government Sector

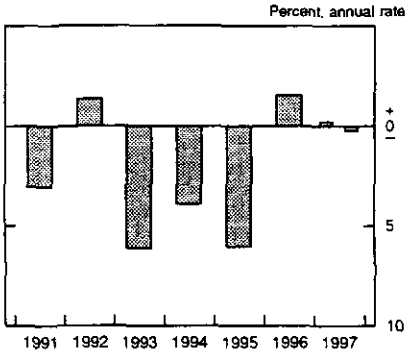
Federal Expenditures, Receipts, and Finance. Nominal outlays in the unified budget increased about 2½ percent in fiscal year 1997 after moving up 3 percent in fiscal 1996. Fiscal 1997 was the sixth consecutive year that the growth of spending was less than the growth of nominal GDP. During that period, spending as a percentage of nominal GDP fell from about 22½ percent to just over 20 percent. The set of factors that have combined to bring about this result includes implementation of fiscal policies aimed at reducing the deficit, which has helped slow the growth of discretionary spending and spending on some social and health services programs, and the strength of the economy, which has reduced outlays for income support.

In nominal terms, small to moderate increases were recorded in most major expenditure categories in fiscal 1997. Net interest outlays, which have been accounting for about 15 percent of total unified outlays in recent years, rose only a small amount in 1997, as did nominal outlays for defense and those for income security. Expenditures on Medicaid rose moderately for a second year after having grown very rapidly for many years; spending in this category has been restrained of late by the strong economy, the low rate of inflation in the medical area, and policy changes in the Medicaid program. Policy shifts and the strong economy also cut into outlays for food stamps, which fell about 10 percent in fiscal 1997. By contrast, spending on Medicare continued to rise at about three times the rate of total federal outlays. Growth of outlays for social security also exceeded the rate of rise of total expenditures.

Real federal outlays for consumption and gross investment, the part of federal spending that is counted in GDP, were unchanged, on net, from the last quarter of 1996 to the final quarter of 1997. Real outlays for defense, which account for about two-thirds of the spending for consumption and investment, declined slightly, offsetting a small increase in nondefense outlays. Because of much larger declines in most other recent years, the level of real defense outlays at the end of 1997 was down about 22 percent from its level at the end of the 1980s; total real outlays for consumption and investment dropped about 14 percent over that period.

Federal receipts rose faster than nominal GDP for a fifth consecutive year in fiscal 1997; receipts were 19¾ percent of GDP last year, up from 17¾ percent in fiscal 1992. The ratio tends to rise during business expansions, mainly because of cycli-

Change in Real Federal Expenditures on Consumption and Investment

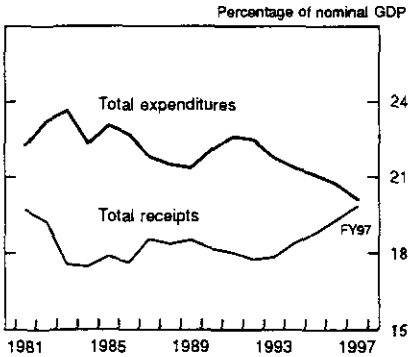


cal increases in the share of profits in nominal GDP. In the past couple of years, the ratio also has been boosted by the tax increases included in the Omnibus Reconciliation Act of 1993, by a rising income share of high-income taxpayers, and by receipts from surging capital gains realizations, which raise the numerator of the ratio but not the denominator because capital gains realizations are not part of GDP. In fiscal 1997, combined receipts from individual income taxes and social insurance taxes, which account for about 80 percent of total receipts, moved up about 9½ percent, even more than in fiscal 1996. Receipts from the taxes on corporate profits were up about 6 percent in fiscal 1997 after increasing about 9½ percent in the preceding fiscal year. The total rise in receipts in fiscal 1997, coupled with the subdued rate of increase in nominal outlays, resulted in a budget deficit of $22 billion, down from $107 billion in the preceding fiscal year.

With the budget moving close to balance, federal borrowing slowed sharply last year. The Treasury responded to the smaller-than-expected borrowing need by reducing sales of bills in order to keep its auctions of coupon securities predictable and of sufficient volume to maintain the liquidity of the secondary markets. The result was an unusually large net redemption of bills, which at times pushed yields on short-term bills down relative to yields on other Treasury securities and short-term private obligations.

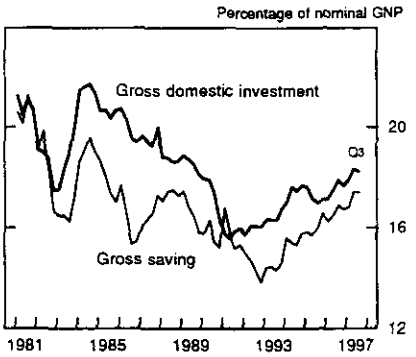
Last year saw the first issuance by the Treasury of inflation-indexed securities. The Treasury sold indexed ten-year notes in January and April of last year and again this January, and sold five-year notes in July and October; it also announced it would sell indexed thirty-year bonds this April. Investor interest in the securities at those auctions was substantial, with the ratios of received bids to accepted bids resembling those for nominal securities. As expected, most of the securities were quickly acquired by final investors, and the trading volume as a share of the outstanding amount has been much smaller than for nominal securities.

Federal Receipts and Expenditures



Note. Data on receipts and expenditures are from the unified budget and are for the fiscal year ended in September.

Saving and Investment



Note. Gross saving consists of saving of households, businesses, and governments. Gross domestic investment is the sum of gross private domestic investment and government investment. The gap between gross saving and gross domestic investment is equal to the sum of net foreign investment and the discrepancy between gross national income and gross national product. The narrowing of the gap in recent years is more than accounted for by a change in the amount of the discrepancy.

An important macroeconomic implication of the reduced federal deficit is that the federal government has ceased to be a negative influence on the level of national saving. The improvement in the federal government's saving position in recent years has more than accounted for a rise in the total gross saving of households, businesses, and governments, from about 14½ percent of gross national product earlier in the decade, when federal government saving was at a cyclical low and highly negative, to more than 17 percent in the first three quarters of 1997. This rise in domestic saving, along with increased borrowing from abroad, has financed the rise in domestic investment in this expansion. Still higher rates of saving and investment were the norm a couple of decades ago, when the personal saving rate was a good bit above its level in recent years.

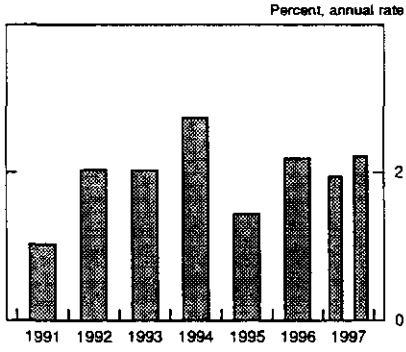
State and Local Governments. The real outlays of state and local governments for consumption and investment moved up about 2 percent over the four quarters of 1997, similar to the average since the start of the 1990s. Investment expenditures, which have grown about 2½ percent per annum this decade, rose at only half that pace in 1997, according to the initial estimate. However, real consumption expenditures increased 2¼ percent last year, a touch above the average for the decade. Compensation of government employees, which accounts for about three-fifths of real consumption and investment expenditures, rose about 1¾ percent in 1997 and has increased at an annual rate of only about 1¼ percent since the end of the 1980s.

The efforts of state and local governments to hold down their labor expenses are also reflected in the recent data on nominal wages and hourly compensation. According to the employment cost indexes, hourly compensation of the workers employed by state and local governments increased 2¼ percent in 1997, a little less than in 1996 and the smallest annual increase in the seventeen-year history of the series. The increase in the average hourly wage of state and local employees amounted to about 2¾ percent in 1997, roughly the same as the gain in 1996. The average hourly cost of the benefit packages provided to state and local employees rose only 1¼ percent, a percentage point less than the increase in 1996.

With costs contained and receipts continuing to rise with the growth of the economy, financial pressures that were evident among state and local governments earlier in the expansion have diminished. The increased breathing room in the budgets of recent years is apparent in the consolidated current account of these governments: Surpluses in that account, excluding those that are earmarked for social insurance funds, had dipped to a low of about 1½ percent of nominal receipts in 1991, but they have been larger than 3 percent of receipts in each of the past three years.

State and local debt expanded about 5¾ percent last year after changing little in 1996 and declining in the two preceding years. In those earlier years, municipal debt outstanding had been held down by the retirement of bonds that were "advance refunded" in the early 1990s. In such operations, funds that had earlier been raised and set aside were used to refund debt as it became callable. By the end of 1996, however, the stock of such debt had apparently been largely worked down.

Change in Real State and Local Expenditures on Consumption and Investment

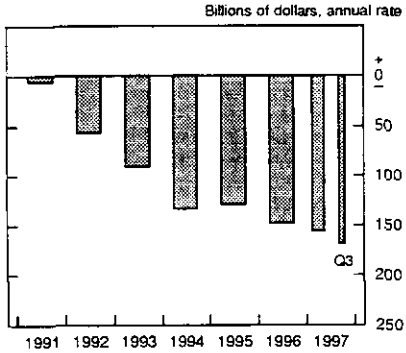


External Sector

Trade and the Current Account. The nominal trade deficit for goods and services was $114 billion in 1997, little changed from the $111 billion deficit in 1996. For the first three quarters of the year, the current account deficit reached $160 billion at an annual rate, somewhat wider than the 1996 deficit of $148 billion. This deterioration of the current account largely reflects continued declines in net investment income, which for the first time recorded deficits in each of the first three quarters of the year.

The quantity of imports of goods and services expanded strongly during 1997—about 13 percent according to preliminary estimates—as the very rapid growth experienced during the first half of the year moderated slightly during the second half. The expan-

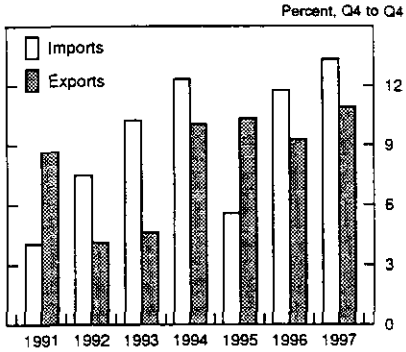
U.S. Current Account



sion was fueled by continued vigorous growth of U.S. GDP. Additional declines in non-oil import prices—related in large part to the appreciation of the dollar—contributed as well. Of the major trade categories, increases in imports were sharpest for capital goods and consumer goods.

Export growth was also strong in 1997, particularly during the first half of the year. The quantity of exports of goods and services rose nearly 11 percent, after a rise of 9¼ percent the preceding year. Despite further appreciation of the dollar, exports accelerated in response to the strength of economic activity abroad. Output growth in most of our industrial-country trading partners firmed in 1997 from the moderate rates observed in 1996. Among our developing-country trading partners, robust growth continued through much of the year, but the onset of crises in several Asian economies late in 1997 led to abrupt slowdowns in economic activity. Growth of exports to Latin American countries and to Canada was particularly strong. Exports to Western Europe also increased at a healthy pace.

Change in Real Imports and Exports of Goods and Services



Capital Flows. In the first three quarters of 1997, large increases were reported in both foreign ownership of assets in the United States and U.S. ownership of assets abroad, reflecting the continued trend toward the globalization of both financial markets and the markets for goods. Little evidence of the gathering financial storm in Asia was apparent in the data on U.S. capital flows through the end of September. Foreign official assets in the United States rose $46 billion in the first three quarters of 1997. The increases were concentrated in the holdings of certain industrial countries and members of OPEC. Although substantial, these increases were below the pace for the first three quarters of 1996.

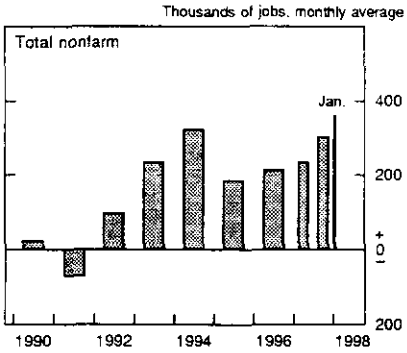
In contrast, increases in assets held by other foreigners in the first three quarters of 1997 surpassed those recorded in 1996. In particular, net purchases of U.S. Treasury securities by private foreigners rose to $130 billion, net purchases of U.S. corporate and other bonds reached $96 billion, and net purchases of U.S. stocks were a record $55 billion. In addition, foreign direct investment in the United States also posted a new high of $78 billion, as the strong pace of acquisitions of U.S. companies by foreigners continued.

U.S. direct investment abroad in the first three quarters of 1997 also exceeded the 1996 pace, with a record net outflow of $88 billion. U.S. net purchases of foreign securities in the first three quarters of 1997 were $74 billion, a little below the pace for 1996. However, net purchases of stocks in Japan and bonds in Latin America were up substantially. Banks in the United States reported a large increase in net claims on foreigners in the first quarter but only a modest increase in the next two quarters combined.

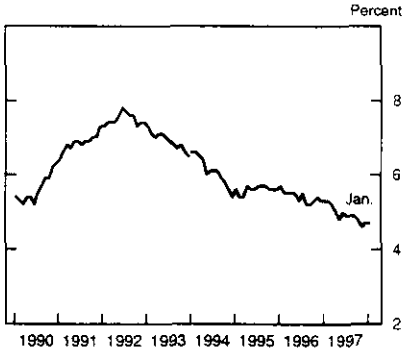
The Labor Market

Employment, Productivity, and Labor Supply. More than 3 million jobs were added to nonfarm payrolls in 1997—a gain of nearly 2¾ percent, measured from December to December. Patterns of hiring mirrored the broadly based gains in output and spending. Manufacturing, construction, trade, transportation, finance, and services all exhibited appreciable strength. In manufacturing, the

Change in Payroll Employment



Civilian Unemployment Rate

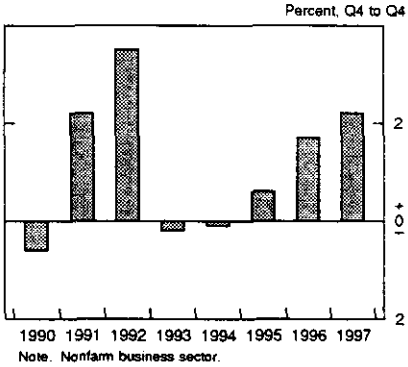


Note. The break in data at January 1994 marks the introduction of a redesigned survey; data from that point on are not directly comparable with the data of earlier periods.

1997 rise in the job count followed two years of little change. Elsewhere, the gains in 1997 came on top of substantial increases in other recent years. Especially rapid increases were posted this past year in some of the services industries, including computer services, management services, education, and recreation. Employment at suppliers of personnel, a category that includes the agencies that supply help on a temporary basis, also increased appreciably in 1997, but the gains in this category fell considerably short of those seen in previous years of the expansion. Help-supply firms reported that shortages of workers were limiting the pace of their expansion.

Labor productivity has risen rapidly over the past two years. Revised data show the 1996 gain in output per hour in the nonfarm business sector to have been about 1¾ percent, and the increase in 1997 was larger still—about 2¼ percent, according to the first round of estimates. Although the average rate of productivity increase since the end of the 1980s still is only a little above 1 percent per year, the data for the past two years provide hopeful indications that sustained high levels of investment in new technologies may finally be translating into a stronger trend.

Change in Output per Hour



Note. Nonfarm business sector.

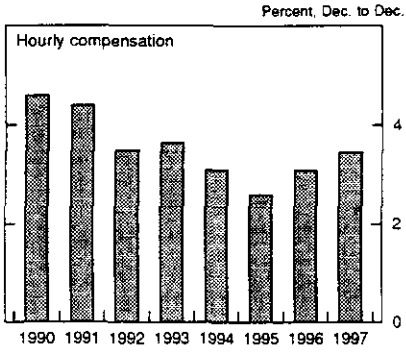
The civilian unemployment rate fell more than ½ percentage point from the fourth quarter of 1996 to the fourth quarter of 1997, to an average of just under 4¾ percent. The rate held steady at this level in January of this year. For most of the past year, the rate has been running somewhat below the minimum that was reached in the expansion of the 1980s. A variety of survey data indicate that firms have had increased difficulty filling jobs.

After moving up a step in 1996, the labor force participation rate continued to edge higher in 1997. Without the increment to labor supply from increased participation over these two years, the unemployment rate would have fallen to an even lower level. Changes in the welfare system perhaps contributed to some extent to the small rise in participation in 1997, although this effect is difficult to disentangle from the normal tendency of participation to rise when the labor market is tight. Even though one-third of the adult population remained outside the labor force in 1997, the vast majority of those individuals likely were in pursuits that tended to preclude their workforce participation, such as retirement, schooling,

or housework. The percentage of the working age population interested in work but not actively seeking it moved down further in 1997, to 2¼ percent in the fourth quarter, a record low in the history of the series, which began in 1970.

Wages and Hourly Compensation. According to the employment cost indexes, hourly compensation in private industry increased 3.4 percent from December of 1996 to December of 1997. This rise exceeded that of the previous year by 0.3 percentage point and was 0.8 percentage point greater than the increase of 1995. Although the patterns of change in hourly pay have varied quite a bit by industry and occupation over the past two years, the overall step-up seems to have been prompted, in large part, by the tightening of labor markets. The implementation of a higher minimum wage also seems to have been a factor in some industries and occupations, although its impact is difficult to assess precisely.

Change in Employment Cost Index



Note. Private industry excluding farm and household workers.

The wage and salary component of hourly compensation rose faster in 1997 than in any previous year of the expansion. Annual increases in the employment cost index for wages and salaries in private industry amounted to 2.8 percent in both 1994 and 1995, but the increases of 1996 and 1997 were 3.4 percent and 3.9 percent respectively. Wages and salaries in the service-producing industries accelerated nearly a full percentage point in 1997, pushed up, especially, by sharp pay increases in the finance, insurance, and real estate sector, in which commissions and bonuses have recently been boosted by high levels of mortgage refinancing and trading activity. By contrast, hourly wages in the goods-producing industries slowed a couple of tenths of a percentage point in 1997; the annual gains in these industries have been around 3 percent, on average, in each of the past six years.

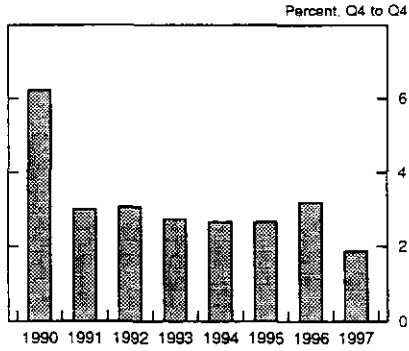
Although the costs of the fringe benefits that companies provide to their employees also picked up in 1997, the yearly increase of 2.3 percent was not large by historical standards. As in other recent years, benefit costs in 1997 were restrained by a variety of influences. Most notably, the price of health care continued to rise at a subdued pace, and the ongoing strength of the economy limited the need for payments by firms to state unemployment trust funds. Even though some firms reported seeing renewed sharp increases in health care costs during the year, the employment cost data suggest that most firms still were keeping those costs under fairly tight control.

With nominal hourly compensation in almost all industries moving ahead at a faster pace than inflation, workers' pay generally increased in real terms, and the real gains were substantial in many occupations. Indeed, the employment cost index does not capture some of the forms of compensation that employers have been using to attract and retain workers—stock options and signing bonuses, for example.

Prices

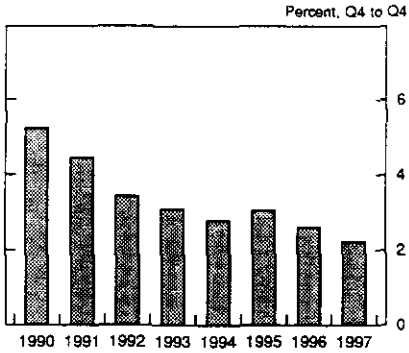
Indications of a slowing of inflation in 1997 were widespread in the various measures of aggregate price change. The consumer price index, which had picked

Change in Consumer Prices



Note. Consumer price index for all urban consumers.

Change in Consumer Prices Excluding Food and Energy



Note. Consumer price index for all urban consumers.

up to more than a 3 percent rate of rise over the four quarters of 1996, increased slightly less than 2 percent over the four quarters of 1997 as energy prices turned down and increases in food prices slowed. The CPI excluding food and energy—a widely used gauge of the underlying trend of inflation—rose only 2¼ percent in 1997 after increases of 3 percent in 1995 and 2½ percent in 1996. The CPI for commodities other than food and energy rose about ½ percent over the four quarters of 1997 after moving up slightly more than 1 percent in 1996. Price increases for non-energy services, which have a much larger weight than commodities in the core CPI, also slowed a little in 1997; a 3 percent rise during the year was about ¼ percentage point less than the increase during 1996. Only small portions of the slowdowns between 1996 and 1997 in the total CPI and in the CPI excluding food and energy were the result of technical changes implemented by the Bureau of Labor Statistics.[1]

Other measures of aggregate price change also decelerated in 1997. The chain-type price index for gross domestic purchases—the broadest measure of prices paid by U.S. households, businesses, and governments—increased about 1½ percent during 1997 after moving up 2¼ percent in 1996. The chain-type price index for gross domestic product, a measure of price change for the goods and services produced in this country (rather than the goods and services purchased), increased 1¾ percent in the latest year after rising 2¼ percent rise in 1996. The steeper slowing of the price index for aggregate purchases relative to that for aggregate production was largely a reflection of the prices of imports, which fell faster in 1997 than in 1996. Falling computer prices were an important influence on many of these measures of aggregate price change—more

1. Over the past three years, the Bureau of Labor Statistics has introduced a number of technical changes in its procedures for compiling the CPI, with the aim of obtaining a more accurate measure of price change. Typically, the changes have only a small effect on the results for any particular year, but their cumulative effects are somewhat larger and are tending to hold down the reported increases of recent years relative to what would have been reported with no changes in procedures. Apart from the procedural changes, the reported rate of rise from 1998 forward will also be affected by an updating of the CPI market basket, an action that the BLS undertakes approximately every ten years.

Alternative Measures of Price Change
Percent

Price measure	1996	1997
Fixed weight		
Consumer price index	3.2	1.9
Excluding food and energy	2.6	2.2
Chain type		
Personal consumption expenditures	2.7	1.5
Excluding food and energy	2.3	1.6
Gross domestic purchases	2.3	1.4
Gross domestic product	2.3	1.8

Note. Changes are based on quarterly averages and are measured to the fourth quarter of the year indicated from the fourth quarter of the previous year.

so than on the CPI, which gave small weight to computers through 1997 but has started weighting them more heavily this year.

In real terms, imports of goods and services account for approximately 15 percent of the total purchases of households, businesses, and governments located in the United States. But that figure probably understates the degree of restraint that falling import prices have imposed on domestic inflation, because the lower prices for imports also make domestic producers of competing products less likely to raise prices. Prices have also been restrained by large additions to manufacturing capacity in this country, amounting to more than 5 percent in each of the past three years; this capacity growth helped to stave off the bottlenecks that so often have developed in the more advanced stages of other postwar business expansions. A gain in manufacturing production of more than 6 percent this past year was accompanied by only a moderate increase in the factory operating rate, which, at year-end, remained well below the highs reached in other recent expansions and the peak for this expansion, which was recorded about three years ago.

Reflecting the ample domestic supply and the effects of competition from goods produced abroad, the producer price index for finished goods declined about ¾ percent from the fourth quarter of 1996 to the fourth quarter of 1997; excluding food and energy, it rose only fractionally. Prices of domestically produced materials (other than food and energy) also rose only slightly, on net. The prices of raw industrial commodities, many of which are traded in international markets, declined over the year; the weakness of prices in these markets was especially pronounced in late 1997, when the crises in Asia were worsening. Industrial commodity prices fell further in the first couple of weeks of 1998, but they since have changed little, on balance. The producer price index fell sharply in January of this year; the index excluding food and energy declined slightly.

After moving up more than 4 percent in 1996, the consumer price index for food increased only 1¾ percent in 1997. Impetus for the large increase of 1996 had come from a surge in the price of grain, which peaked around the middle of that year; since then, grain prices have dropped back considerably. An echo of the up-and-down price pattern for grains appeared at retail in the form of sharp price increases for meats, poultry, and dairy products in 1996 followed by small to moderate declines for most of those products in 1997. Moderate price increases were posted at retail for most other food categories last year.

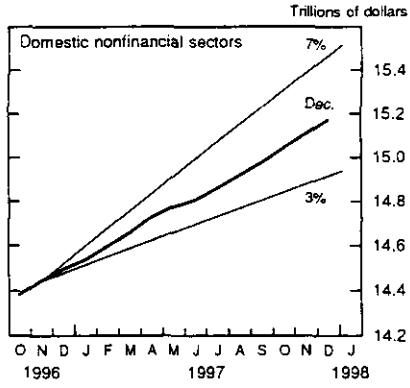
The CPI for energy has traced out an even bigger swing than the price of food over the past two years—a jump of 7½ percent over the four quarters of 1996 was followed by a decline of about 1 percent over the four quarters of 1997. As is usually the case in this sector, the key to these developments was the price of crude oil, which in 1997 more than reversed the run-up of the preceding year. Prices of oil have been held down in recent months by ample world supplies, the economic problems in Asia, and a mild winter.

Survey data on inflation expectations mostly showed moderate reductions during 1997 in respondents' views of the future rate of price increase, and some of the survey data for early 1998 have shown a more noticeable downward shift in inflation expectations. A lowering of inflation expectations has long been viewed as an essential ingredient in the pursuit of price stability, and the recent data are a sign that progress is still being made in that regard.

Credit, Money, Interest Rates, and Equity Prices

Credit and Depository Intermediation. The debt of the domestic nonfinancial sectors grew at a 4¾ percent rate last year, somewhat below the midpoint of the range established by the FOMC and less than in 1996, when it grew 5¼ percent. The deceleration was accounted for entirely by the

Debt: Annual Range and Actual Level



federal component, which, because of the reduced budget deficit, rose less than 1 percent last year, after having risen 3¾ percent in 1996. Nonfederal debt grew 6 percent, a bit more than in 1996, as the pickup in business borrowing more than offset the deceleration of household debt.

Depository institutions increased their share of credit flows in 1997, with credit on their books expanding 5¾ percent, up appreciably from growth in 1996. The growth of bank credit, adjusted to remove the effects of mark-to-market accounting rules, accelerated to an 8¼ percent pace, the largest rise in ten years; and banks' share of domestic nonfinancial debt outstanding climbed to its highest level since 1988. Bank credit accelerated in part because banks' holdings of securities—which had run off in 1995 and had been flat in 1996—expanded at a brisk pace last year; securities account for one-fourth of total bank credit. Loans, which make up the remainder of bank credit, also advanced a bit more quickly last year than in 1996, though more slowly than in 1995.

The increase in bank loans occurred despite a net decline in consumer loans on banks' books resulting both from sharply slower growth in loans originated by banks and from continued securitization of those loans. Real estate loans at banks, by contrast, posted solid growth last year. This category of credit benefited from a pickup in home mortgages, the rapid growth in home equity loans, which were substituting in part for consumer loans, an acceleration in

Growth of Money and Debt
Percent

Period		M1	M2	M3	Domestic nonfinancial debt
Annual[1]					
1987		6.3	4.2	5.8	9.9
1988		4.3	5.7	6.3	8.9
1989		0.5	5.2	4.0	7.8
1990		4.2	4.1	1.8	6.8
1991		7.9	3.1	1.2	4.5
1992		14.4	1.8	0.6	4.7
1993		10.6	1.3	1.1	5.1
1994		2.5	0.6	1.7	5.1
1995		−1.6	3.9	6.1	5.4
1996		−4.5	4.6	6.9	5.2
1997		−1.2	5.6	8.7	4.7
Quarterly (annual rate)[2]					
1997	Q1	−1.4	5.1	8.0	4.3
	Q2	−4.5	4.4	7.7	4.7
	Q3	0.3	5.4	8.1	4.1
	Q4	0.8	6.8	9.8	5.2

Note. M1 consists of currency, travelers checks, demand deposits, and other checkable deposits. M2 consists of M1 plus savings deposits (including money market deposit accounts), small-denomination time deposits, and balances in retail money market funds. M3 consists of M2 plus large-denomination time deposits, balances in institutional money market funds, RP liabilities (overnight and term), and Eurodollars (overnight and term). Debt consists of the outstanding credit market debt of the U.S. government, state and local governments, households and nonprofit organizations, nonfinancial businesses, and farms.

1. From average for fourth quarter of preceding year to average for fourth quarter of year indicated.

2. From average for preceding quarter to average for quarter indicated.

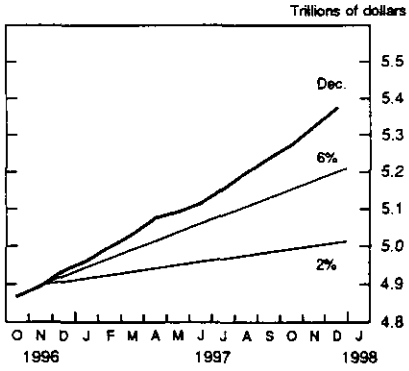
commercial real estate lending, and the acquisition of thrift institutions by banks. Commercial and industrial loans expanded considerably last year, reflecting both the general rise in the demand by businesses for funds and an increase in banks' share of the nonmortgage business credit market as they competed vigorously for business loans by easing terms.

The rapid growth of banks' assets was facilitated by their continued high profitability and abundance of capital; at the end of the third quarter, nearly 99 percent of bank assets were at well-capitalized institutions. Problems with the repayment performance of consumer loans—which, while not deteriorating further, remained elevated by historical standards—hurt some banks; however, overall loan delinquency and charge-off rates stayed quite low, and measures of banks' profitability persisted at the elevated levels they have occupied for several years. Profits at a few large bank holding companies were reduced in the fourth quarter by trading losses resulting from the events in Asia. Nonetheless, the profits of the industry as a whole remained robust.

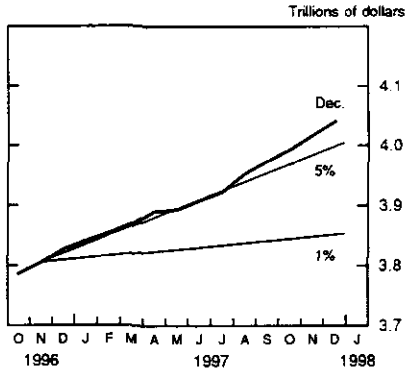
The profits and capital levels of thrift institutions, like those of banks, were high last year, and the thrifts also were aggressive lenders. The outstanding amount of credit extended by thrifts grew at about a 1½ percent pace last year, but this sluggishness reflected entirely the acquisitions of thrifts by commercial banks; among thrifts not acquired during the year, asset growth was similar to that of banks.

The Monetary Aggregates. Boosted in part by the need to fund substantial growth in depository credit, M3 shot up last year, expanding 8¾ percent: this growth was well above the 2 percent to 6 percent annual range, which was intended to suggest the rate of growth over the long run consistent with price stability. M3 was augmented by a shift in sources of funding—mostly at U.S. branches and agencies of foreign banks—from borrowings from related offices abroad, which are not included in M3, to large time deposits issued in the United States, which are. Also contributing to the strength in M3 was rapid growth in institution-only money funds, which reflected gains by these funds in the provision of corporate cash management services. Corporations that manage their own cash often keep their funds in short-term assets that are not included in M3.

M3: Annual Range and Actual Level



M2: Annual Range and Actual Level



Although growth of M2 did not match that of M3, it increased at a brisk 5½ percent rate last year. As the Committee had anticipated, the aggregate was somewhat above the upper bound of its 1 percent to 5 percent annual range, which also had been chosen to be consistent with expected M2 growth under conditions of price stability. Because short-term interest rates responded only slightly to System tightening in March, the opportunity cost of holding M2—the interest earnings forgone by owning M2 assets rather than money market instruments such as Treasury bills—was about unchanged over the year. As M2 grew at about the same rate as nominal GDP, velocity was also essentially unchanged. The ups and downs of M2 growth last year mirrored those of the growth in nominal output. M2 expanded much more slowly in the second quarter than in the first.

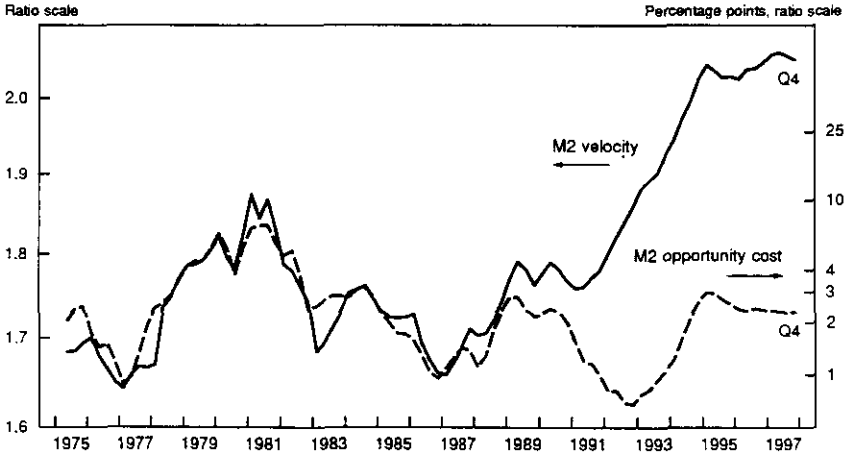
consistent with the cooling of nominal GDP growth and almost unchanged opportunity costs. In the second half of the year, M2 growth picked up, again pacing the growth of nominal GDP. In the fall, M2 may also have been boosted a little by the volatility in equity markets, which may have led some households to seek the relative safety of M2 assets.

For several decades before 1990, M2 velocity responded positively to changes in its opportunity costs and otherwise showed little net movement over time. This pattern was disturbed in the early 1990s in part by households' apparent decision to shift funds out of lower-yielding M2 deposits into higher-yielding stock and bond mutual funds, which raised M2 velocity even as opportunity costs were declining. The movements in the velocity of M2 from 1994 into 1997 appear to have again been explained by changes in opportunity costs, along with some residual upward drift. This drift suggests that some households may still have been in the process of shifting their portfolios toward non-M2 assets. There was no uptrend in velocity over the second half of last year, perhaps because of the declining yields on intermediate- and long-term debt and the greater volatility and lower average returns posted by stock mutual funds. However, given the aberrant behavior of velocity during the 1990s in general, considerable uncertainty remains about the relationship between the velocity and opportunity cost of M2 in the future.

M1 fell 1¼ percent last year. As has been true for the last four years, the growth of this aggregate was depressed by the adoption by banks of retail sweep programs, whereby balances in transactions accounts, which are subject to reserve requirements, are "swept" into savings accounts, which are not. Sweep programs benefit depositories by reducing their required reserves, which earn no interest. At the same time, they do not restrict depositors' access to their funds for transactions purposes, because the funds are swept back into transactions accounts when needed. The initiation of programs that sweep funds out of NOW accounts—until last year the most common form of retail sweep programs—appears to be slowing, but sweeps of household demand deposits have picked up, leaving the estimated total amount by which sweep account balances increased last year similar to that in 1996. Adjusted for the initial reduction in transactions accounts resulting from the introduction of new sweep programs, M1 expanded 6¼ percent, a little above its sweep-adjusted growth in 1996.

The drop in transactions accounts caused required reserves to fall 7¼ percent last year. Despite this decline, the monetary base grew 6 percent, boosted

M2 Velocity and the Opportunity Cost of Holding M2



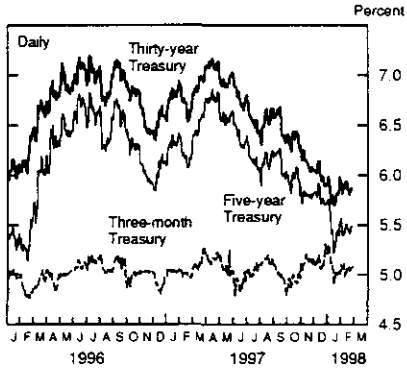
Note. M2 opportunity cost is a two-quarter moving average of the three-month Treasury bill rate less the weighted-average rate paid on M2 components.

by a hefty advance in currency. Currency again benefited from foreign demand, as overseas shipments continued at the elevated levels seen in recent years. Moreover, domestic demand for currency expanded sharply in response to the strong domestic spending.

The Federal Reserve has been concerned that as the steady decline in required reserves of recent years is extended, the federal funds rate may become significantly more volatile. Required reserves are fairly predictable and must be maintained on only a two-week average basis. As a result, the unavoidable daily mismatches between reserves made available through open market operations and desired reserves typically have been fairly small, and their effect on the federal funds rate has been muted. However, banks also hold reserve balances at the Federal Reserve to avoid overdrafts after making payments for themselves and their customers. This component of the demand for reserves is difficult to predict, varies considerably from day to day, and must be fully satisfied each day. As required reserves have declined, the demand for balances at the Federal Reserve has become increasingly dominated by these more changeable daily payment-related needs. Nonetheless, federal funds volatility did not increase noticeably last year. In part this was because the Federal Reserve intervened more frequently than in the past with open market operations of overnight maturity in order to better match the supply of and demand for reserves each day. In addition, banks made greater use of the discount window, increasing the supply of reserves when the market was excessively tight. Significant further declines in reserve balances, however, do risk increased federal funds rate volatility, potentially complicating the money market operations of the Federal Reserve and of the private sector. One possible solution to this problem is to pay banks interest on their required reserve balances, reducing their incentive to avoid holding such balances.

Interest Rates and Equity Prices. Interest rates on intermediate- and long-term Treasury securities moved lower, on balance, last year. Yields rose early in the year as market participants became concerned that strength in demand would further tighten resource utilization margins and increase inflation unless the Federal Reserve took countervailing action. Over the late spring and summer, however, as growth moderated some and inflation remained subdued, these concerns abated significantly, and longer-term interest rates declined. Further reductions came in the latter part of the year as economic problems mounted in Asia. On balance,

Selected Treasury Rates

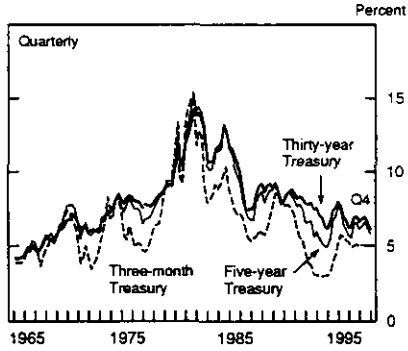


Note. Last observations are for February 20, 1998.

between the end of 1996 and the end of 1997, the yields on ten-year and thirty-year Treasury bonds fell about 70 basis points. Early this year, with the economic troubles in Asia continuing, the desire of investors for less risky assets, along with further reductions in the perceived risk of strong growth and higher inflation, pushed yields on intermediate- and long-term Treasury securities down an additional 25 to 50 basis points, matching their levels of the late 1960s and the early 1970s, when the buildup of inflation expectations was in its early stages.

Survey measures of expectations for longer-horizon inflation generally did move lower last year, but by less than the drop in nominal yields. As a

Selected Treasury Rates

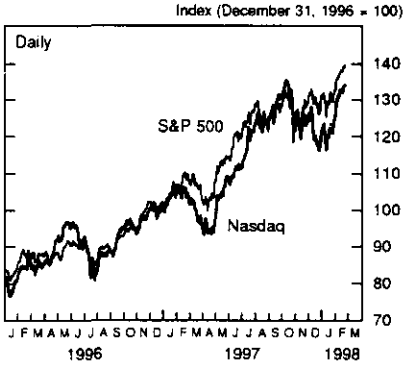


Note. The twenty-year Treasury bond rate is shown until the first issuance of the thirty-year Treasury bond in February 1977.

result, estimates of the real longer-term interest rate calculated by subtracting these measures of expected inflation from nominal yields indicate a slight decline in real rates over the year. In contrast, yields on the inflation-indexed ten-year Treasury note rose about a quarter percentage point between mid-March (when market participants seem to have become more comfortable with the new security) and the end of the year. The market for the indexed securities is sufficiently small that their yields can fluctuate temporarily as a result of moderate shifts in supply or demand. Indeed, much of the rise in the indexed yield came late in the year, when, in an uncertain global economic environment, investors' heightened desire for liquidity may have made nominal securities relatively more attractive.

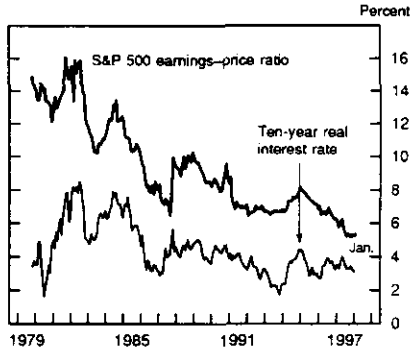
With real interest rates remaining low and corporate profits growing strongly, equities had another good year in 1997, and major stock indexes rose 20 percent to 30 percent. Although stocks began the year well, they fell with the upturn in interest rates in February. As interest rates subsequently declined and earning reports remained quite upbeat, the markets again advanced, with most broad indexes of stock prices reaching new highs in the spring. Advances were much more modest, on balance, over the second half of the year. Valuations seemed already to have incorporated very robust earnings growth, and in October, deepening difficulties in Asia evidently led investors to lower their expectations for the earnings of some U.S. firms, particularly high-technology firms and money center banks. More rapid price advances have resumed of late, as interest rates fell further and investors apparently came to see the earnings consequences of Asian difficulties as limited.

Major Stock Price Indexes



Note. Last observations are for Febuary 20, 1998.

Equity Valuation and Long-Term Interest Rate



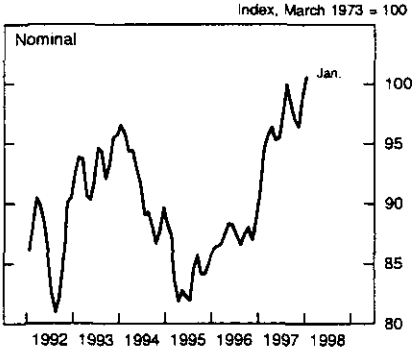
Note. The earnings–price ratio is based on the I/B/E/S International, Inc., consensus estimate of earnings over the coming twelve months. The real interest rate is the yield on the ten-year Treasury note less the ten-year inflation expectations from the Philadelphia Federal Reserve Survey of Professional Forecasters.

Despite the strong performance of earnings and the slower rise of stock prices since last summer, valuations seem to reflect a combination of expectations of quite rapid future earnings growth and a historically small risk premium on equities. The gap between the market's forward-looking earnings–price ratio and the real interest rate, measured by the ten-year Treasury rate less a survey measure of inflation expectations, was at the smallest sustained level last year in the eighteen-year period for which these data are available. Declines in this gap generally imply either that expected real earnings growth has increased or that the risk premium over the real rate investors use when valuing those earnings has fallen, or both. Survey estimates of stock analysts' expectations of long-term nominal earnings growth are, in fact, the highest observed in the fifteen years for which these data are available. Because inflation has trended down over the past fifteen years, the implicit forecast of the growth in real earnings departs even further from past forecasts. However, even with this forecast of real earnings growth, the current level of equity valuation suggests that investors are also requiring a lower risk premium on equities than has generally been the case in the past, a hypothesis supported by the low risk premiums evident in corporate bond yields last year.

International Developments

The foreign exchange value of the dollar rose during 1997 in terms of the currencies of most of the United States' trading partners. From the end of December 1996 through the end of December 1997, the dollar on average gained 13 percent in nominal terms against the currencies of the other G-10 countries when those currencies are weighted by multilateral trade shares. In terms of a broader index of currencies that includes those of most industrial countries and several developing countries, the dollar on balance rose nearly 14 percent in real terms during 1997.[2] The trading desk of the New York Federal Reserve Bank did not intervene in foreign exchange markets during 1997.

Weighted Average G-10 Exchange Value of the U.S. Dollar



Note. In terms of the currencies of the other G-10 countries. Weights are based on 1972–76 global trade of each of the ten countries.

During the first half of 1997, the dollar appreciated in terms of the currencies of the other industrial countries, as the continuing strength of U.S. economic activity raised expectations of further tightening of U.S. monetary conditions. Concerns about the implications of the transition to European Monetary Union and perceptions that monetary policy was not likely to tighten significantly in prospective member countries also contributed to the tendency for the dollar to rise in terms of the mark and other continental European currencies. In response to varying indicators of the strength of the Japanese expansion, the dollar rose against the yen early in the year but then moved back down through midyear.

The crises in Asian financial markets dominated developments during the second half of the year and resulted in substantial appreciation of the dollar in terms of the currencies of Korea and several countries in Southeast Asia. The dollar also appreciated against the yen in response to evidence of financial sector fragility in Japan and faltering Japanese economic activity, which were likely to be exacerbated by the negative impact of the Asian situation on Japan. During the first weeks of 1998, the dollar has changed little, on average, in terms of the currencies of most other industrial countries, but it has moved down in terms of the yen.

Pronounced asset–price fluctuations in Southeast Asia began in early July when the Thai baht dropped sharply immediately following the decision by authorities to no longer defend the baht's peg. Downward pressure soon emerged on the currencies and equity prices of other southeast Asian countries, in particular Indonesia and Malaysia. Weakening balance sheet positions of nonfinancial firms and financial institutions, rising debt-service burdens, and financial market stresses that resulted in part from policies of pegging local currencies to the appreciating dollar prompted closer scrutiny of Asian economies. As foreign creditors came to realize the extent to which these Asian financial systems were undercapitalized and inadequately supervised, they became less willing to continue to lend, making it even more difficult for the Asian borrowers to meet their foreign currency obligations. Turbulence spread to Hong Kong in October. The depreciation of currencies elsewhere in Asia, in particular the decision by Taiwanese authorities to allow some downward adjustment of the Taiwan dollar, led market participants to question the commitment of Hong Kong authorities to the peg of the Hong Kong dollar to the U.S. dollar. In response, the Hong Kong Monetary Authority raised domestic interest rates substantially to defend the peg, driving down equity prices as a consequence. Near the end of the year, the crisis spread to Korea, whose economy and financial system were already vulnerable as a result of numerous bankruptcies of corporate conglomerates starting in January 1997; these bankruptcies of major nonfinancial firms further undermined Korean financial institutions and, combined with the depreciations in competitor countries, contributed to a loss of inves-

2. This index weights currencies in terms of the importance of each country in determining the global competitiveness of U.S. exports and adjusts nominal exchange rates for changes in relative consumer prices.

tor confidence. On balance, during 1997 the dollar appreciated significantly in terms of the Indonesian rupiah (139 percent), the Korean won (100 percent), and the Thai baht (82 percent), while it moved up somewhat less in terms of the Taiwan dollar (19 percent) and was unchanged in terms of the Hong Kong dollar, which remains pegged to the U.S. dollar. Since year-end, the dollar has appreciated significantly further, on balance, in terms of the Indonesian rupiah and is little changed in terms of the Korean won.

The emergence of the financial crisis is causing a marked slowdown in economic activity in these Asian economies. During the first half of last year, real output continued to expand in most of these countries at about the robust rates enjoyed in 1996. Since the onset of the crisis, domestic demand in these countries has been greatly weakened by disruption in financial markets, substantially higher domestic interest rates, sharply reduced credit availability, and heightened uncertainty. In addition, macroeconomic policy has been tightened somewhat in Thailand, the Philippines, Indonesia, and Korea in connection with international support packages from the International Monetary Fund and other international financial institutions, and in connection with bilateral aid from individual countries. Announcement of agreement with the IMF on the support packages temporarily buoyed asset markets in each country, but concerns about the willingness or ability of governments to undertake difficult reforms and to achieve the stated macroeconomic goals remained. Additional measures to tighten the Korean program were announced in mid-December and included improved reserve management by the Bank of Korea, removal of certain interest rate ceilings, and acceleration of capital account liberalization and financial sector restructuring. With the encouragement of the authorities of the G-7 and other countries, banks in industrial countries have generally rolled over the majority of their foreign-currency-denominated claims on Korean banks during early 1998, as a plan for financing the external obligations of Korean financial institutions was being formulated. After the announcement on January 28 of an agreement in principle for the exchange of existing claims on Korean banks for restructured loans carrying a guarantee from the Korean government, the won stabilized. In the case of Indonesia, the support package was renegotiated and reaffirmed with the IMF in mid-January, though important elements of the approach of the Indonesian authorities remain in question as this report is submitted.

Signs that adjustment is proceeding within these Asian economies are already evident. For example, Thailand and Korea have registered strong improvements in their trade balances in recent months. Equity prices have recovered in Thailand, Indonesia, and Korea as well. At the same time, signs of rising inflation are beginning to emerge. In particular, consumer prices have accelerated in recent months in these three countries.

Spillover of the financial crisis to the economies of China, Hong Kong, and Taiwan has been limited to date. Steps to maintain the peg in Hong Kong have resulted in elevated interest rates, sharply lower equity prices, and increased uncertainty. However, in Taiwan, equity prices on balance rose nearly 18 percent in 1997 and have risen somewhat further so far this year. Real output growth in these three economies remained robust early in 1997 but may have slowed somewhat in China and Hong Kong in recent months.

Financial markets in some Latin American countries also came under pressure in reaction to the intensification of the crises in Asia in late 1997. After remaining quite stable earlier in the year, the Mexican peso dropped about 8 percent in terms of the U.S. dollar in late October; since then, it has changed little, on balance. In Brazil, exchange market turbulence abroad lowered market confidence in the authorities' ability to maintain that country's managed exchange rate regime; in response, short-term interest rates were raised 20 percentage points. The Brazilian exchange rate regime and the peg of the Argentine peso to the dollar have held. Real output growth in Mexico and Argentina remained healthy during 1997. In Brazil, growth fluctuated sharply during the year, with the high domestic interest rates and tighter macroeconomic policy stance that were put in place late in the year weakening domestic demand. During 1997, consumer price inflation slowed significantly in Mexico and Brazil and remained very low in Argentina.

In Japan, the economic expansion faltered in the second quarter as the effects on domestic demand of the April increase in the consumption tax exceeded expectations; in addition, crises in many of Japan's Asian trading partners late in the year weakened external demand and heightened concerns about the fragility of Japan's financial sector. The dollar rose about 10 percent against the yen during the first four months of 1997 as economic activity in the United States strengthened relative to that in Japan and as interest rate developments, including the FOMC

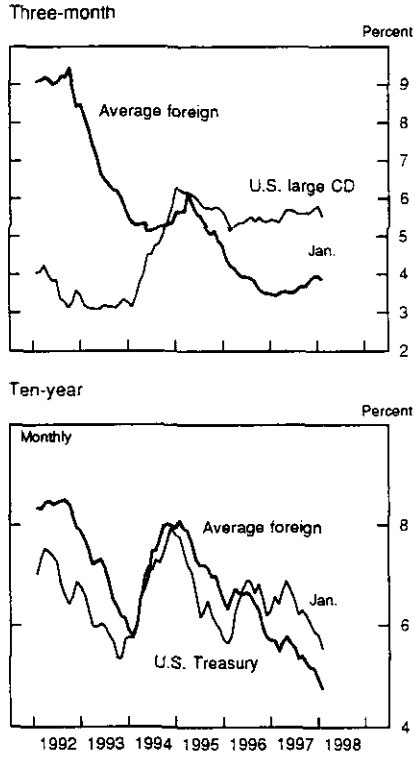
policy move in March, favored dollar assets. These gains were temporarily reversed in May and June as market attention focused on the growing Japanese external surplus and tentative indications of improving real activity. However, subsequent evidence of disappointing output growth, revelations of additional problems in the financial sector, and concerns about the implications of turmoil elsewhere in Asia for the Japanese economy contributed to a rise in the dollar in terms of the yen during the second half of the year. On net, the dollar appreciated nearly 13 percent against the yen during 1997; so far in 1998, it has moved back down slightly, on balance.

In Germany and France, output growth rose in 1997 from its modest 1996 pace, boosted in both countries by the strong performance of net exports. Nevertheless, the dollar rose in terms of the mark and other continental European currencies through midyear, responding not only to stronger U.S. economic activity but also to concerns about the timetable for launching European Monetary Union (EMU), the process of the transition to a single currency, and the policy resolve of the prospective members. Later in the year the dollar moved back down slightly and then fluctuated narrowly in terms of the mark, as investors concluded that the transition to EMU was likely to be smooth, with the euro introduced on time on January 1, 1999, and with a broad membership. On balance, the dollar rose about 17 percent against the mark during 1997 and has varied little since then.

In the United Kingdom and Canada, real output growth was vigorous in 1997. All the components of U.K. domestic demand continued to expand strongly. In Canada, more robust private consumption spending and less fiscal restraint boosted real GDP growth from its moderate 1996 pace. Central bank official lending rates were raised in both countries during the year to address the threat of rising inflation. The value of the pound eased slightly in terms of the dollar over the year, whereas the Canadian dollar fell more than 4 percent in terms of the U.S. dollar. Much of the movement in the Canadian dollar came during the fourth quarter, as the crisis in Asia contributed to a weakening of global commodity prices and thus a likely lessening of Canadian export earnings. The Canadian dollar depreciated further early in 1998, reaching historic lows against the U.S. dollar in January, but it has rebounded with the tightening by the Bank of Canada in late January.

Long-term interest rates have generally declined in the other G-10 countries since the end of 1996. Japanese long-term rates have dropped about 90 basis points, with most of the decrease coming in the second half of last year as evidence of sluggish economic activity became more apparent. German long-term rates have also fallen about 80 basis points as expectations of tightening by the Bundesbank diminished, especially toward the end of the year. The turbulence in Asian asset markets likely contributed to inflows into bond markets in several of the industrial countries, including the United States. Long-term rates in the United Kingdom have declined about 150 basis points. Legislation to increase the independence of the Bank of England and repeated tightening of monetary policy during the year reassured markets that some slowing of the very rapid

U.S. and Foreign Interest Rates



Note. Average foreign rates are the global trade-weighted average, for the other G-10 countries, of yields on instruments comparable to U.S. instruments shown.

pace of economic growth was likely and that the Bank would be aggressive in resisting inflation in the future. Three-month market interest rates generally have risen in the other G-10 countries, although there have been exceptions. Rates have moved up the most in Canada (more than 180 basis points) and the United Kingdom (120 basis points), in response to several increases in official lending rates. German rates have risen about 40 basis points. Short-term rates in the countries that are expected to adopt a single currency on January 1 of next year converged toward the relatively low levels of German and French rates, with Italian rates declining more than 100 basis points over the year.

Equity prices in the foreign G-10 countries other than Japan moved up significantly in 1997. Despite some volatility in these markets, particularly in the fourth quarter following severe equity price declines in many Asian markets, increases in equity price indexes over 1997 ranged from 17 percent in the United Kingdom to almost 60 percent in Italy. In contrast, equity prices fell 20 percent in Japan. To date this year, equity prices in the industrial countries generally have risen.

The price of gold declined more than 20 percent in 1997 and fell further in early 1998, reaching lows not seen since the late 1970s. Open discussion and, in some cases, confirmation of central bank sales of gold contributed to the price decline. Downward adjustment of expectations of inflation in the industrial countries in general may have added to the selling pressure on gold. More recently, the price of gold has moved up slightly, on net.