

CONDUCT OF MONETARY POLICY IN 1987

HEARINGS
BEFORE THE
SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY
OF THE
COMMITTEE ON BANKING, FINANCE AND
URBAN AFFAIRS
HOUSE OF REPRESENTATIVES
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CONDUCT OF MONETARY POLICY IN 1987

THURSDAY, MARCH 17, 1988

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON DOMESTIC MONETARY POLICY,
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS,
Washington, DC.

The subcommittee met at 10:08 a.m. in room 2128 of the Rayburn House Office Building, Hon. Stephen L. Neal [chairman of the subcommittee] presiding.

Present: Chairman Neal, Representatives Leach and Roth.

Chairman NEAL. I would like to call the hearing to order at this time.

This morning we begin 2 days of hearings on the Conduct of Monetary Policy. In late February, the Federal Reserve delivered its semiannual Monetary Policy Report to Congress. I have asked our witnesses at these hearings to help us analyze that report and to offer their own recommendations for the future course of monetary policy.

To focus these hearings, I have posed a set of questions for our witnesses to consider. I would summarize the questions as follows:

First of all, how do we judge monetary policy today? What indicators are most useful? Chairman Greenspan emphasized the breakdown of historical relationships between the monetary aggregates and economic activity. His testimony suggests that the rapid acceleration of the growth of monetary aggregates in 1986 did not pose much of an inflationary threat, and the rapid deceleration of 1987 does not threaten recession. Research at the Treasury Department, however, suggests the rapid deceleration of 1987 might well foreshadow a recession.

Who is right? What indicators should guide our assessment of monetary policy under current conditions?

Second, does the collapse in the stock market pose a severe threat of economic weakness or recession which monetary policy should try to counteract, or was it the inevitable correction of an overvalued equities market that will have no great impact on the real economy?

Should monetary policy give great weight to stabilizing the dollar on the foreign exchange markets? Was the Louvre accord a mistake in 1987? Was its reaffirmation for 1988 a mistake? Does the Fed sacrifice the appearance or substance of independence when it participates in international agreements to stabilize the dollar? Does it matter?

I have long argued that the Fed's primary objective should be to control inflation at a low long-term average rate as close to zero as

possible. Though inflation does not now seem to pose much of a problem, it's apparent quiescence could be very deceptive. Though the relationship between monetary aggregates and inflation shifted substantially in the 1980's, we must not assume that from now on the economy will easily absorb any pace of monetary expansion with no serious inflationary consequences. The danger of such complacency is, at present, particularly acute.

The stock market crash surely signals some weakening of the economy, though we can not yet be certain of the magnitude of its impact. In an election year, the normal temptation would be to err on the side of an overly expansive monetary policy. That temptation should be resisted.

I am encouraged by statements made just yesterday by the Chairman of the Federal Reserve in which he indicated that we are now very close to the level of unemployment below which inflationary pressures could become severe. He seemed to be suggesting that the Fed will not consciously err on the side of excessive ease. But it could err unintentionally if it fails to interpret correctly the impact of its policies on the economy. M2 has grown sharply in the first 2 months of this year, but the monetary base, though quite volatile, has been more restrained? Is the surge of M2 a temporary and beneficial correction of the deceleration of 1987, or is it the onset of new inflationary stimulus that many have been expecting for some time?

To help us understand these questions, I have invited a very distinguished panel of economists and forecasters. Our witnesses are Mr. Lyle Gramley, a former governor of the Federal Reserve Board and currently the chief economist for the Mortgage Bankers Association; Professor Larry Kimbell, director of the UCLA Business Forecasting Project; Mr. Milton Hudson, head of economic analysis at Morgan Guarantee and chairman of the Economic Advisory Committee of the American Bankers Association; and Mr. Michael Keran, chief economist of the Prudential Insurance Co.

Gentlemen, I would like to welcome you this morning. Thank you very much for helping us in this area. I would like to tell you that we will put your entire statements in the record and would urge you to summarize as you can, so that we might have a little time for a question and answer period. We would like to hear from you in the order in which I mentioned your name.

Mr. Gramley, we can start with you.

**STATEMENT OF LYLE E. GRAMLEY, CHIEF ECONOMIST,
MORTGAGE BANKERS ASSOCIATION**

Mr. GRAMLEY. Thank you very much, Mr. Chairman. I expect I will take no more than 10 minutes.

Two weeks ago, in his testimony before the House Banking Committee, Federal Reserve Board Chairman Alan Greenspan emphasized the delicate balance of considerations which must be taken into account in the conduct of monetary policy in 1988. From my own perspective the principal concern that the Fed will have to face this year is not warding off a recession, but holding inflation at bay. The economy is now in its sixth year of expansion. Unem-

ployment has declined from 10¾ percent in late 1982 to 5¾ percent currently. Utilization of plant capacity has also risen.

We are obviously much closer now than a year or 2 ago, to the point where additions to output relative to our economic potential threaten high inflation. There is little evidence to date that stronger pressures on consumer prices or on producer prices of finished goods are in the immediate offing.

Wage rate increases, the largest element of business costs, still remain quite moderate. However, year after year increases in the average hourly earnings index have been moving up erratically since the middle of 1987 and will bear close watching as a potential threat to greater inflation later this year.

My own judgment is that it would be risky to try to achieve a rate of economic growth this year significantly above the economy's long-term growth potential, which is about 2¾ percent. Certainly another year of 4 percent growth, such as occurred in 1987, would not be an appropriate objective of economic policy.

Thus, signs of a slowdown in economic growth from the strong pace of last year should be welcome. Only if the prospective slowdown threatened to reduce growth well below the economy's long-term growth potential would there be strong reasons for economic policies to counteract it.

Opinions differ as to the economic damage created by the stock market crash and more generally as to the implications of the sharp rise in inventory investment in the fourth quarter of last year.

I would like to make just a couple of points in that regard. First, business cycles traditionally have been concentrated in the durable goods industries where advance warning of an impending change is typically signaled by changes in new and unfilled orders. As the two charts attached to my testimony indicate, new and unfilled orders for durable goods began to rise last spring, and as yet there is no sign that the rise has abated.

Second, the underlying resiliency of the U.S. economy is evidenced by continuing very strong increases in employment through the month of February. I have attached a table to show those numbers. Indeed, the average monthly rise of total nonfarm payroll employment in January and February exceeded that of the latter half of 1987 when GNP was rising at more than a 4 percent annual rate.

Recently, increases in manufacturing employment have diminished considerably, indicating that economic growth is slowing somewhat early this year. But the magnitude of the rise in overall unemployment suggests that the economy will weather the adjustment to lower rates of inventory accumulation without experiencing subpar growth for an extended period.

Given my rather optimistic assessment of the prospects for growth this year and my concerns about the risks of an upturn in inflation, I was quite happy to see that the Federal Open Market Committee had lowered the midpoint of its 1988 target range for M2 to 6 percent. *This is a move in the right direction.*

My own outlook for the economy this year would not suggest the need for M2 growth outside the 4 to 8 percent target range estab-

lished by the FOMC. But, should such a need develop, the FOMC could adjust the range at midyear.

Let me turn now to the question about the variability of money growth during the past several years that the committee is interested in. The growth of M2 in 1985 and 1986 was close to the 8 and 9 percent range that characterized the years since 1978. Then it decelerated to half that amount in 1987.

Growth of M1 in 1985 and 1986 was in the double digit range and well above the pace typical of most years in the previous decade, but then it decelerated to about 6 percent in 1987. The question at issue is: Was this degree of volatility appropriate?

I would urge you not to start from the premise that a steady growth rate of some measure of money represents the best course of monetary policy. Rather, I would suggest that you ask yourselves whether the economic performance that resulted from these growth rates was reasonably satisfactory.

The high growth rate of M1 in 1985 and 1986, for example, did not lead to the acceleration of inflation that some monetarists predicted. The decline in monetary growth that occurred during 1987 was, I believe, appropriate and indeed necessary in light of strengthening economic growth, increased danger of worsening inflation, and severe downward pressures on the dollar's exchange rate during much of last year.

I think there is little reason to be concerned that last year's slowdown in money growth will become this year's recession. Some of the deceleration in monetary growth last year, in fact, probably reflected the impact of tax reform on individuals' willingness to borrow, and increased use of explicit fees, rather than compensating balances by banks to cover their costs of servicing business accounts.

More generally, the volatility of money growth and the corresponding swings in money velocity that have occurred in recent years reflect a much greater sensitivity of money demand to market interest rates than what prevailed earlier in the postwar period. This increased sensitivity means that even small changes in the course of monetary policy, in terms of their impact on financial markets and the economy, tend to induce rather large short-run swings in the growth of money balances.

This complicates the decisionmaking process at the Fed and it complicates your life as Members of a congressional committee with oversight responsibilities for monetary policy. But it is a fact of life that has to be accepted.

Difficulties in interpreting Federal Reserve policy have led to suggestions that the Fed should perhaps begin to use other measures as targets for monetary policy. It is hard to be opposed to the intellectual exercise of examining such alternatives, but I wouldn't encourage you to think that practical alternatives are readily available.

The literature on monetary theory and policy over the past 20 to 30 years has discussed extensively the choice of targets for monetary policy. At the risk of oversimplification, it is perhaps fair to say that the ultimate objectives of monetary policy—that is, inflation, output, and employment—are relatively poor policy targets

because the response of these variables to monetary policy is simply too far in the future and too uncertain.

Targeting on interest rates is also regarded with skepticism, but for different reasons. Short-term interest rates respond quickly to monetary policy, but market rates generally are also influenced heavily by demands for credit as well as supply. A monetary policy targeting on interest rates and ignoring the monetary aggregates can inadvertently become much too expansive or too restrictive if demand and supply influences can't be separately identified.

More recently, attention has begun to focus on other variables such as the prices of a basket of commodities as possible monetary targets. Ideas such as these have yet to be thoroughly explored and may appear more attractive now than they will ultimately, simply because so little is presently known about them.

A serious problem with this approach stems from the fact that commodity prices are vehicles for speculation. If inflationary expectations worsen, long-term interest rates will rise and commodity prices will be driven up. Monetary policy will then tighten and push up long-term interest rates further.

Such a change in monetary policy would be appropriate if, in fact, the worsening inflationary expectations were based on a well-grounded view of probable economic developments. If markets are efficient, price developments reflect all the available information about the future.

But if market expectations are determined to an important degree by mass psychology, as a recent study of the stock market crash last year by Professor Robert Shiller suggests is possible, then using commodity prices as a target for monetary policy could be destabilizing.

For this reason, I would argue that it would be unwise to adopt a targeting procedure in which the Fed responded automatically to market signals, whether those signals came from commodity prices or exchange rates or long-term interest rates.

I recognize, however, that changes in such variables convey information that should not be ignored in the conduct of monetary policy because that information may help the Fed to evaluate what the current stance of monetary policy may imply for the future of economic activity and prices.

Let me turn, finally, to a few very brief comments on the role of exchange rates in the recent conduct of monetary policy. Last year, tightening actions by the Fed during the spring appeared to reflect concerns that the dollar was falling too rapidly. Those actions were not, as I interpret them, efforts to peg the nominal exchange rate at any specific level or range with respect to foreign currencies. Rather, they were actions to help ward off a crisis of confidence in the dollar, an outflow of foreign capital, and a collapse of the dollar's international value.

There were further tightening actions in August and September that appeared to reflect a mixture of domestic and international concerns, including concerns that economic overheating would develop unless economic growth slowed. My reading of the economy at that time led me to the view that the degree of tightening undertaken by the Fed was wholly justified by developments in the domestic economy.

The rise in interest rates that stemmed from that late summer and early fall tightening of monetary policy clearly did play a role in the stock market's crash in October. But a far larger consideration was the fact that stock prices had simply gotten out of touch with reality and were ripe for a fall.

There may be some who would argue that the Fed should ignore the Fed's dollar exchange value and focus attention exclusively on the domestic economy. To me, such an argument makes no sense. The Federal Reserve needs to be concerned about the exchange rate precisely because movements in that rate have vitally important and potentially very damaging effects on the domestic economy: on inflation, on interest rates, and on economic growth.

I don't have any reason to believe that international efforts to coordinate economic policy have undermined or compromised the independence of monetary policy in any substantive sense. To my knowledge, agreements such as the Louvre accord did not entail any understanding, explicit or otherwise, as to the course of Federal Reserve policy.

Such international agreements might sacrifice the appearance of independence if market participants misinterpreted them. I am not aware of any such problems. To be sure, downward pressure on the dollar during the spring and summer of 1987 led market participants to expect that the Fed might react by tightening monetary policy. The principal reason for that expectation, however, was that market participants assumed, quite rightly, I think, that the Federal Reserve could not sit idly by and watch the dollar collapse without risking serious adverse consequences for the economy.

That completes my statement, Mr. Chairman. Thank you very much.

[The prepared statement of Lyle E. Gramley can be found in the appendix.]

Chairman NEAL. Thank you, sir, very much. Professor Kimbell, we would like to hear from you, please.

**STATEMENT OF PROFESSOR LARRY J. KIMBELL, DIRECTOR,
UCLA BUSINESS FORECASTING PROJECT**

Professor KIMBELL. Thank you very much, Mr. Neal.

The UCLA forecast calls for a recession in 1988, a mild three-quarter recession, with only one quarter showing an annual rate of decline in excess of 1 percent of the real GNP. Higher savings by consumers and an inventory correction account for most of the projected weakness.

Monetary policy can afford to be moderately accommodative in view of the reduced threat of inflation and rising indications of slack that a recession might bring. The UCLA forecast calls for an all-urban consumer price index increase of 3.5 percent in 1988, held down by an average refiners' acquisition cost of imported crude oil of about \$16 a barrel, \$2 less than in 1978.

Interest rates on 90-day treasury bills could average less than 5 percent of the second half of 1988, or about 1 percent lower than currently. The consensus view remains more optimistic about 1988 than we are. I would say that the evidence continues to be mixed.

The evidence against a recession includes at least three items that are commonly cited:

Real exports grew very rapidly in the last three quarters of 1987 and they continue to look promising in the early part of 1988.

Job gains continue to be very strong in January and February. Consumer confidence has been restored to levels higher than before the crash, and the stock market itself has risen to nearly 2100 on the Dow-Jones.

I would cite, though, contrary to this, several effects of the stock market crash that must give one some pause. Probably the most cited effect is the wealth effect. This effect alone, I think, would probably mean a slowdown but no recession.

Another effect is an uncertainty effect on consumers. The first reactions and surveys of consumer sentiment showed a very sharp drop in confidence levels. Those indicators have returned to normal, but individual investors remain very wary of the stock market and have not returned to participate in the stock market.

Other effects are not optimistic about the impacts on the economy. Nobel Laureate James Tobin of Yale University postulates that high market values of corporate assets relative to their replacement costs tends to increase investment and, on the contrary, low values tend to encourage acquisitions of existing firms and plants instead of building new ones.

The stock market was associated with a sharp increase in interest risk premia associated with less than the best-rated borrowers. Although interest rates were significantly lower for the Federal Government, that is completely irrelevant to private investment.

What is of more concern would be the increase in the differential between Government long-term yields and, say, junk bond yields. Greater uncertainty means that higher risk premiums are likely to persist and will tend to depress investment by less than the best-rated borrowers.

Equity risk premia may also be increased significantly. Studies by James Poterba and Lawrence Summers indicate that high volatility in common stock prices does not have a major impact on stock market prices unless it is expected to persist, but if the volatility does persist, the price of equity capital could rise very substantially and would reinforce the higher risk premiums in depressing business investment.

Let me remind you that the stock reached a near meltdown condition in January of 1987 when the Dow-Jones dropped 110 points in little more than 1 hour. It also reached a near meltdown condition in January 1988, this year, when the Dow-Jones dropped 140 points with more than 60 points decline in the last 30 minutes.

These are episodes of very high volatility that came before and after the Great Crash of October, and we have no assurance that we will not have another episode of very intense volatility in 1988.

Alicia Munnell of the Boston Fed estimates another perverse effect is that the new ERISA laws change the pension contributions in such a way that defined benefit plans, once they reach a target level, make no further contribution. A booming stock market then tends to reduce corporate contributions to pensions and raise profits. A slumping stock market would have a reverse tendency. It

would tend to raise corporate contributions to pensions and lower corporate profits.

In addition to the very high leverage, then, corporate profits are vulnerable for another reason.

Some signs of recession were already quite apparent in the GNP Components in the fourth quarter of 1987. The fourth quarter of real GNP grew at a rate of 4.5 percent, but if you took out the inventory gains, only a growth of 1 percent. The deceleration in the growth of real final sales from 6 percent in the third quarter to 1 percent in the fourth quarter is one of the sharpest decelerations in history.

Real consumption fell to a recessionary rate of 3.5 percent in the fourth quarter, only the second negative quarter since the last recession, and the fall was not entirely concentrated in automobiles. Real business fixed investment turned abruptly negative after a very strong third quarter.

Real Federal purchases grew at an annual rate of 24.4 percent due to purchases by the Commodity Credit Corp., which simply means that inventory accumulation would have been even higher without that transfer.

Other evidence points to recession, such as real retail sales, excluding automobile group, dropped at an estimated 2.9 percent from the first quarter of 1987 to the first quarter of 1988.

As the chart that I have appended to my testimony shows, declines of this magnitude have never occurred except during recessions.

Michael Darby, Assistant Secretary of the Treasury for Economic Policy and a professor on leave from the Anderson Graduate School of Management, sent a letter with accompanying charts of real money supply movements and business cycle developments to members of the Federal Reserve Board and Presidents of the regional Federal Reserve Banks, which I have attached to make this self-contained.

Darby's chart shows clearly that declines in real M2 have had a tendency to lead to downturns in the general economy so reliably that one could use this indicator alone with some considerable confidence. The declines in the latter part of 1987 suggest that we could have a recession in 1988.

[The letter and charts can be found in the appendix.]

Professor KIMBELL. Is a mild consumer-led recession undesirable? This is a question I ask not facetiously. Suppose the future of the U.S. economy were known and it would unfold exactly as we predicted. Should monetary policy or fiscal policy be used to alter the results?

One could easily answer that much of the recessionary story depicts a necessary restructuring of the economy away from excessive dependence on consumer spending and toward more competitive international performance. Consider the following features.

We project real consumer spending increases as 1.1 percent in 1988, which is a gain, but less than the increase in real disposable income, only the second time since 1982 that that has happened on an annual basis. The savings rate rises to 4.6 percent, but is still one-third below its levels of the early years of this decade. All ex-

ports grow very fast and performance internationally is a major improvement.

A recession would mean that the unemployment rate could average 6.2 percent, which is identical to the average rate of 1987, although disappointing by comparison with recent monthly levels. Lower capacity utilization in manufacturing would help make room for the export boom without serious threats of reinflation for the next 2 years.

There are some things to worry about. High leverage by corporations makes profits vulnerable to a downturn and the forecast reflects this danger with a drop of 19.2 percent in 1988. Under this environment, the key problem for the Federal Reserve would be keeping a slowdown or a mild recession from snowballing into a serious recession.

I draw the following implications for monetary policy in 1988. I think that money supply will need to grow faster than the midpoint of the target ranges, for example 6 percent for M2 if recession is to be avoided. But the extreme volatility of the growth of *monetary aggregates in recent years* should also be avoided, and that limits the usefulness of an extremely drastic change in policy at this point in time.

A serious recession, obviously, would force a major turnaround in monetary policy

I conclude that stabilization of exchange rates by any means other than control over domestic inflation is extremely difficult in the light of large volume of foreign exchange activity and should not be important objective of monetary policy.

In conclusion, it may be surprising that my policy recommendations are not nearly as far apart from those presented by Chairman Greenspan as my forecasts for the economy seem to imply. U.S. consumers simply cannot forever be the buyer of last resort for the entire world. It is time to shift resources away from the production of consumer goods and service and to encourage exports and investment. A mild, consumer-led recession is therefore not altogether undesirable.

The stock market of 1987 must make monetary policy nevertheless receptive to major changes in direction should a recession, if it develops, begin to snowball out of control. I interpret Chairman Greenspan's remarks as consistent with this suggestion.

This is not an enviable time to be Chairman of the Federal Reserve Board.

[The prepared statement of Larry J. Kimbell can be found in the appendix.]

**STATEMENT OF MILTON W. HUDSON, SENIOR VICE PRESIDENT,
MORGAN GUARANTY TRUST CO., AND CHAIRMAN, ABA ECO-
NOMIC ADVISORY COMMITTEE**

Mr. HUDSON. Thank you, Mr. Chairman.

I come here today wearing two hats, one as chairman of the Economic Advisory Committee of the American Bankers Association, and the other as an economist of Morgan Guaranty Trust Co.

My statement is primarily personal, but it is broadly in agreement with the views of the predominant majority of the members

of the ABA panel which last met in early February, just at about the same time that the FOMC met to deliberate on its annual target ranges.

By and large, neither I nor members of the ABA's committee have any significant differences with the Humphrey-Hawkins Report of the Federal Reserve Board that was submitted to Congress on February 23, either with respect to the judgments that were contained therein with regard to the economic outlook or as to how monetary policy formulation should be approached.

Both I and the ABA group expect economic growth to be relatively subdued early in 1988 as the large buildup of inventories that took place late in 1987 is digested. But we think that inventory adjustment will have largely run its course by spring or by early summer and that by that time a reacceleration of growth will be evident in the economy.

We expect reasonably decent growth for the full year on a fourth quarter to fourth quarter basis, at a pace not particularly different from the FOMC's central tendency values.

We anticipate that such growth will be accompanied by continuing sizable employment gains, but also, unfortunately, by some tendency for inflation to accelerate as the year progresses, reflective of the relatively full employment that now characterizes both labor and product markets.

The numerical projections for the full year 1988 of the various members of the ABA panel with respect to growth do span a fairly wide range, as is true of the projections of FOMC members. But I would not put any great emphasis on those differences, but would stress instead the broad commonality of view that the economy has weathered the shock of last October's stock market crash very well, that it will not slip into recession this year, and that renewed strength will be visible reasonably soon, fueled by two influences in particular: the significant improvement in volume terms in this country's trade performance, and by the increasingly robust capital investment that is going on.

The ABA group would have no quarrel with the 1988 growth ranges for monetary aggregates set by the FOMC. Indeed, the widening of the bands for targeted growth from 3 percentage points in 1987 to 4 percentage points in 1988 is entirely consistent with the view of the ABA panel that the aggregates have less guidance utility than formerly because of the loosened linkage that has developed between money and the economy.

Economists in general throughout our Nation do not fully understand all of the causes of the deterioration and linkage that has occurred between money and the economy, but discussion among members of the Economic Advisory Committee of the ABA made clear that they substantially accept the common explanation that runs in terms of financial marketplace deregulation and innovation.

That explanation stresses, as you know, the changed composition of the aggregates and emphasizes that movement in them is often more indicative of people's portfolio transactions than of their ordinary economic transactions.

Because of such considerations, most members of the ABA panel favor an eclectic approach to monetary policy formulation, one in

which officials focus broadly on a range of guidance indicators in fashioning policy, rather than narrowly on money and credit indicators.

Strikingly, the rationale for eclecticism was developed in a very similar vein in both Alan Greenspan's Humphrey-Hawkins testimony this year and in the Council of Economic Adviser's 1988 annual report. I would, just as an aside here, emphasize that I think that that—the CEA annual report discussions is particularly interesting. It is balanced and it is temperate; and it is decidedly not “Fed bashing” even though it has been so described in some journalistic commentary.

In my prepared text, I discuss Vice Chairman Johnson's recent recommendation for paying closer attention to information yielded by financial auction markets. I think his ideas have considerable merit—with the critical proviso that those indicators are used as information supplements to confirm what other indicators are suggesting.

In my judgment, it is movement in unison of a variety of indicators that provides the only comfortable foundation for monetary policy formulation.

The only notable contrast between the views of the members of the FOMC and members of the ABA's Economic Advisory Committee relates to the issue of cooperative efforts among leading industrial nations to stabilize exchange rates. The ABA panel characterized last year's Louvre accord as an “unfortunate mistake”. I certainly concur and indeed am inclined to use stronger language of disapproval.

In my view, the effort to sustain the dollar at the levels that prevailed early in 1987 against major currencies was seriously inimical to this country's national self-interest. I have cited in my testimony an article by Marty Feldstein that appeared on March 3 in the Wall Street Journal on its editorial page. It very effectively details the fact that the actions taken in conformance with the Louvre accord were not in this country's national self-interest.

The Louvre accord and the commitment to sustain cross rates among major currencies slowed the progress, in my judgment, of U.S. industry in regaining international competitiveness, and it introduced a disruptive additional element of uncertainty to financial markets. That was because financial market participants clearly did not share the official view that the dollar's decline prior to February 1987 was essentially all that was needed.

Because market participants were skeptical and believed that, sooner or later, the propping effort would fail, private capital inflows to the United States slowed, since there was a reluctance to acquire dollar-denominated assets that in foreign currency prices were regarded as artificially high on a temporary basis.

That contributed, I believe, to the very steep run-up that occurred in long-term interest rates last year and made some contribution, I think, to the severity of the stock market's October crash.

In line with the things that Lyle said, I would not want to overstate the Louvre accord as a reason for the stock market crash because there certainly were other contributory factors, including the remarkable self-levitation act of the market itself in rising to values that were progressively less related to prospective profits.

Anyone who studies FOMC policy records, is always reduced to trying to divine what is meant, rather than inferring from plain language. It is not easy, therefore, to say with precision just how much weight the Fed gave to sustaining the value of the dollar in 1987. But for reasons I discuss in my text, I think it is clear that Fed officials were conditioned in their actions, in some significant degree, by the Louvre accord and that, throughout the spring and summer of last year, policy was tighter than domestic considerations alone would have warranted.

The Federal Reserve has reason, I believe, to be disenchanted with last year's results, and my own reading is that Louvre-like thinking at the central bank, at least as far as intervention *per se* goes, is diminishing.

Significantly, Alan Greenspan's statements recently have tended to emphasize that exchange rate stabilization should be achieved by broad economic policy coordination rather than by intervention itself. And that is a distinction, I think, that is critical.

The chairman's statements are encouraging but some uncertainty still persists about the extent, the scope, and character of international cooperative efforts, especially against the background of recent comments by Secretary Baker which indicate that, in his judgment, further declines in the value of the dollar would be counterproductive. The uncertainty that lingers is worrisome, partly because it is far from clear that the dollar, even now, has declined all that it needs to.

The Louvre accord also is troublesome because it has the potential, I think, for compromising the Federal Reserve's independence from the Executive Branch. What happened under Louvre is that the Secretary of the Treasury, indeed the finance ministers of the G-7 countries, moved actively into the business of deliberating what our monetary policy ought to be. That is because deliberations on exchange rates are implicitly deliberations on monetary policy, since currency targets are achievable only if domestic policy weaponry is devoted to defending them.

In concept, there is no reason why the process of deliberation involving both finance ministers and central banks cannot go forward in a manner that leaves central bank participants entirely free at the end of the process to act according to their own best judgment. But within the American framework of central bank independence, there is an element of both untidiness and potential trouble in such exercises.

There is the further question of what those efforts at exchange rate stabilization imply by way of full independence of decision for those FOMC members that are not party to G-7 deliberations.

Is their policymaking role diminished? Not necessarily, but there is certainly some risk that that could occur. These and other questions that bear on the independence of the Federal Reserve or, at a minimum, on the appearance of independence, deserve more discussion and attention than they have had so far. That would be less so perhaps if there were cogent reasons for thinking that exchange rate stabilization were of tremendous utility. That, however, is not the case.

Thank you, Mr. Chairman.

[The prepared statement of Milton W. Hudson can be found in the appendix.]

**STATEMENT OF MICHAEL W. KERAN, VICE PRESIDENT AND
CHIEF ECONOMIST, PRUDENTIAL INSURANCE CO.**

Mr. KERAN. Thank you, Mr. Chairman, for inviting me to appear here.

As a way of background, perhaps I should tell you that I have been involved in monetary policy within the Federal Reserve at the staff level for 19 years, including 10 years as a "back-bencher" at FOMC meetings.

For the last 3½ years, I have been watching monetary policy from the outside. I will share some of that 22 years experience with you. My written comments go into it in more detail than I can do in this short presentation.

I want to answer the questions you raised within the context of the way I organize my thinking about the issue. I find it useful to distinguish two aspects of monetary policy.

First, there is monetary strategy, by which I mean how you determine what the Fed's goals are. The second is monetary engineering, which is how effective is the Fed in achieving those goals.

Economists typically don't spend much time thinking about monetary strategy. The tools of the economist trade don't provide many insights to this basically subjective issue. Besides, the goals of policy are embedded in law: the Employment Act of 1946; the Humphrey-Hawkins Act of 1978. This hearing is an outgrowth of the Humphrey-Hawkins Act.

However, if you look at the goals set by Congress, they are basically a wish list. Stimulate economic growth, stabilize the price level, promote balance in international trade and, most recently, a stable exchange rate.

Because Congress has not legislated priorities, it in effect has given the Federal Reserve considerable discretion in choosing among these desirable goals when there is a conflict between them. What are the goals that are most important to the Fed? To the best of my knowledge, there is no document that defines the Fed's priorities.

However, I think the Fed has revealed its priorities by its actions. I would like to enumerate what I think those revealed preferences of the Fed are.

First, domestic goals always dominate international goals, for reasons I describe in my written testimony. With respect to domestic goals, the Fed has changed goals in recent years. Before Volcker was Chairman of the Federal Reserve, I believe the Fed behaved as if its dominant domestic goal was to maximize the growth in real GNP, subject to preventing the inflation rate from exceeding some politically unacceptable level.

In the Volcker era and in the succeeding Greenspan era, I believe, the Fed is behaving as if its goal is to minimize the inflation rate subject to avoiding a recession. In that sense I think it agrees with your opening statement, Mr. Chairman.

You could list the priorities of the Fed as, first and foremost, minimizing inflation; second, avoiding a recession; and last, attempting to stabilize exchange rates.

With that background, let me try and answer two of the questions you posed: Was stabilizing the dollar a major goal in 1987? Is international coordination of monetary policy desirable?

My reading of Fed behavior in 1987 as well as a much longer period, suggests that the international goal of stabilizing the dollar was not a significant factor in the Fed behavior in 1987. Let me give a couple of examples.

In April 1987, we had what many people characterize as a dollar crisis. For example, the dollar fell 10 percent against the yen. Monetary policy did respond with a tightening, as I show in my chart No. 1 and 2. While the Federal funds rate did go up, the financial markets didn't really take it very credibly. If you look at the Treasury bill rate, which I interpret as a primary vehicle by which the Fed affects the financial market and the rest of the economy, there was no rise.

Why was the Treasury bill rate stable? Why did the financial markets not take the rise in the funds rate as a serious and permanent change in monetary policy? I believe that the apparent lack of financial market credibility to tightening policy was because the economic data we were looking at that time suggested that the economy was relatively weak. The markets did not believe the Fed was going to tighten policy substantially because it did not believe that the Fed was prepared to risk a recession.

In this case, a domestic goal of avoiding a recession superseded the international goal of stabilizing the dollar.

Take another example: August and September 1987. In that case, the international problems were much less. The dollar fell only 5 percent against the yen. Yet monetary policy tightened far more substantially than it did in April. Furthermore, the Fed raised the discount rate by $\frac{1}{2}$ percentage point, which is a very public way of tightening monetary policy. Treasury bills rose in line with the funds rate.

In that case, the financial markets took the tight monetary policy of the Fed seriously—a statement of serious intent to tighten monetary policy.

Why was the Fed more credible in this episode? I believe reason is that the incoming economic data which the Fed was looking at suggested that the economy was much stronger in August and September. Real GNP in the first half of the year had grown at $3\frac{1}{2}$ percent. The incoming data on production and employment suggested the second half would be even stronger and, subsequently, we find real GNP grew at $4\frac{1}{2}$ percent in the second half of the year.

The markets believed the Fed was seriously prepared to tighten policy to prevent future inflation as long as they were reasonably confident they would not risk a recession.

A third episode: October–November 1987. The stock market crash was matched by a 15 percent decline in the value of the dollar relative to the yen. There was an international problem to be dealt with. Yet the Fed perceived that the risks of a recession had increased as a result of that stock market crash. It eased monetary

policy dramatically in that period, following a classic lender of last resort announcement.

What do these episodes tell us—two things.

First, the Fed will work to achieve international goals only when they are consistent with domestic goals. It will abandon international goals when they appear to be inconsistent with domestic goals.

Second, the Fed will follow an anti-inflation policy, even if the current inflation is not picking up, as long as it doesn't perceive it is risking a recession.

I think that those are appropriate goals and are consistent with the views you expressed at the beginning of these hearings.

Let me now switch to the other major issue; that is, monetary engineering—or how the Fed implements its goals. On that issue, I think the internal engineering of the Fed has been very good. That is, when the FOMC states a policy directive, the New York trading desk is extraordinarily good at achieving that directive.

What Annie Oakley was to target shooting on a rifle range, the Federal Reserve staff is at hitting a Federal Reserve target. It can hit that target with one hand tied behind its back and looking into a mirror.

The problems with the monetary engineering have to do with what I call external engineering. That is, once the Fed has established an interest rate target for the funds rate or the Treasury bill rate or, in another policy regime, the money supply, what effect is that going to have on GNP and inflation?

Answering this external engineering question requires a macroeconomic theory which describes the behavior of the public. The Fed has no monopoly on insights into this external engineering issue. The Fed has to rely on academic economists, including academic-type economists within the Federal Reserve staff, within the U.S. Government, including the U.S. Treasury, as well as those in universities.

Unfortunately at the moment, there is a major disarray in macroeconomics. Keynesian theory largely lost its credibility in the 1970's. Monetarist theory largely lost its credibility in the 1980's. We have no other empirically supported theory which has come to prominence in the economic profession to fill this void. Many researchers are working on it, including, I might add, Michael Darby, the Assistant Secretary of the Treasury for Economic Policy, who is a well known and respected economist.

I believe his letter to the various presidents and governors of the Fed in January reflected his attempt to provide information on what I call this external engineering issue, I would like to submit his letter as part of my written testimony, to reflect the fact that it did fit into that external engineering framework and was not politically motivated, to the best I could tell.

I have also made an effort to solve the external engineering problem. A brief summary of my appraisal is included in the written testimony.

[The letter and analysis of Michael Darby can be found in the appendix.]

Within this environment where we are so uncertain of the appropriate theory, the Fed has to look at indicators of policy independ-

ently, whether they are related to economic theory or not. I believe the Fed behaves as if its most important indicator is what happens to nominal GNP.

If you look at Chairman Greenspan's testimony at the Humphrey-Hawkins testimony on February 23, it seems to want a nominal GNP target of approximately 6 percent growth. Where does that number come from? First: it assumes that if potential GNP grows at 2½ to 3 percent, then real GNP can't grow any faster than that, especially if we are close to the natural rate of unemployment.

Second: inflation in GNP deflator terms is currently running at 3 to 3½ percent. The sum of those two numbers gives you 6 percent growth in nominal GNP. This also happens to be consistent with what the administration's targets for 1988. If the Fed is targeting nominal GNP, what kind of a rule would it follow?

If nominal GNP is growing in excess of 7 percent, tight monetary policy would be appropriate to prevent inflation from rising significantly above the 3 to 3½ percent we have had recently. If nominal GNP grows at less than 5 percent, then we need easier monetary policy to prevent a recession.

The problem, of course, with targeting nominal GNP is that there is a long lag between the changes in nominal GNP and changes in monetary policy. Furthermore, without a good economic theory, we don't know what kind of changes in monetary policy, be they interest rates or the money supply, will affect GNP.

So the Fed, in the spirit of finding leading indicators of the direction of the economy, has been looking at the yield curve, commodity prices, and the exchange rate along the lines discussed by vice chairman Johnson on February 25.

As illustrated in the charts that accompany my testimony the yield curve tracks real GNP reasonably well. With that background, let me now answer the rest of the questions.

Question: Are monetary aggregate targets that have been established for 1988 appropriate? My answer is that they are appropriate, but probably irrelevant.

Question: Will rapid money growth in 1985 and 1986 suggest future inflation, and will slow money growth in 1987 suggest a recession in 1988? Answer: I do not expect either dramatic inflation or recession. I think neither one of those will happen.

Question: Are there other indicators of monetary policy—interest rates, commodity prices, GNP—that are appropriate? Answer: yes.

Let me elaborate on those points. With respect to monetary aggregates, be they M1, M2, or M3, they are not at the moment useful guides to monetary policy. I don't say that easily because I consider myself a charter member of the monetarist club, going back about 25 years.

I think the Fed at the moment has correctly abandoned targeting M1. The announced target ranges for M2 and M3 are not particularly relevant because I don't believe the Fed will feel bound to take any particular action if M2 and M3 is outside those ranges.

Given the disarray in macroeconomics, it is simply not possible to make judgments about what a particular change in the money supply or, for that matter, the funds rate imply for the economy. In this environment, it is quite appropriate for the Fed to focus on

nominal GNP as a guide to policy and to use commodity prices, the exchange rate, and the yield curve as leading indicators of what may happen to real GNP and inflation.

In conclusion I think, given the handicaps that the Fed faces, monetary policy was run with considerable skill in 1987. With the benefit of hindsight, we might say that the Fed was unduly tight in August and September, given what happened to the stock market in October.

However, if real GNP grows at the 3 percent rate in the first half of 1988 that I am forecasting, then 6 months from now, with the benefit of even more hindsight, we might say that the Federal Reserve's actions in 1987 were exactly appropriate.

Monetary policy is clearly an art. Attempts to make it a science have taken a step backward because of the disarray in macroeconomic theory. Until there is a reasonably robust macroeconomic theory that can be supported by the data, it will be difficult for monetary policy to do anything other than it has been doing of late.

Thank you.

[The prepared statement of Michael W. Keran can be found in the appendix.]

Chairman NEAL. Let me, first of all, thank all of you. I am sorry more Members are not here to hear your excellent testimony. There is so much going on around here these days, so I would say a word in defense of my colleagues for not being here. There is just too much going on.

Mr. Gramley, I was struck by your comments concerning the desirability of looking at results of monetary policy as opposed to the aggregates. I am not sure I understand exactly what you are saying. It is my understanding that almost all monetary economists agree that monetary policy acts with different lag times for different indicators, but it is commonly believed that we have some maximum impact on inflation after a couple of years. If you do not want to look at aggregates, what is an appropriate measure of results for the short term?

Mr. GRAMLEY. My point, Mr. Chairman, is that I don't want you to start from the premise that volatility of money growth is necessarily bad. I think you have to recognize that we live in a different world now than we did through most of the postwar period and in the prewar period as well. We live in a world in which rather small changes in the thrust of monetary policy tend to make for rather large changes in the growth rate of the monetary aggregates because demand for money has become highly sensitive to changes in interest rates.

So when I look back at 1985 and 1986 and I see tremendously high rates of growth of M1 relative to the past, and I don't see any evidence of inflation having accelerated since then, I have to conclude that those growth rates were appropriate.

Now, I would grant you, certainly, that we can't be certain yet that 1988 will not have a recession. Opinions do differ. I don't see one developing. I see the economy as being fundamentally strong. So I look at the slowdown in growth of the monetary aggregates during 1987 as an appropriate course of monetary policy in light of the fact that economic growth was strengthening last year, and we

are getting closer to the point where continuing declines in unemployment could lead to an upturn in wage rate increases and inflation later on.

I am one who has been converted perhaps the other way than Mike Keran has. Mike used to be a monetarist and now he has given up hope on the monetary aggregates altogether. I have been a lifelong advocate of a nonmonetarist approach, but I firmly believe that the Fed should stick to targeting on the aggregates for now because that is the best they can do for the moment.

I don't think those targets have to be adhered to rigidly. I do think the Fed is wise in watching very carefully the growth of the monetary aggregates and evaluating that growth in terms of what they see developing with regard to the current pace of economic expansion, indicators of future inflation—things like commodity prices, exchange rate movements and that sort of thing.

But I think to deviate at this juncture, to throw out the monetary aggregates altogether, would be a major mistake.

Chairman NEAL. I couldn't agree with you more, and I would also agree with you that we should not be so rigid in following this course of action. But, I am still not quite hearing what do you think, as a practical matter, works as a current indicator of future impact on monetary policy? It seems to me you have said two things.

Mr. GRAMLEY. You should look at the aggregates, but you should remember, I think, that different growth rates of the aggregates are going to be needed, depending on the economic circumstances that develop.

If you have a situation in which the economy needs stimulus, so you need to adopt a more expansive monetary policy, you are going to push down interest rates temporarily. Given the sensitivity of money demand to interest rates, you are going to see some rather sharp increases in the rate of money growth.

Then when you need to tighten up monetary policy and you have to raise interest rates to do that, monetary growth will decelerate very, very rapidly. We live in a world, I think, in which fluctuating growth rates of the monetary aggregates are a normal part of the process, rather minor adaptations of monetary policy to the economic environment.

It makes your job very difficult, but I don't think you can avoid the fact that this is the kind of world we live in now.

Chairman NEAL. I do not disagree. But again, I do not think anyone advocates making policy changes based on day-to-day movements. Don't most monetary economists try to look at what is going on over a period of months?

Mr. KERAN. Mr. Chairman, could I perhaps respond?

As an outsider, looking into the Federal Reserve, I try and ask myself what is it the Fed is looking at? To the best of my knowledge, as I mentioned in my remarks, I think the Fed is looking at nominal GNP. If it is accelerating, that means to the Fed that we must have followed an easy monetary policy 6 to 9 months ago. And if nominal GNP is decelerating, that means that the Fed probably was following a tight monetary policy 6 to 9 months ago.

Now, you can say, knowing what you did 6 to 9 months ago is not very useful. You want to know what you are doing today. But given

the disarray in macroeconomics and the lack of a better alternative, it at least means that if policy was too easy for 6 to 9 months, or too tight for 6 to 9 months, the Fed can reverse it rather quickly, and that is in fact the way they have behaved in the last 5 years. They have reversed policies very quickly whenever the economy showed any movements other than what they expected it to be.

Chairman NEAL. Yes, sir.

Mr. HUDSON. Mr. Chairman, if I might just add something, I think in view of what Mike Keran has said about the unavailability of any formal theoretical model that can guide the Fed, you really come down pretty much to recognizing that this is a matter of "feel as you go" and that it has to be eclectic in character. As Mike says, this is an art; it is not a science. A quest for any single indicator that is going to give you real guidance is bound to be in vain.

I would just emphasize, without necessarily embracing all the things that Manuel Johnson has been saying recently, that what Manuel Johnson is after in focusing on the auction markets is indicators that can yield advanced warning. If you can sort through all the volatility that occurs in those markets and refine our understanding of the lead properties of those financial auction market indicators, that may be of some help in moving a little earlier than we otherwise would in doing the correct thing. But it is a matter, really, of feeling your way along, and there is no easy way.

Chairman NEAL. Thank you. My time has expired, and I yield to Mr. Roth.

Mr. ROTH. I thank you, Mr. Chairman. I appreciate your giving me this time to ask a few questions.

The reason I came this morning is that I thought you could help me out with some guidance. We in this banking committee do not directly control what the Federal Reserve does and we can't control much of the economy in other areas. But we do have control over banking legislation and what happens to banking.

My interpretation of history is that when our financial institutions are sound, our economy seems to be sound.

We, in the next few weeks, are going to be hopefully passing the most important banking legislation that we have passed in 50 years, because we are going to take a look at what powers banks should have.

I was wondering if someone on the panel would care to comment on what Congress should be doing. Should we go back and do away with Glass-Steagall that we have had for 50 years? Should we do nothing? What would your recommendations be from your viewpoint, from your vantage point?

Mr. Hudson.

Mr. HUDSON. I think it is pretty clear that the intellectual argument for revising or perhaps completely eliminating Glass-Steagall has certainly been made at this point and that if we were to move in that direction it would undoubtedly bring a good deal of value to consumers of financial services.

In the practical matter of shaping this legislation, it is not at all clear that what will finally emerge will be a particularly attractive vehicle for accomplishing that. Very marked differences exist in

the judgments of Members of the House Banking Committee as to what should be done, and, as the legislation is shaped, we may get a significant number of impediments to effective rationalization—so many impediments that we may have to pause at the end of the day to see whether it makes sense to go forward with legislation that builds in a lot of new restrictive features.

My institution, as you undoubtedly know, has been an advocate of Glass-Steagall revision, and the arguments are very powerful. The practical legislative route is a very tough one and it remains to be seen what kind of a vehicle we are going to have at the end of the day.

Mr. ROTH. I think that your analysis is right, and I hope that we have a good vehicle, and that is why I think it is important for us to address some of these issues. When I talk to Members of the committee, many of them are saying if we had had the law I am looking for on October 19, it would have been disastrous.

Do you believe that?

Mr. HUDSON. No. I don't believe October 19 and 20 have really much bearing on this issue. I think that the essential explanation for what happened on October 19 is in a set of factors that have nothing to do with our particular regulatory structure.

The rapidity with which stock prices declined in those days may well have been related to financial market technology. That is given a good deal of attention, of course, in the Brady Commission report and other things, but those are not issues that relate to the kind of restrictions that are placed on commercial bank activity by the Glass-Steagall Act.

So I am just at a loss to understand why that linkage is made.

Mr. GRAMLEY. If I might add just one comment, without in any way disagreeing with what my friend and colleague Milt Hudson has said, I think it is important to recognize that if we are going in the direction of permitting additional powers to bank holding companies—and I think we should—it is very, very important to make sure we don't endanger the safety and solvency of the banking system in the process.

One of the ways I think that has to be done is to insulate the bank from the activities of the nonbank subsidiaries of a holding company to the maximum degree possible. The walls around that bank must be built very, very high. There must be no understanding on anybody's part that the bank will come to the rescue of a subsidiary that is going down the tube. Indeed, the public must be encouraged to recognize that a nonbank subsidiary of a bank holding company can fail and will fail, and have no effect on the stability and solvency of the bank itself.

That is an important thing for Congress to keep in mind. It is an important thing for the regulators themselves to keep in mind.

Mr. ROTH. I know what you are saying and I agree with you, although it is probably easier said than done, isn't it, when you take a look at Continental Illinois and October 19?

Mr. GRAMLEY. I am sure it is.

Mr. ROTH. You had mentioned before that we are living in a changing world and that is one of the reasons I am interested in this banking legislation, why I asked to be appointed to the banking committee.

You know, at one time in history we had barter, and then we went to money, and then from money to checks and so on. We are in electronic money nowadays.

What kind of world do you see in banking and in money, say, in the next decade? What kind of changes do you perceive?

Mr. GRAMLEY. I really haven't thought with enough specificity about that question to give you a considered answer. I do think the process of innovation, however, is a long way from being complete. Lots more things are going to happen and these problems of interpreting the monetary aggregates and their movement are going to continue.

Mr. ROTH. I have a note here my time is up. I appreciate, gentlemen, your very good testimony.

Thank you.

Chairman NEAL. I certainly agree with what I hear most of you saying concerning the necessity for an eclectic approach toward conducting monetary policy. It does appear to me also that there is a relationship between the aggregates, the growth of our economy, inflation, and employment that remains somehow constant if we can only find it. It seems to me to be a worthwhile endeavor to try to find what that relationship is and understand it better. I have a feeling that some day that will be possible. It also sounds to me like you all agree on many points. There are a couple of points of disagreement, though, among you that I note, that I would like to pursue.

The first is that Mr. Gramley and Mr. Hudson clearly disagree on the desirability of the Louvre accord, and I would like for them to pursue that further if we could. In addition, Professor Kimbell is predicting a recession for this year and it is based on, as I understand from his testimony, the predictive nature of the behavior of M2—of one among your predictors. I believe that the rest of you would probably disagree with that, so it seems to me there is an area that we might also pursue.

Let us start with the question of desirability of the Louvre accord.

Mr. HUDSON. I am not sure that there really is an irreconcilable fundamental difference between Lyle and me. If I heard him correctly, what he is saying is that basically it is appropriate for major industrial countries to endeavor to cooperate and coordinate basic economic policy, and if in fact they did that, we would get a desirable stability in our foreign exchange markets.

I agree with that basically. But I am saying it is a mistake to begin by trying to govern exchange rates directly, if in fact none of the other things relating to basic policy coordination are going forth. And if they are going forth, you probably don't need these interventionist activities, which can be, at times, very disturbing to the financial marketplace.

I don't know, Lyle, whether I am misstating the basis for a more common position between us?

Mr. GRAMLEY. I think we could find common agreement as follows. I think the Louvre accord would have worked if the United States and West Germany had done what, in effect, was necessary to make that accord work; namely, the United States had to take very substantial action to reduce its Federal budget deficit. The

West German economy had to be stimulated to grow faster. Neither country was willing to do so.

That meant that the basis for the Louvre accord was quicksand in effect. It was bound to go down the tubes.

My comments in my testimony were relating more to the issue of whether or not these accords undermined the independence of the monetary policy. I don't think they have. I think they conceivably could do so, depending on how they are structured in the future, but I see no evidence that they have done so as yet.

Mr. HUDSON. I am just very worried to have those finance ministers and Mr. Baker actively involved in deliberating what is appropriate monetary policy for the United States.

Chairman NEAL. I agree with you. I think it is totally inappropriate for the Treasury to try to determine monetary policy. I was pleased to see Chairman Greenspan make it clear that he did not feel bound by the administration's statements. He responded in a timely manner. That convinced me, at least for the time being, that he does not feel bound by their statements, although he also continues to say—as I imagine he must—that he is in fact conducting monetary policy in accord with the Louvre agreements.

Mr. HUDSON. But I think he is always very careful to emphasize that he is attempting to work toward policies that will bring about the result in the foreign exchange markets that everyone would agree would be desirable.

Chairman NEAL. As opposed to intervention and that sort of thing?

Mr. HUDSON. Yes.

A year ago the Federal Reserve shared in the judgment that we had reached an appropriate structure of exchange rates, as evidenced by the policy record of March 31.

I think events have shown that judgment to have been woefully wrong and that there was some cost and consequence of a very serious negative nature to the American economy.

Chairman NEAL. I think that is quite correct. Would you agree with that, Mr. Gramley?

Mr. GRAMLEY. I don't see any reason for belief that the U.S. economy's performance was adversely affected to any major degree, no.

I do think that a misjudgment was made about whether the exchange rates of that time were appropriate, but I think that judgment was in part based on the assumption that there would be some fundamental changes in fiscal policies by our country and West Germany that simply did not materialize.

I would interpret the Fed's actions in the spring of 1987 and the early summer of 1987, not so much as trying to hold the dollar at any specific level or range with respect to foreign currencies, but to keep it from falling out of bed.

It was falling very, very rapidly. There were days when the market was quite disorderly. Under those conditions, a central bank that simply turns its back and says we have no interest in what is going on there is risking a collapse of confidence in the dollar, a massive outflow of capital, and perhaps the combination of higher inflation and lower economic growth at the same time.

So what I think the Fed was doing at that juncture was to try and prevent that sort of thing from happening.

Chairman NEAL. Would it not also be true to say, in support of the Louvre accord, that short-term interest rates—which as I understand is all they can really control over the short term—were much higher than they might otherwise have been; and that, as a result of that our currency relative to other currencies was higher than it normally would have been, and therefore our trade deficit was higher than it normally would have been?

Mr. Hudson indicated that it was his understanding—and it certainly is mine—that the stock market crash of October was largely precipitated by rising interest rates over that same period of time?

Mr. GRAMLEY. I don't think that is Milton Hudson's interpretation of the stock market crash. It certainly isn't mine. My interpretation is that the stock market had simply gotten out of touch with reality.

To be sure, rising interest rates contributed to a reevaluation of stock prices, but that reevaluation would have occurred in any event with the Dow-Jones where it was in the summer of last year.

I don't think a Dow-Jones at 2700 is at all viable, given the prospects for where our economy is going.

Chairman NEAL. Even if there is no other place to put money with the potential of the market for growth or return on investment. I mean, if interest rates are down at—let's say they are 5 percent and the return on investment in equities is $3\frac{1}{4}$ or 4 percent, with a potential for growth in value—what is unrealistic about keeping money in equity?

Mr. GRAMLEY. I think earnings/price ratios had gotten way out of touch with reality in the summer of 1987. I think they were way too high.

Chairman NEAL. They were certainly lower than they were during much of the period of the 1960's and 1970's, as I recall.

Mr. GRAMLEY. One has to recognize that our economy is not problem free and that we do have problems in this economy, and I think financial investors had simply forgotten about the fact that we are not living in a problem-free world. And I think that level of stock prices was not viable.

Chairman NEAL. That would make you a seller of stocks then. But obviously someone thought that it was viable.

Mr. GRAMLEY. Between the morning of October 19 and the evening, investors changed their mind in rather major ways. I am not sure that those judgments which led to the purchase of stocks in huge volumes during the first 7 months of 1987 were based on a thoughtful analysis of where our economy was going or a thoughtful analysis of how high stock prices could go.

It was a lot of mass psychology beginning to develop, and when the market began to turn the other way, people began to realize that they had made a mistake. That I think is the basic reason why the stock market crashed.

Chairman NEAL. During that same period of time, though, interest rates were climbing. It would be a rational decision to switch, say, to no risk Treasury securities and out of equities with some risk. Didn't that snowball a bit?

Mr. GRAMLEY. Mr. Neal, if you look at the performance of the economy last year, one could hardly argue, I think that the Federal Reserve was unjustified in raising interest rates for purely domestic reasons. Interest rates had to be permitted to go up to make sure that the economy didn't begin overheating.

You could not have continued to have money growth on the scale we had in 1985 and 1986 indefinitely. That certainly would have provoked a much worse inflationary problem.

I think what the Fed was doing basically in 1987 was exhibiting the kinds of concerns that you have expressed that we have got to keep our eye focused on inflation prospects for the longer run.

Chairman NEAL. I also agree with that and it ought to be the primary concern. I was certainly troubled during that period of rapid growth and frankly amazed that we did not suffer more adverse consequences from it.

Did you want to comment, Mr. Hudson?

Mr. HUDSON. I am not sure that I haven't agreed with Lyle too readily, because I think some of the things that he implied would result from a rapid decline in the dollar are mistaken.

I do believe that the case of gradualism in exchange rate movements has been grossly overstated time and time again, and in this instance I think that you can make a fairly persuasive argument that if something needs to be done, namely, that we ought to have a further decline of the dollar, that it ought to be done reasonably quickly, and that by delaying the process you complicate the ultimate need for adjustment and make the ultimate adjustment problem larger than it otherwise would be, if for no other reason than we simply run, because we have artificially propped up the dollar, larger trade deficits for a longer while and accumulate more debt.

So this is a very complicated argument, the issue of gradualism versus rapidity. I don't think we can resolve that this morning. But I would just like to lodge here a little note that I think that there is more to be said for a quick adjustment than is sometimes implied.

Just to emphasize the point that you are making about rising interest rates, we did have a climb in long rates. The long bond was trading around 7¼ at the beginning of 1987, and shortly before October 19 it was trading close to 10½ percent.

The analytical question is how much of that rise you can attribute to financial market anxiety over the Louvre accord. It is not anything you will ever resolve in a precise quantitative way, but my own judgment is that some significant part of that rise in interest rates was reflective of what was done under the Louvre agreement and also that the widening of spreads between the yields available in the bond market and in the equity market had some impact upon what happened in October.

Chairman NEAL. I thank you, both of you.

Would any of you like to comment on Professor Kimbell's thought about recession?

Professor KIMBELL. Just very briefly, I was making the point that Darby's chart on M2 suggested in the past M2 has been a valid leading economic indicator and it might point to a recession. But my own personal reading would put much more emphasis on consumer reductions in purchases in non-automobile sectors.

The automobile sales look fairly good. In fact, they are fairly good, but we have special rebates which in the past would boost sales to, say, 13 million annual rate. If the rebates were to come off, I think we could easily see a 9 million annual rate.

Then we have excessive inventory development. We have housing that is almost certainly going to be down in the first quarter, although probably rising by the second half of the year because of lower mortgage rates, and finally the Federal Government looks to us as though it will be pinching back in terms of defense spending.

So I would put much more emphasis on, say, the consumer vulnerability, high debt, need to retrench, low savings rates, than on the M2 per se.

Mr. GRAMLEY. I would make just a couple of comments. The future is always very uncertain. None of us economic forecasters can do more than put down our best judgment as to what is happening.

The issue basically is one of evaluating the fundamental strengths of the economy, and that is very very hard to do. We do have an inventory correction underway now. We know that the rate of book value increase in inventories in January was considerable lower than in the fourth quarter.

Then the issue is: Will this precipitate and snowball and develop into an actual decline in industrial output in GNP?

I would note that if the recession is coming, it isn't coming as fast as Mr. Kimbell thought when he put these numbers down. I note, for example, that he anticipates an annual rate of decline of 5.8 percent in industrial production for the first quarter of 1988.

Well, we just got figures yesterday which indicated that the rate of increase of production was revised upward for December and January, and I made an estimate yesterday that if industrial production goes up 0.2 percent in March, the annual rate of increase between the fourth and first quarters will be 3¼ percent, not a decline of 5¼.

So if it is coming, it is a little further off yet.

Mr. HUDSON. I would just say that the real M2 numbers are figures that I have watched fairly carefully over a long period of time, and I think that the historical record does give one some pause when M2 slows sharply. You have to ask whether or not there isn't a message in this relationship.

The reason I would tend to downplay that and give it very little weight at the present time is simply that the relationships between M2 and the economy have changed recently, so that you are no longer able to draw the same inference about how this particular magnitude is related to the economy.

Mr. KERAN. In terms of the outlook, we think that most of the inventory overhang in the fourth quarter was heavily concentrated in imports and therefore as that inventory overhang is unwound, it will reduce imports. We can see that in the January trade numbers that were released this morning, in which all the improvement in the trade deficit number was a decline in imports. So that is consistent with that kind of adjustment which suggests that it will not show up as a big contraction in GNP.

I agree with Larry Kimbell about the weakness in consumer spending this year, just as it was weak last year. That doesn't nec-

essarily mean a weak GNP. We think that we are going to have a strong business equipment investment this year, as we did last year. Both factors were positive for GNP last year and this year, and that is going to keep the economy reasonably robust.

What I worry about is perhaps 1989 when this equipment boom which we are now in the middle of, which is clearly unsustainable, is over and where will be the next piece of strength in the economy.

Chairman NEAL. It could be exports, I guess.

Mr. KERAN. Exports were strong last year; they will be strong this year; they will be strong in 1989. But whether they can offset the weakness in consumption along with the collapse in equipment investment that I see for next year is another issue. But that is down the road.

Certainly 1988 looks pretty robust.

Chairman NEAL. Mr. Roth asked a question about the proposed Glass-Steagall changes. Have you had a chance to look at the product of the Senate Banking Committee. Mr. Gramley, you mentioned that you thought it was very important that the so-called fire walls be strong and impenetrable. Do you think that the Senate has done a good enough job in that regard?

Mr. GRAMLEY. Mr. Neal, I have not looked at the bill that closely. I really can't comment.

Mr. HUDSON. The fire walls are very important. I hope Lyle doesn't mean that J.P. Morgan Securities should be called the XYZ Corp. or anything of that kind.

Chairman NEAL. Let me thank you all for your help and say that if you have any other thought or opinion on this, we are interested, so please keep us in mind, most specifically on this question of Glass-Steagall changes. We will be dealing with that subject pretty soon and I am anticipating that we will make some changes.

Thank you all again.

The committee stands adjourned, subject to the call of the Chair.

[Whereupon, at 1:37 p.m. the hearing was adjourned, subject to the call of the Chair.]

CONDUCT OF MONETARY POLICY IN 1987

THURSDAY, MARCH 24, 1988

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON DOMESTIC MONETARY POLICY,
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS,
Washington, DC.

The subcommittee met at 10:05 a.m. in room 2128, Rayburn House Office Building, Hon. Stephen L. Neal [chairman of the subcommittee] presiding.

Present: Chairman Neal.

Chairman NEAL. I'd like to call the subcommittee to order at this time.

Today the subcommittee concludes its hearings on the Federal Reserve's Monetary Policy Report to the Congress. I have scheduled these hearings to allow us to conduct a careful and thorough review of monetary policy in the current context of heightened uncertainty and acute risk. Uncertainty and risk are exacerbated by the collapse in equity prices last year and by the apparent collapse in the reliability of monetary aggregates as good indicators of the thrust of monetary policy.

It is still too soon to venture a confident assessment of the impact of the decline in the stock market on the real economy, though consensus forecasts seem to foreshadow a stronger economy than had been expected. However, it turns out that impact will probably prove to be rather temporary. Even forecasts of an imminent recession tend to foresee a healthy recovery next year. Conversely, many who forecast a strong economy this year foresee weakness next year or some time in the near future.

Since monetary policy operates with uncertain and variable lags, it should not be driven by efforts to counteract or offset precisely these swings in the real economy. It should be governed, as one of our witnesses put it last week, by a long-term commitment to reasonable price stability subject to avoiding or mitigating severe recessions. That general goal is not, however, very useful unless we have fairly reliable ways of assessing the impact of monetary policy on the economy. I do not think the Federal Reserve will make major errors in its future conduct of monetary policy because it becomes too complacent over the threat of inflation or becomes too addicted to stimulating real growth at the risk of major inflation.

It may, however, fall into serious policy errors of excessive ease or excessive tightness because it seems to lack reliable gauges to measure the impact of monetary policy. Much effort is now being devoted to establishing or reestablishing reliable indicators for

monetary policy. It's one of the major issues I have asked our witnesses to address.

Today we have a panel that nicely balances academic research on monetary policy with the insights and perspectives of financial market analysis. Our witnesses are Professor Robert Rasche from Michigan State University and a member of the Shadow Open Market Committee; Mrs. Maria Ramirez, money market economist from Drexel Burnham; and Professor Bennett McCallum from Carnegie-Mellon University.

I would like to welcome our witnesses this morning and thank them for helping us as we try to understand and exert a little of our oversight responsibility in this area. Thank you very much for being with us this morning. We will hear from you in the order in which I mentioned your names.

Your entire statements will be placed in the record. It would be appropriate if you could summarize so we might have a little more time for questions and answers. Mr. Rasche, we will begin with you at this time.

**STATEMENT OF ROBERT H. RASCHE, PROFESSOR OF
ECONOMICS, MICHIGAN STATE UNIVERSITY, EAST LANSING, MI.**

Mr. RASCHE. Thank you, Mr. Chairman.

I'm pleased to have this opportunity to appear before you today to present my views on the recent monetary policy report to Congress by the Board of Governors and related statements.

I'd like to focus on the following issues: (1) the conception of the monetary process that's advanced by the Federal Reserve System; the usefulness of monetary aggregates as guides to monetary policy; and the appropriateness of other guides to monetary policy which have been the apparent focus of recent attention within the Federal Reserve System.

In 1987, we saw a sharp deceleration in the growth rates of a wide range of monetary aggregates after very rapid growth in the previous 2 years. The FOMC responded to these historical developments by widening the ranges of the M2 and M3 target growth rates for 1988, while leaving the midpoints of those ranges relatively unchanged.

It appears that the Federal Reserve regards the extreme volatility in the growth of monetary aggregates as outside of its control or to be of no particular consequence to the economy. I'd like to address those two issues.

Almost 24 years ago, in a staff analysis prepared for the then Subcommittee on Domestic Finance, Professors Karl Brunner and Alan Meltzer critiqued the then current Federal Reserve conception of the monetary policy process. In their letter of transmittal of that analysis they commented: "the modified free reserves mechanism bears almost no relation to changes in the stock of bank credit or money. Indeed it is so poor that it raises questions about the usefulness of Federal Reserve policy as a means of controlling money or credit."

Today there is little substantive difference from the situation almost a quarter century ago. Since late 1982, the directives to the system account manager issued at the various FOMC meetings

have been framed in terms of increasing, decreasing or maintaining the "degree of pressure on reserve positions." The conception of the monetary policy process during the past 5 years is substantively identical to that of the early 1960's. Therefore, I conclude that extreme volatility in the year-to-year growth of various monetary aggregates should come as no surprise to either the Federal Reserve System, the Congress, or the public at large. Given the current operating procedures of the Federal Reserve System, it is only by accident that the observed growth rates of the monetary aggregates in 1988 will fall inside of the newly established ranges.

Now this need not be the case. We know enough to implement operating procedures that will maintain year-to-year monetary growth within much narrower ranges than those currently established by the Federal Reserve System.

You might argue, so what? *Is there a cost to the observed volatility in monetary growth?* I believe that the unambiguous answer to that question is yes. Chairman Greenspan in appearing before you a few weeks ago accepted the principle that progress toward price stability requires a reduction in monetary growth rates below the average of our recent experience. It's my opinion that excessive volatility in monetary growth rates brings such progress to a dead halt. When growth rates are excessively high, then concern is widely expressed that rapid deceleration will bring about a slowdown in growth in real economic activity. Conversely, when monetary growth rates are extremely slow, concern is expressed that the growth rates be quickly returned to higher levels before a slowdown in real economic activity is induced.

The net result of these kind of reactions to sharpen year-to-year fluctuations in the growth rates of monetary aggregates is that there is little perceptible progress toward a world of price stability. Since 1982, for all practical purposes, the U.S. economy has been sitting at a 4 percent annual inflation rate. The projected central tendency of the GNP deflator by members of the FOMC for the next year is in the range slightly below 3 percent. Your own CBO in making its forecast for 1988 and 1989 projects GNP deflator and CPI inflation rates in the 3.9 to 4.2 percent range. The argument that we are making progress toward price stability or that we expect to make progress toward price stability in the near future is contradicted by all the evidence. The erratic monetary growth rates permitted by and fostered by the prevailing Federal Reserve policies are in large part responsible for our current "dead-in-the-water" situation.

A second theme of the monetary policy report that was recently presented to you is that the relationships between the various monetary aggregates and economic activity, particularly the narrowly defined monetary aggregates, continue to be affected by deregulation and institutional change. There's one element of truth in that argument. Something happened to these relationships around the end of 1981. However, the best evidence is that what happened was a one-time change in the relationship between the average rate of growth of monetary aggregates and the average growth rate of nominal income. The observed change occurred over a very short period of time and since that time a new stable relationship has been established.

The new relationship bears many of the characteristics of the relationship that prevailed in the previous quarter century and does not show any significant increase or decrease in uncertainty from that prior relationship. Now it's relatively fortunate that's true since without such a stable long-run relationship manipulation of any nominal variable by the Federal Reserve System has little logical foundation.

That conclusion should not be misinterpreted. The existence of stable long-run relationships are not a basis for short-run manipulation of monetary aggregates toward a goal of short-run economic stabilization. The economic variables that drive the short-run fluctuations in the relationship between monetary aggregates and economic activity are largely unpredictable.

Finally, I'd like to comment on alternative guides to monetary policy. Governor Johnson recently indicated that a number of members of the Board of Governors are using or at least looking at measures such as sensitive commodity prices, the difference between long- and short-term rates of interest or the slope of the yield curve, and/or nominal exchange value of the U.S. dollar as guides to the impact of monetary policy.

Such an approach to the conduct of monetary policy is, in my judgment, dangerous and counterproductive. There is no doubt that those variables like that can be and are affected by monetary policy actions. Unfortunately, they are affected by lots of other things which impact on our economy and unless the current movements in those measures can be attributed reliably to the various forces which are driving our economy, it's impossible to discern the meaning of their movements for the conduct of monetary policy.

That conclusion is not my insight. It's an old argument in the literature on monetary policy and was resolved at least a quarter century ago.

Unfortunately, with all the measures which have been cited by Governor Johnson in his speech, a reliable allocation of the movement to the fundamental determinants of these variables, including monetary policy actions, is beyond our current ability. This is particularly true in things like nominal exchange rates. No one today knows whether the exchange value of the dollar, however we measure it, is too high, too low, or just right.

Thank you.

[The prepared statement of Robert Rasche can be found in the appendix.]

Chairman NEAL. Thank you, sir, very much. At this time I would like to hear from Ms. Ramirez.

STATEMENT OF MARIA F. RAMIREZ, MANAGING DIRECTOR AND MONEY MARKET ECONOMIST, DREXEL BURNHAM LAMBERT, INC.

Ms. RAMIREZ. Good morning. Mr. Chairman and Members of the subcommittee, my name is Maria Ramirez. I am managing director and money market economist at Drexel Burnham Lambert. I am pleased to be here today and to offer this committee my thoughts on the appropriate course of monetary policy in 1988. My expertise is in forecasting short-term trends in the economy, interpreting news that affects the markets, and providing investment advice to

market participants. Monetary policy is the key to understanding the direction of the markets, and it is also a crucial issue that requires a great deal of my time. During the past several years, I have seen drastic changes in the behavior of the markets and market participants. More specifically, the massive quantity of new information and the market's volatility have created an insatiable appetite for immediate analysis of data. This, in turn, has been a major reason for wide gyrations in the markets.

Today, money managers around the world work around the clock and anxiously await data such as employment or trade releases, whether it's at 10:30 p.m. in Tokyo or 2:30 a.m. in Hawaii. Shifting billions of dollars around the globe in response to a number that can be revised drastically the following month is today's reality. Trying to forecast kneejerk reactions with an econometric model is impossible. No model can predict how different investors with different investment objectives will respond to various types of economic news. It is like trying to put many pieces of a puzzle together that look very much alike in order to form a perfect picture of the economy in record time. This is a monumental task. All we can do, in some cases, is use our best judgment on how the markets as a whole may interpret economic, or other news, affecting them.

In looking at the short-term trends and trying to gauge the direction of the markets, it is very important to know consensus expectations. It helps to be a good listener because absorbing information is always more important than looking back at history and attempting to use it as a guide to the future. My testimony will touch upon the Humphrey-Hawkins report, how monetary policy is currently perceived by the markets, and what I believe the best course for monetary policy may be for 1988.

Monetary policy, I believe, has been on the correct path, but there have always been some experts who contend that it was going in the wrong direction. In retrospect, given the complexity of international capital flows, the imbalances in the economies around the world, and the large trade flows with the twin deficits, the policies adhered to have been generally correct.

Market participants are always quick to anticipate dramatic shifts in policy by the Fed. Although, in the past, if the Fed had changed policy as often as the markets had expected, it probably would have created more instability in the economy and prices. Even though there have been instances where monetary policy has been too slow to respond to changes in the economy, the result was stability on the inflation front during this decade. Before reaching a conclusion about what I believe the current course of policy should be for this year, it is appropriate first to discuss the money supply, which has been the cornerstone of such policy in the past.

In the past, the money supply has served as a useful tool in guiding monetary policy in the direction of balanced economic growth and price stability. However, more recently, the relationship between money and real economic activity has come unglued, causing market participants to focus on other leading economic indicators of growth. In part, this decoupling of money from the real economic activity is due to deregulation of the banking industry following the Monetary Control Act of 1980. Between 1983 and 1986, the monetary aggregates—M1, M2, M3—grew at a rapid pace (an aver-

age annual rate of 11, 10 and 9 percent respectively), due to the easier Federal Reserve policy that prevailed as of mid-1981. This faster money growth was consistent with a pickup in economic activity. Between 1983 and 1986, real GNP grew at an average annual rate of 4 percent.

As of the spring of 1987, however, the growth in the aggregates slowed. Both M2 and M3 grew slower than the average growth rates between 1983 and 1986. The slowdown in money growth in the spring of 1987 coincided with the slightly more restrictive monetary policy that was put in place at that time. The tighter policy was due to building inflationary expectations in the financial markets from the continued deterioration of the dollar and the lack of improvement in the trade deficit. The Fed's move to tighten reserve availability temporarily abated inflationary expectations. However, by August, the dollar once again came under downward pressure and without improvement in the monthly trade numbers, price pressures accelerated. This eventually caused the Fed to take a more overt tightening move by raising the discount rate on September 4.

During this period, interest rates continued to climb and money growth continued to slow. At least some of the slower growth was due to the more restrictive monetary policy and correspondingly higher interest rates. It was also due to the shifts in international deposit flows resulting from the rapid dollar depreciation. I have included some charts that show the inverse relationship between a weakening dollar and foreign money supply growth. These charts show that at least some of the weaker growth in the U.S. monetary aggregates in 1987 was due to the unwillingness of foreigners to hold dollar-denominated deposits in U.S. banks. This led to a shifting of deposits from U.S. banks to foreign commercial banks. For the most part, these deposits were the highly liquid transaction deposits included in M1. This shifting of deposits became even more rapid in the last 2 months of the year after a further deterioration of the dollar, and M1 grew at an annual rate of negative 5.6 percent in November and negative 3 percent in December. This translated into weaker growth for M2 and M3 during the same period. Since the beginning of 1988, growth in all three of the monetary aggregates has bounced back quite nicely. It is no coincidence that this healthier growth came in a period of relative dollar stability.

For 1988, as stated in the Humphrey-Hawkins testimony a month ago, the FOMC has set somewhat lower growth targets for M2 and M3 than those prevailing in 1987. The growth bands for M2 and M3 have been lowered, from a range of 5.5 to 8 percent to a range of 4 to 8 percent. In my opinion, the FOMC's decision to lower the targets is appropriate for some of the same reasons discussed by Chairman Greenspan in his testimony a month ago. Among the reasons cited in the decision to lower the ranges was the looser relationship between money and economic growth that I have just mentioned. The FOMC also decided to widen the growth bands to 4 percentage points from the more traditional 3 percentage points, in light of the unusual degree of uncertainty about economic growth in 1988. Implied in the Fed's decision to ease was also an indication of tightening. This is exactly the type of flexible approach to guiding monetary policy that I mentioned earlier and

that I feel the Fed should be taking. The Fed is now focusing not only on the growth of money in relation to the economy, but also on a broad range of economic indicators. The Fed is using this information in its decisions to adjust the instruments of monetary policy—reserve availability and the discount rate—in response to deviations in monetary growth from anticipated rates. By widening the target bands, the Fed is allowing for the possibility of aberrant shifts in money flows, which could occur in 1988 as they did in 1987.

Looking ahead to the rest of 1988, real economic growth will determine whether M2 and M3 grow at the midpoint of the established ranges, as the Fed expects. If real GNP in 1988 accelerates at 2.5 percent, as I expect, the targeted ranges for money growth should be achieved. However, the “yet to be determined” impact on the economy from the October 19 stock market decline remains a very real consideration. As we are all well aware, the stock market collapse on October 19 wiped out about \$700 billion of wealth from individuals and about one-third has been regained since then. The impact on consumer behavior is difficult to measure, both because of the offsetting interest rate decline that accompanied the crash, and the concentration of equity holdings among a small proportion of the population. As I mentioned in several of my daily commentaries at that time, the stock market decline had its greatest impact on those investors who refused to take profits as the market was rising to reach its peak in late August before faltering in September. In many investors’ minds, greed was the motivating factor behind the decision to stay invested, and only when fear overcame greed on October 19 did investors change their minds. However, it is clear that this event ushered in a more cautious mood on the part of consumers, as evidenced by the flight to liquidity that occurred immediately following October 19. Indeed, as recent mutual fund activity indicates, there was a decisive shifting by individual investors from equity funds to more liquid money market funds. In addition, total assets under management in all mutual funds declined by \$53 billion in October. This mood should translate into more cautious borrowing and spending propensities by consumers in the months ahead. The most recent monthly economic data on personal income and consumption indicate a marginal advance in consumer activity in the first quarter, and the most recent data on retail sales and auto sales indicate slightly faster growth for the second quarter. Additionally, the latest report prepared by the Fed in St. Louis for the March 29 FOMC meeting, otherwise known as the Tan Book, states that “Without exception, reports confirm a moderate expansion of the Nation’s economy.” All the other discussions center on the fact that the economy has not receded that much in recent months.

As for 1988, I believe the U.S. economy will continue to expand through the sixth year of this expansion, although at a more moderate pace. The 2.5 percent GNP forecast that we have includes less of a buildup in inventories which would result in final sales rising 2.7 percent compared to 2.1 percent in 1987. With an estimated improvement of \$17 billion in the net export sector, we should also see an economy that is driven by a positive contribu-

tion from net exports. Domestic final sales are expected to advance about 2.5 percent compared to 2.4 percent in 1987.

In summary, we did not expect U.S. consumers to change their spending patterns before or after October 19, but it is natural that the consumer will contribute less to economic growth as the business cycle becomes more mature. The ongoing strength in employment, income, and spending should result in a 1.7 percent advance in consumer spending this year compared to 1.9 percent last year.

Finally, Government spending should remain essentially flat. Insofar as the housing sector is concerned, I doubt there is much pentup demand that will be accommodated at this current level of mortgage rates. Housing, therefore, will continue to be a drag on GNP.

What I will do is abbreviate the rest of my comments and jump further back to the summary on page 15. With regard to the concerns about the dollar and whether the Fed's policy was appropriate in 1987, I offer these comments. First of all, it was my contention in September 1985 that the G-5 "Plaza Accord" to push the dollar lower may not result in the quick improvement that was generally expected in the net export balance, for the simple reason that there was at least 20 percent fluff at the peak of the dollar. Second, as I recall, at that time and through most of 1987, a dollar-bashing policy had been advocated by the U.S. Treasury and the Fed was alone in trying to stabilize what at times was a free fall in the dollar and very disorderly markets. The "Japan" and "Germany" bashings and outspoken statements by some United States officials to stimulate domestic growth through monetary easing overseas has achieved the opposite of its intended result. Japan's economy is now growing at 8 percent and it has very well adjusted to a dollar that is 50 percent weaker than it was 3 years ago. I would suspect a weaker dollar could make that economy even stronger domestically. In the U.K. the economy has rebounded strongly. What was regarded as the "sick man of Europe" in the 1970's is now a thriving industrial economy. After a softer performance last year, the German economy has also improved. Not only have central bankers tolerated stronger than targeted monetary growth, but they also eased monetary policy in the spirit of stabilizing the dollar. This came at a cost of about \$120 billion in dollar support operations which cannot be repeated again this year. The cost to the Fed in stabilizing the dollar was only about \$10 billion. In the last 3 months it was about \$4 billion.

I believe the intervention was generally effective. It turned the bearish sentiment toward the dollar around at the end of 1987 and I think the focus this year will really be on whether these assets coming from overseas will continue or not. The weaker dollar has put United States real assets up for sale at a 50 percent discount from their value of 2 years ago. Concerns that we need to have higher interest rates to attract capital flows to finance the deficit are somewhat overdone. Last year, overseas private investors were net sellers of U.S. Treasury debt and, as I mentioned, the capital inflows to finance the budget deficit merely came from the central banks.

Dollar stability should be one of the many important objectives for monetary policy this year, but it should not be the only one.

In concluding, there is no perfect and constant tool that the Fed can use as a guide in directing monetary policy. At best, it can monitor several indicators that either confirm what has happened in the past, explain what is currently taking place, or give us an indication of the direction or sentiment for the future. Because the tools and measures are constantly changing, the Fed has to be flexible and open-minded to change with it. Therefore, I believe that the larger the basket of these measures is, the more "in tune" the Fed will be with all possible developments. This will better the chance that the course of monetary policy will not be led astray.

Understanding the dynamic interplay of market forces has become more difficult and complex than ever before. Yet as the markets widen and their pace accelerates, the ability to analyze and interpret change accurately is becoming increasingly critical to issuers and investors. As the markets have expanded to incorporate a variety of new securities and derivative products, it has sometimes become difficult for investors, market and policy makers to keep themselves a step ahead in anticipating the impact of the more complex markets.

Complex trading and hedging strategies have not always been successful, but they have affected the value of securities. The traditional debt markets now co-exist with a multitude of synthetic products that have basically been derived from treasuries, corporate, municipal, and mortgage-backed instruments. A great variety of investments have also been developed in the equity market. When these complexities are looked at from a global viewpoint, it is virtually impossible to be so narrow-minded as to use only one variable in conducting monetary policy. As I have discussed earlier, I trust that not only the Fed, but also the majority of Members in Congress, will vote for the type of restraints that closely balance both anti-inflationary and pro-growth monetary policy.

Thank you.

[The prepared statement of Maria Ramirez can be found in the appendix.]

Chairman NEAL. Thank you very much. At this time I would like to hear from Mr. McCallum.

STATEMENT OF BENNETT T. McCALLUM, H.J. HEINZ PROFESSOR OF ECONOMICS, GRADUATE SCHOOL OF INDUSTRIAL ADMINISTRATION, CARNEGIE-MELLON UNIVERSITY

Mr. McCALLUM. Thank you. I'm pleased to have the opportunity to talk with you about monetary policy.

For some time now the center of attention in the Fed's reports to Congress has been the monetary targets for the coming year, the projected ranges of growth for monetary aggregates. These are the figures by which the Fed ostensibly describes to Congress and to the public its policy intentions.

But the February 1988 report seems to indicate that these ranges are not actually targets which the Fed will attempt to meet. Instead, they are its predictions of what the M2 and M3 growth rates will turn out to be in light of whatever it is they do during the year, which will be determined in part by the behavior of other variables.

This interpretation of how policy is actually being conducted is supported by a passage in the report which is quoted in my written statement. From that passage and from what one knows more generally about Fed policy, from a variety of sources, it seems clear that the target ranges for monetary aggregates do not constitute a plan for future policy actions. There is, therefore, little reason to spend much time discussing these numbers.

What does deserve discussion is whether the current methods of formulating monetary policy and reporting intentions are desirable. With regard to reporting, it follows from what I've already said that the current procedure is not desirable, for if the aggregate growth ranges do not express the Fed's intentions, what does? There are a few other projections for 1988 included in the recent report, but these also constitute forecasts, not goals or plans. In fact, as far as I can determine, the report includes no explicit specification of goals and no stated criteria by which the Fed agrees that its performance can be evaluated.

Well, those statements concern the Fed's reporting, not its actual conduct of policy. In considering policy itself, I will find it helpful to have at hand an outline for desirable strategy so I'd like to take a few minutes to explain how I think monetary policy should be conducted. This discussion will then be used in responding to several of the specific questions in Chairman Neal's letter.

The most appropriate policy objective for the Fed is to generate a smooth and noninflationary growth path for aggregate demand—that is, total spending—measured in terms of dollars. To be more specific, the Fed should make nominal GNP grow smoothly and steadily at a rate of 3 percent per year. Let me first try to explain why this is a desirable objective and then discuss how it could be attained.

The reason for focusing on nominal GNP is as follows: the ultimate goals of monetary policy are to prevent inflation, to do what is possible to facilitate growth of real output and employment, and to prevent fluctuations. But there are severe limitations on the monetary authority's ability to influence real variables such as output and employment. It is true that abrupt changes in monetary policy may affect real variables, but these effects will only be temporary. This is one of the main things that most macroeconomists agree about, that real effects of monetary policy actions are only temporary. In fact, there is widespread agreement among scholars that over extended periods of time the average growth rate of real variables will be essentially independent of the growth rate of monetary variables. Thus for the United States the growth rate of real GNP will average about 3 percent over the next 20 years whether monetary variables and prices grow rapidly, slowly, or not at all. Then it follows that if nominal GNP is made to grow at a rate of 3 percent, the average inflation rate will be approximately zero.

In addition, a steady growth rate of about 3 percent for nominal GNP would probably lead to improved performance of real output and employment. These variables wouldn't grow faster on average, but their fluctuations would perhaps be diminished. The severity of the business cycle would be reduced. There are several reasons for believing this. The only one that I will burden you with at this

time is that the rates of growth of nominal and real GNP are very highly correlated, as is shown for the quarterly data in Figure 1 of my statement. This correlation suggests that smoother growth in nominal GNP should help to bring about smoother growth of real GNP.

Some economists would suggest that you could do even better by manipulating nominal GNP growth up and down in response to unemployment rates or some such real cyclical indicator. I'm very doubtful of that because the design of a manipulative policy of that type depends on the analyst's model of the precise mechanism connecting monetary actions to real output responses. But if there is any one thing that macroeconomists truly do not understand, it is this mechanism. A large share of the disagreement among macroeconomists that is frequently discussed by the press and others stems from different perceptions about this precise mechanism.

It might be argued that, while good consequences would follow from a steady 3 percent growth of nominal GNP, this is something that the Fed cannot accomplish. The nominal GNP is not a variable that the Fed controls directly. Well, that's true, but it's also true that the Fed doesn't directly control M2, M3, total debt, or even M1. These are variables that the Fed does not literally control but can strongly influence by its open market operations. Perhaps the Fed can influence M1 somewhat more accurately than nominal GNP, although I'm not sure of that, but it is beside the point. The question is, can the Fed by adjustment of a variable that is under its control keep nominal GNP close to a target path that grows steadily at 3 percent per year?

This is a question that I've been studying in my recent work and my findings indicate that the answer is yes. Clearly, the Fed can control very accurately the monetary base—currency in circulation plus bank reserves. And my studies indicate that there is a very simple formula for setting monetary base growth rates each quarter that would keep nominal GNP close to a 3 percent target path. This formula or rule is to set base growth each quarter equal to the quarterly equivalent of 3 percent per year, minus the recent difference between GNP and base growth rates, plus an adjustment term that is a fraction of the difference between target and actual values of nominal GNP in the most recent quarter. The precise algebraic specification of this is given in my statement.

These studies indicate that this rule would have kept nominal GNP for the United States close to a smooth 3 percent target path over the period 1954 through 1985, despite all the various shocks that hit the economy during that 32-year span, including deregulation and technical innovation in the financial and payments industries. I won't take time here to describe the studies, but the research strategy is explained in my written testimony.

I would like to mention, however, one unusual feature of my approach, which is as follows. In order to tell how nominal GNP would have evolved over the past 32 years if policy had been different requires a model. Now I do not believe that I have a good, accurate model. In fact, I don't believe anyone else does either. What my studies are designed to show is that the rule I have described would have worked well according to a wide variety of different models, some Keynesian in their specification and some classical.

To illustrate this, I've included two plots of simulations of nominal GNP over 1954 through 1985 in my figures 2 and 3, plots that indicate how nominal GNP would have evolved if this particular policy rule had been followed and the economy had been hit by the same shocks that I estimate it to have been hit by.

As you can see from these figures, the simulated or generated series stay quite close to the 3 percent target path. The actual historical path of nominal GNP is also shown. It rose much more rapidly, and since output grew at about 3 percent, we experienced a substantial amount of inflation.

Let me conclude with brief responses of a few of Chairman Neal's specific questions.

From what I've said it's clear that my answer regarding quantitative measures for use in evaluating monetary policy must be that nominal GNP is the best single indicator. It's important to add that interest rates are very bad indicators. To illustrate that, we only need to recall that noneconomist commentators take it for granted that the phrase "high interest rates" is synonymous with "tight monetary policy." But in fact, tight monetary policy usually results in low inflation rates and thereby in low interest rates, which are influenced by expectations regarding inflation.

For example, interest rates were much higher during the decade of the 1970's, a decade of expansive monetary policy, than during the tight money in the 1950's. The popular confusion arises because the temporary impact effect of a monetary tightening might be to raise rates, while the delayed but longer-lasting effect is to lower them. This difference in the direction of short- and long-run responses makes any market interest rate a highly unreliable indicator of monetary policy.

Chairman Neal's letter asks whether the stabilization of nominal exchange rates should be an important objective for monetary policy. My answer is definitely no. To U.S. citizens, the price of foreign exchange is much less important than prices of American goods and the growth rate of U.S. output. Recognition that the United States is an open economy does not diminish the importance of achieving the appropriate path of demand for American goods, that is nominal GNP. Monetary policy cannot be simultaneously dedicated to two different objectives. It can't be used to hit targets for nominal GNP and also the exchange rate. Therefore, any international agreement that stipulates exchange rate objectives for the United States must have the effect of undermining, at least partially, the Fed's ability to conduct an appropriate monetary policy. But if the leading economies independently perhaps pursued noninflationary monetary policies, there would be much less volatility in exchange rates than we have experienced since 1973.

In conclusion, my argument can be summarized in three brief sentences. The job of the monetary authority is to keep total nominal demand growing smoothly at about 3 percent a year. Doing so would prevent inflation and would provide a stable environment for real growth to proceed unhampered by monetary disturbances. A smooth growth path for nominal demand can be achieved despite financial innovation and regulatory change by adherence to a simple rule governing growth of the monetary base.

Thank you.

[The prepared statement of Bennett McCallum can be found in the appendix.]

Chairman NEAL. Thank you, Professor McCallum. And I thank all of you again.

I am taken with Professor McCallum's ideas. What do you others think of them? Mr. Rasche, would you like to comment?

Mr. RASCHE. Yes. I think I'm in pretty close agreement with Ben McCallum's idea. I think that it's clear that the objective for the monetary authority should be to stabilize nominal demand. It's clear that they can't do this directly. They're going to have to do this through something they can in fact operate on. The monetary base is one thing they can operate on directly and probably has the closest relationship to nominal demand of anything that they can control directly. Three percent growth in the monetary base should be appropriate for stabilizing inflation and I think a type of feedback rule that Ben has in mind is probably a suitable way for doing that.

I think he would agree that he probably hasn't investigated these kind of feedback rules enough to know that he's got the best one that could possibly be designed, but it certainly falls in the class of base control rules that should give us long-run price stability and minimize the amount of fluctuations in real output to the extent that the Federal Reserve has any ability to do that.

Chairman NEAL. Ms. Ramirez.

Ms. RAMIREZ. The only comment that I have is, as Ben said, the model is not perfect and the only trouble that I have with models is that since we don't live in a perfect world even simple models sometimes turn out to look better in print than in reality. So if the Fed were to adopt a strict policy whereby it's ruled by only one factor—the base of money—in governing output and inflation, it may be too rigid.

I think that we have to look at these things in the broader context and not adhere to the targeting of the base only. Overall I would say that monetary policy's objective has been to have a 3 percent growth longer term. Maybe in some quarters it's been more erratic than others but such growth has been consistent with modest inflation this decade. I believe it's going to be very difficult to get inflation much lower than what it has been in the last few years. We are dealing with a global economy and nominal output cannot be targeted unilaterally. With output in some sectors being a bit stronger than it's been in the past years, the inflation could be more of a problem down the road [and the Fed will have to continue to conduct slightly firmer policy which in the longer term will keep inflation low.]

Chairman NEAL. Professor McCallum, the Fed and others have placed a good deal of emphasis on recent volatility and unreliability of the monetary aggregates. Could you explain in as nontechnical terms as possible how your rule for monetary base growth stabilizes GNP despite this alleged volatility and unreliability of the aggregates, since after all the aggregates are based on the base?

Mr. McCALLUM. Well, a large part of this stems from changes in institutions and regulations that influence what constitutes M1 or what assets constitute transaction media. So these regulations in-

volve a shuffling back and forth of things between M1 and M2 and a sort of redefinition of these measures of transaction media. By contrast, the base is not being redefined at all. A change in the regulations regarding what kinds of deposits can have interest paid on them, for example, will affect the composition of M1 and M2 but it won't similarly affect the base. The relationship between that thing which is the actual outside money of the economy, the base, and nominal GNP can remain relatively intact.

Now that's not to say that there are no changes in this relationship, but one of the main things that my study attempts to do is to see how well this rule would have worked during the period of the late 1970's and early 1980's when we were having this kind of change to an unprecedented degree. So I ran the simulations right through those periods, feeding into the model each period the estimates of the shocks that had come forth from the empirical work that preceded it. So it seems, for reasons that are not fully understood—not fully spelled out in my model—that it works.

I would like to say one thing briefly about using a variety of models. It's been suggested that we shouldn't rely on models, but you can't get away from that. A model is simply a coherent view of how the economy works. To work without any explicit model is either to be incoherent or to use an implicit model. The latter has disadvantages in that it cannot be examined, cannot be criticized, cannot be analyzed by others and looked at. My approach is to try a wide variety of explicit models and see if the proposed rule will work in all of these cases.

Chairman NEAL. Does anyone else want to comment?

Mr. RASCHE. In defense of Ben's approach, I think the strength of what he's trying to do—I was familiar with it before he presented it here this morning—is that the results that he's come up with seem to be robust across a very large structure of models. To the extent that we are uncertain about how the economy exactly works, if we come up with results which seem to be independent of the exact workings of the economy, I think we can have a lot more confidence in them.

The reason why I think that Ben's type of thing works and is reliable is because it focuses on what is the long-term relationship between his monetary aggregate—namely, the monetary base—and nominal demand. While there's a lot of short-term noise and short-term fluctuations in those kind of relationships, the long-run relationship has been remarkably steady. Perhaps it has shifted twice in the last half century, once around the end of World War II and once around 1981, but those shifts have been relatively small and will not cause his procedure to deviate very far from where he wants it to go.

Ms. RAMIREZ. My own belief is that models are useful in explaining the past, but do not predict the future well. I think we can use any models that justify anything that has happened in the past. But only a combination of all kinds of models, whether they measure prices, nominal growth, domestic or overseas, flows in the capital markets globally and a host of other factors that monetary policy should be guided by on an ongoing basis. So it's what my colleagues have said here—a multitude of models that can make monetary policy more effective.

Chairman NEAL. Ms. Ramirez, have you had a chance to look at this data that the two professors are talking about going back over time? Have you had a chance to explore whether or not you would agree this is a constant relationship?

Ms. RAMIREZ. No, but I think that the constant relationship is very explicit and looks very strong. I was made aware of this I guess since I got the copy of the testimony. I haven't really done much work on it myself. I should also add that I'm skeptical of using models to forecast. I appreciate all the output that is provided by experts in this hell.

I agree that the relationship in the past has been good, but reality is really complex. A model must be flexible. Monetary policy should not just be carried out by using one model that may have been good in the past but may not be good tomorrow. Just as the financial world has changed so much, and it's constantly changing, capital flows are so erratic on a day-to-day basis that some of the relationships in the monetary base that held together very well in the past really are becoming unglued. That is why I think we have to be flexible enough that we can see those changes in the relationship and come up with better models [and use them in conjunction with other factors in steering non-inflationary economic growth].

Chairman NEAL. I am not a very mathematical person either, but I believe essentially what they are saying is that this relationship that they are discussing has held up reliably using a variety of models over a long period of time. It thus sounds to me like this could be a valuable tool, and especially for practical use. That is, your use, of putting this information to use in the marketplace.

Mr. McCALLUM. I think it is a very practical sort of thing that I'm concerned with. A lot of what I know about monetary policy comes from a many-year relationship as a consultant to the Federal Reserve Bank of Richmond, and the president there, who is a member of the Federal Open Market Committee when it's his turn, talks actively to his research department about the position that he should take on monetary policy issues as they come forth. He, more than some of the bank presidents, is intimately involved with the research department. He came up through that department himself.

He's looking for guidance as to how they should conduct monetary policy and it's in the context of that sort of attitude about very realistic things that I have been led to do this kind of work, which is not high tech by academic standards. It tends to be very practical.

Chairman NEAL. Mr. McCallum, you said that long-run real economic growth is not affected by monetary growth. The chart on the wall that we have referred to during the course of these hearings from time to time shows a good past relationship between real M2 and economic growth. Wouldn't that suggest that the real money supply, adjusted for inflation, does have an important impact on real growth?

Mr. McCALLUM. Well, that relationship pertains to not a monetary growth rate but to levels at different points in time of the real money supply, which is a real variable, not a monetary variable measured in nominal units. But I'll try to answer the question by

commenting on Michael Darby's argument about a downturn in real M2 that came forth recently.

The main point of my comment is that it's not really clear what Darby is proposing, whether he views real M2 as a target variable or as a piece of information. If it's the former, I would disapprove because it's undesirable to have real targets for the monetary authority. A basic proposition of monetary economics is that the faster you create nominal money, the smaller the stock of real money will be, because at higher inflation rates people wish to hold smaller quantities of transactions balances in real terms. So real variables are very tricky for use as any sort of a guide for monetary policy.

Now to get back to the argument, if Darby has in mind using real M2 not as a target variable but as an information variable, what I would want to see is a systematic study of whether values of real M2 could be useful in improving on the accuracy of something like my proposed base rule. That is, if these measures could be helpful in hitting the nominal GNP targets more accurately.

I haven't yet examined that question for precisely his variable, but I have done so for some other variables. I have looked at the residuals from the demand function for real M2. That's a measure of demand shocks for real M2. I've looked at M1 growth rates. And in neither case is the information variable of any significant value in reducing the target misses that are present under the operation of the base rule.

Chairman NEAL. Professor Rasche, you indicated that you thought that the relationship between some of the M1s and economic activity has been reestablished. Even though there was an aberration in 1981 and, as you indicated, there was an aberration from historical trends, you feel that that relationship has been reestablished. I must say frankly, I do not see it, and others are commenting that they are having difficulty seeing it. Could you help me with this.

Mr. RASCHE. There's a well-known significant change in the relationship between long-run monetary growth and the growth of nominal income that occurred somewhere in the immediate post-war period. Economists have been aware of this for a long time. It was a major source of discussion in voluminous work by Milton Friedman and Anna Schwartz on the monetary history of the United States, which was left sort of unresolved at that point and, to my knowledge, really has never been completely clarified since then.

My own research suggests that a similar kind of shift in that relationship occurred in 1981 that in large part reversed the kind of shift that we saw after World War II.

Much of that change has been obscured in a lot of the literature by focusing on the relationship between the level of the nominal money stock and the level of nominal GNP or personal income or some other nominal measure of economic activity. There are a lot of technical problems involved in doing analysis in those terms. A lot of technical work has been done in the last 5 years which has pointed out the problems of working with that kind of data and the misleading conclusions that can be drawn from that kind of data.

We now know a lot more about doing analysis on these kind of data than we did 10 years ago. When you start looking at it and trying to correct for some of the inherent statistical and technical problems in it, it appears that the nature of the changes that occurred are relatively straightforward and systematic relationships have been reestablished that in many ways parallel the previous ones, with the exception of a different long-run trend relationship between the two things.

Chairman NEAL. Can you identify that long-run trend?

Mr. RASCHE. My best guess is that the long-run trend in velocity of the monetary base, to use the measure that Ben has mentioned to you, or the velocity of M1, to use an alternative measure, is about zero at this point; that is in the long run, the growth rate of nominal income will approximately equal that of the monetary base or approximately equal that of the M1 monetary aggregate as we currently define it; and that that relationship has basically held over the course of the last 5 or 6 years.

Chairman NEAL. Do the others agree with this?

Mr. McCALLUM. Well, Bob Rasche has done more than just about anyone in studying these relationships. With respect to the very last statement, I would point out that the policy rule that I've described has a term in it which takes account of any adjustments that would come about in the future.

Chairman NEAL. I did not hear that, I am sorry.

Mr. McCALLUM. The second term in the policy rule that I've described is an adjustment term in response to changes in the growth rate of base velocity that have occurred in the recent past. These changes are not totally unpredictable—there are jumps now and then, but it's not a wild variable. So this term will pick up the effects of any technological or regulatory innovations that are tending to change the relationship between the base and nominal GNP and will incorporate them into the responses that are taken in the future. So one doesn't have to have completely unvarying relationships for the thing to work. It's a rule with flexibility built into it that responds to change.

Ms. RAMIREZ. I would like to add that in regard to Mr. Darby's letter, I think what we have looked at in the last few years is something that we're not used to. We have seen very volatile foreign exchange markets. We've seen a lot of shift out of dollar-type deposits that have gone into nondollar deposits as investments are attracted to where the best returns are, with the lowest risks. So I think the relationship that is more recent has really been distorted somewhat by the fluctuations of the dollar and the fluctuation of money, whether it's in the broader aggregates or the narrow aggregates [the charts on the growth of the money supply in the United States, Japan and Germany and my earlier discussion indicate this may be the case.]

Short term, the fear that the negative growth is going to result into a deceleration of economic growth in the months ahead may be somewhat overstated. I think that the economic data has recently continued to show that growth has been very strong, whether it's been on the income front—personal income up this morning up .7 percent for February, up .8 percent for January, this propensity to spend has been very strong also. So I believe that near term that

relationship may not hold. Until we have some stability in the foreign exchange market and some stability in the flows of deposits also. It may not be a precursor of a recession.

Chairman NEAL. Professor Rasche, isn't there increased volatility around the trend? If you look at it over a long enough period of time, you will see some stability in these relationships. But you are referring to a fairly long term.

Mr. RASCHE. That's correct. We have seen increased volatility. The short-run volatility we see consists of two components. One that's driven by certain things that we can measure, such as the behavior of the short-run behavior of interest rates, short-run fluctuations in real output and so on; and another component that to the best of my knowledge anyway, we don't have any way of nailing down exactly what causes it.

The latter component has not been any larger in the 1980's than it was in the previous period. The former component is somewhat larger because we've seen more volatile behavior of interest rates in the 1980's than we saw in the 1950's, 1960's and 1970's.

So in that sense, there is a greater volatility that we observe in the short-run behavior but we know why that greater volatility is coming about. There's no greater volatility in the fluctuations that we can't explain or can't attribute to other variables.

Chairman NEAL. Ms. Ramirez suggested that dollar stabilization ought to be an important objective of monetary policy and our other two witnesses suggested that that should not be.

Let me ask the two professors. What about in the case of a free fall of the dollar, is that something that the Fed should take into account?

Ms. RAMIREZ. Well, certainly I think that stability was what the Fed mainly took into account at the end of last year and early this year in terms of intervening to support the dollar in a very strong and concerted effort with other central banks. I think we are starting to see the fruits of a lower dollar in terms of the export data and import data that we have seen in the last few months as the trade gap has been narrowing. It is long overdue, and took a longer lag than I think most people expected before we saw an improvement on the trade numbers. But, we're finally starting to see it.

In order to see that improvement last you have to see the currency stable over a period of time. I don't think it should be the primary focus of the Fed's monetary policy, but I think short term it has to be one of the key ones among stability in economic growth, as well as trying to keep inflation within the trend that it's been in the last few years.

You have to have the currency stable over a period of more than a couple of months in order to see the dollar cost of imports stabilize and exports improve.

Mr. McCALLUM. I wouldn't want to say that the Fed positively shouldn't do anything in response to a free fall, but my rule certainly doesn't call for them to.

What I would emphasize is that policy shouldn't be designed to cope with crisis situations. Policy should keep you from getting into crisis situations in the first place. If you run monetary policy in a steady and stable way, you're simply not going to get into situations in which you have free fall of the dollar and stock market

crashes and things like that. These things come about because the economy has gotten into an unhealthy situation which itself has largely resulted because "policy" is not run in a true policy-like manner. It's run on a day-to-day basis rather than trying to think about the longer horizon and the way things evolve over time. Running policy in a policy-like manner, instead of as a bunch of unconnected actions, would do more to prevent crises than anything I can think of and would make irrelevant the need to worry about questions such as that.

Chairman NEAL. Mr. Rasche.

Mr. RASCHE. I think well-designed, long-run policies will minimize the occurrence of those kinds of things. It may not completely eliminate them. If we have major crises, such as October 19 or the Penn Central commercial paper crisis back in 1970, the Federal Reserve clearly has an obligation in its lender of last resort function to stabilize the monetary system. In that kind of short-run crisis, it's appropriate that the Fed turn its attention to that. But I don't see that those are the kinds of things that are going to dominate the Fed's day-to-day attention and should be relatively rare occurrences if policy objectives are properly designed to stabilize the overall economy to start out with.

Ms. RAMIREZ. If I may just add, I think within the context of providing the long-term stability in prices and economic growth you're going to have a crisis once in a while and I think that the Fed's response to the crises in the last few years has been as best as can be expected.

In the testimony when I discussed the new instruments in the marketplace and how it's been very difficult for people to anticipate the impact from them, it's certainly been quite a learning experience in the stock market and the bond markets. We've come to restructure the debt outstanding, securitizing the debt, and it's only been in times of crisis that there have been changes in policies and I think the October 19 stock market crash has certainly generated a lot more interest in these new instruments and how to govern them and how to maybe limit growth in them and to make the system financially safe. I think that in the coming months some minor regulation that would maybe control some of the growth in these markets in terms of new instruments that are really not very healthy would prevent some other crisis down the road.

But in terms of the dollar and the free fall, there is a certain degree of confidence that has been restored in the dollar and to the extent that there is no additional pressure to stimulate policies overseas. Now there are no major disaccords on monetary policy to sustain growth globally. I think that the free fall in the dollar that we had in the past months and the dollar policy may be diminished in the future.

Chairman NEAL. Ms. Ramirez, what do you in your work see as good indicators of monetary policy? What do you use to try to determine whether the Fed is tightening or easing? What do you think the market response is to any of these terms?

Ms. RAMIREZ. Well, we sort of start with basics—the Fed's funds rate, overnight cost of money, what banks pay for and what most people in the marketplace pay for this commodity. The borrowing

targets and how the Fed is fulfilling those needs in the open market on a day-to-day basis are important indicators and from there I try to look at the marginal provision or lack of provision, in terms of reserves, that the Fed puts into the system on a day-to-day basis.

So the first thing I look at is the open market intervention as it takes place on a day-to-day basis with relationship to the Fed funds rate and, that's sort of what the markets look at also. [The Fed's intentions are usually made known through marginal reserve provisions and discount rate changes later.]

But those are numbers that are sort of history in terms of what the market looks at. The markets look at what's on the telerate screens—information that affects prices of securities—every second. The focus is very short term. What the market looks at these days is exactly what the Fed looks at. So they're sort of looking at each other. Whether it's the price measures in certain commodities in the futures or in the cash market; Economic news; the oil prices; the dollar; the yield curve, and the steepness or the flatness of the yield curve; they are all indicators that the bond markets have been looking at for several decades. I believe they are some of the things that the Fed has been looking at all along because they have steered Fed policy in the past.

The dollar is something that sort of goes in trends. Sometimes it's a key to where the market goes and sometimes it's not. With more weakness in the dollar in the last few days, especially today—some lows that have not been seen in the last 2 months—this seems to be having more weight in the markets today. Really though what the market focuses on is constantly changing and I think that, with that, the Fed also—not constantly changes policy on a short-term basis, but it has to be in tune to what's driving things and at least be knowledgeable of what's going on. [Overall the markets are driven more by perception than reality and generally believe more changes in monetary policy take place than they do in reality.]

So I do use a combination of economic indicators that show what the economy is doing, price measures, monetary policy on a day-to-day basis, and after sorting many pieces of the puzzle try to determine where interest rates may be going.

Chairman NEAL. I must say I just think it would be wonderful if we could come up with a rule that would be generally agreed upon that would work to give us some long-term stability and predictability in terms of economic growth and rates of inflation and so on. I thank you all for working in these areas. Certainly the Fed can do better than they have done over most any period of time you want to look at it seems to me.

There is hardly any gift that would be better for this Nation than some predictability in this area of economic growth and inflation and so on. It would save much of the pain in our economy, and I hope you all will keep working on it. I am certainly going to follow this with great interest as we move along.

A number of years ago we thought that we had formulated a kind of rule that might work, but frankly we began to see flaws in it fairly quickly after formulating it, and I hope yours stands the test of time better than others have.

Mr. McCALLUM. Thank you. We appreciate your holding a series of these kinds of discussions. They strike me, at least, as being very serious and very useful discussions of genuine problems in monetary policy.

Chairman NEAL. We are going to keep trying to understand it better and work in this area. I want to thank you all again very much for helping us with this. Are there any other comments any of you would like to make at this time?

Ms. RAMIREZ. I would just like to say thank you for the opportunity for inviting me here and I'm sure that the great work that my colleagues—are trying to do would help you and your committee in understanding the complexities of our economy and help you understand that there is no perfect formula. If there was, I'm sure that we would all benefit by it. But we learn by experience and experimenting. It's really the work that academia does that helps us out a lot more in understanding things over the very short term as well as the long-term basis. We do have to have a longer-term objective in mind and stick to that longer-term objective within the context of short-term fluctuations. I do hope that the Fed is given the leeway especially over the course of this year, as the economy becomes more mature and may be more subject to some surprises that may not be very pleasant in conducting monetary policy in the best interest over the long run.

Mr. RASCHE. I'd also like to thank you for the opportunity to appear. I would like to add that we certainly don't know enough to design the perfect world that you or I or any of the rest of us would like to see. I think that we have learned a lot in the last decade or two about monetary policy and it is possible to design monetary policies that will provide us with a better world than we've seen in the past.

Chairman NEAL. Thank you all again and please stay in touch with us. If you see something else we need to be aware of, do not hesitate to drop us a note or call. We are interested and we want to keep learning. Thank you all again.

The subcommittee stands adjourned subject to the call of the Chair.

[Whereupon, at 11:20 a.m., the hearing was adjourned.]

A P P E N D I X

MARCH 17, 1988

TESTIMONY

BEFORE THE

**SUBCOMMITTEE ON DOMESTIC MONETARY POLICY
HOUSING COMMITTEE ON BANKING,
FINANCE, AND URBAN AFFAIRS**

DELIVERED BY:

**LYLE E. GRAMLEY
SENIOR STAFF VICE PRESIDENT
AND CHIEF ECONOMIST
MORTGAGE BANKERS ASSOCIATION OF AMERICA**

MARCH 17, 1988

Mr. Chairman, and members of the Subcommittee on Domestic Monetary Policy, my name is Lyle E. Gramley. I am presently Chief Economist of the Mortgage Bankers Association of America.

As members of this Subcommittee may be aware, I was formerly a Member of the Board of Governors of the Federal Reserve System from 1980 through 1985. That experience certainly gives me a sense of the complexities faced by Federal Reserve policy makers in making decisions on the appropriate course of monetary policy, and those faced by members of this Subcommittee in the exercise of your oversight responsibilities.

Two weeks ago, in his testimony before the House Banking Committee, Chairman Greenspan emphasized the delicate balance of considerations which must be taken into account in the conduct of monetary policy in 1988. I interpret his remarks as indicative of the Federal Reserve's readiness to move toward an easier monetary policy if economic growth weakens unduly this year, and an equal readiness to move toward restraint if inflation threatens to turn up in 1988. From my own perspective, the principal concern that the Fed will have to face in 1988 is not warding off a recession, but holding inflation at bay. I would like to develop this thought briefly.

The economy is now in its 6th year of an expansion in which real GNP has risen at an average annual rate of 4.2 percent. Unemployment has declined from 10 3/4 percent of the civilian

labor force in late 1982 to 5 3/4 percent currently; substantial improvement has also occurred in raising the utilization of plant capacity.

We are obviously much closer now than a year or two ago to the point where additions to output relative to our economic potential threaten higher inflation. There is little evidence to date that stronger pressures on consumer prices or on producer prices of finished goods are in the immediate offing. It would, however, be foolish to ignore the fact that prices of crude nonfood materials, excluding energy, rose over 20 percent during the past year, compared with a 3 percent rise in the previous 12 months, or that prices of intermediate materials less food and energy increased 6 percent, compared with a 1 percent rise in the previous year. Wage rate increases, the largest element of business costs, still remain quite moderate. However, year-over-year increases in the average hourly earnings index have been moving up since the middle of 1987 and will bear close watching as a potential threat to greater inflation later in 1988.

My own judgment is that it would be risky at this stage of the economic expansion to try to achieve a rate of economic growth in 1988 significantly above the economy's long-term growth potential, which is about 2 1/4 percent. Certainly, another year of 4 percent growth such as occurred in 1987 (fourth quarter to fourth quarter) would not be an appropriate objective of economic

policy for 1988. Thus, signs of a slowdown in economic growth from the strong pace of 1987 should be welcome. Only if the prospective slowdown threatens to reduce growth well below the economy's long-term potential growth rate would there be strong reasons for economic policies to counteract it.

Opinions differ as to the economic damage created by the stock-market crash, and more generally as to the implications of the sharp increase in inventory investment in the fourth quarter of last year. I do not propose to subject you to a lengthy exposition of my own views, but I would like to make just a couple of points.

First, business cycles traditionally have been concentrated in the durable goods industries, where advance warning of impending change is typically signalled by changes in new and unfilled orders. As the two charts attached to my testimony indicate, new and unfilled orders for durable goods began to rise last spring, probably reflecting mainly increased export orders. As yet, there is no sign that the rise of new orders and order backlogs has abated.

Second, the underlying resiliency of the U.S. economy is evidenced by continued very strong increases in employment through the month of February. Indeed, the average monthly rise of total nonfarm payroll employment in January and February

exceeded that of the latter half of 1987, when GNP was rising at more than a 4 percent annual rate, even though recent increases in manufacturing employment have diminished considerably. The slower rise of manufacturing jobs suggests that economic growth is slowing somewhat early this year in response to the inventory buildup of the fourth quarter. But the magnitude of the rise in overall employment suggests to me that the economy will weather the adjustment to lower rates of inventory accumulation without experiencing subpar growth for an extended period.

Given my rather optimistic assessment of the prospects for growth in 1988, and my concerns about the risks of an upturn in inflation, I was quite happy to see that the Federal Open Market Committee had lowered the midpoint of its 1988 target range for M2 to 6 percent, from 7 percent in 1987. This is a move in the right direction, although it clearly does not imply that actual M2 growth in 1988 will be below last year's unusually low growth rate. My own outlook for the economy in 1988 would not suggest the need for M2 growth outside the 4 to 8 percent range established by the FOMC for this year. Should such a need develop, however, the FOMC could adjust the range at midyear.

Let me turn now to the variability of money growth during the past several years, a matter of concern to this Subcommittee. Growth of M2 in 1985 and 1986 was close to the 8 to 9 percent range that characterized the years since 1978; it then

decelerated to half that amount in 1987. Growth of M1 in 1985 and 1986 was in the double-digit range, and well above the pace typical of most years in the previous decade; it then decelerated to about 6 percent in 1987. Was this degree of volatility appropriate?

As members of the Subcommittee search for a satisfactory answer to that question, I would urge you not to start from the premise that a steady growth rate of some measure of money represents the best course of monetary policy and that any deviation from the desired growth rate is therefore likely to be bad. Rather, I would suggest that you ask yourselves whether the economic performance that resulted from these growth rates was reasonably satisfactory.

The high growth rate of M1 in 1985 and 1986, for example, did not lead to the acceleration of inflation that some monetarists predicted. The overall inflation rate declined in 1986, when world oil prices collapsed, and turned up in 1987 when oil prices rose again. The year-over-year increase in consumer prices excluding food and energy, however, was virtually unchanged from 1985 through 1987.

The decline in monetary growth that occurred during 1987 was appropriate, and indeed necessary, in light of strengthening economic growth, increased danger of worsening inflation and

severe downward pressures on the dollar's exchange rate for much of the year. As I argued earlier, there is little reason to be concerned that last year's slowdown in money growth will become this year's recession. Some of the deceleration of monetary growth last year, in fact, probably reflected the impact of tax reform on individuals' willingness to borrow, and increased use of explicit fees, rather than compensating balances, by banks to cover their costs of servicing business accounts.

More generally, the volatility of money growth, and the corresponding swings in money velocity, that have occurred in recent years reflect a much greater sensitivity of money demand to market interest rates than what prevailed earlier in the post war period. Chairman Greenspan's testimony of two weeks ago emphasizes that point, and it also explains, along with the supporting documents submitted to the Congress, the principal reasons why this has been the case. What this increased sensitivity means is that even small changes in the course of monetary policy, in terms of their impact on prices and yields of financial assets and ultimately on economic activity and inflation, tend to induce rather large short-run changes in the growth of money balances. This is a fact of life which complicates the decision making process at the Federal Reserve, and it complicates your life as members of a Congressional Committee with oversight responsibilities for monetary policy. Nonetheless, it is a fact of life that has to be accepted.

Frustration stemming from difficulties in interpreting Federal Reserve policy sometimes leads to suggestions that the Fed should perhaps begin to use other measures as targets for monetary policy. It is hard to be opposed to the intellectual exercise of examining such alternatives, but I would not encourage you to think that practical alternatives are readily available.

The literature on monetary theory and policy over the past 20 to 30 years has discussed extensively the choice of targets for monetary policy. At the risk of oversimplification, it is perhaps fair to say that the ultimate objectives of monetary policy -- prices, output, and employment -- are generally regarded as relatively poor targets to guide the day-to-day operations of monetary policy, because the response of these variables to monetary policy is simply too far in the future and too uncertain. Targeting on interest rates is also regarded with skepticism -- but for different reasons. Short term interest rates respond quickly to changes in monetary policy, but market rates generally are also heavily influenced by demands for credit as well as supply. A monetary policy targeting on interest rates and ignoring the monetary aggregates can inadvertently become much too expansive or too restrictive if demand and supply influences cannot be separately identified, and this is particularly difficult in periods of rapidly changing inflation and inflationary expectations.

More recently, attention has begun to focus on other variables, such as the prices of a basket of commodities, as possible monetary policy targets. Ideas such as these have yet to be thoroughly explored, and may appear more attractive now than they will ultimately -- simply because so little is presently known about them. One well-recognized problem of seeking to stabilize an index of the average prices of a basket of commodities whose individual prices move sensitively is that factors unique to the supply and demand for a particular commodity may create movements in the index that have little or no meaning for overall inflation and hence should not give rise to a change in monetary policy. Such a problem could perhaps be handled by broadening the index. A larger and perhaps more intractable problem stems from the fact that commodity prices are vehicles for speculation. If inflationary expectations worsen, long-term interest rates will rise, and commodity prices will be driven up by speculation. Monetary policy will then tighten, and push up long-term interest rates further. Such a change in monetary policy would be appropriate if, in fact, the worsening of inflationary expectations is based on a well-grounded view of probable developments. If markets are efficient, price developments reflect all the available information about the future. If market expectations are determined to an important degree by mass psychology, as a recent study of the stock market crash of 1987 by Professor Robert Shiller suggests is possible, using commodity

prices as a target for monetary policy could be destabilizing.

For this reason, I would argue that the Federal Reserve would be unwise to adopt a targeting procedure in which it responded automatically to market signals -- whether those signals come from commodity prices, from exchange rates, or from long-term interest rates. The Fed needs to exercise judgment that is independent of such market signals in determining the course of monetary policy. At the same time, it must be recognized that spending and inflation are influenced by changes in public sentiment. Shifts in expectations may be signalled by changes in long-term interest rates, exchange rates, or by commodity prices. Such variables therefore convey information that should not be ignored in the conduct of policy, because their movement may help the Fed to evaluate what the current stance of monetary policy may imply for the future of economic activity and prices.

Let me turn, finally to a few brief comments on the role of exchange rates in the recent conduct of monetary policy. During 1987, tightening actions by the Fed that took place during the spring appear to reflect concerns that the dollar was falling too rapidly. Those actions were not, as I interpret them, efforts to peg the nominal exchange rate at any specific level or range with respect to foreign currencies. Rather, they were actions to help ward off a crisis of confidence in the dollar, an outflow of foreign capital, and a collapse of the dollar's international

value.

There were further tightening actions by the Federal Reserve in August and September that appear to reflect a mixture of domestic and international concerns -- concerns that economic overheating would develop unless economic growth slowed, and concerns that confidence was still fragile in exchange markets. My reading of the economy at the time led me to the view that the degree of tightening undertaken by the Fed was wholly justified by developments in the domestic economy.

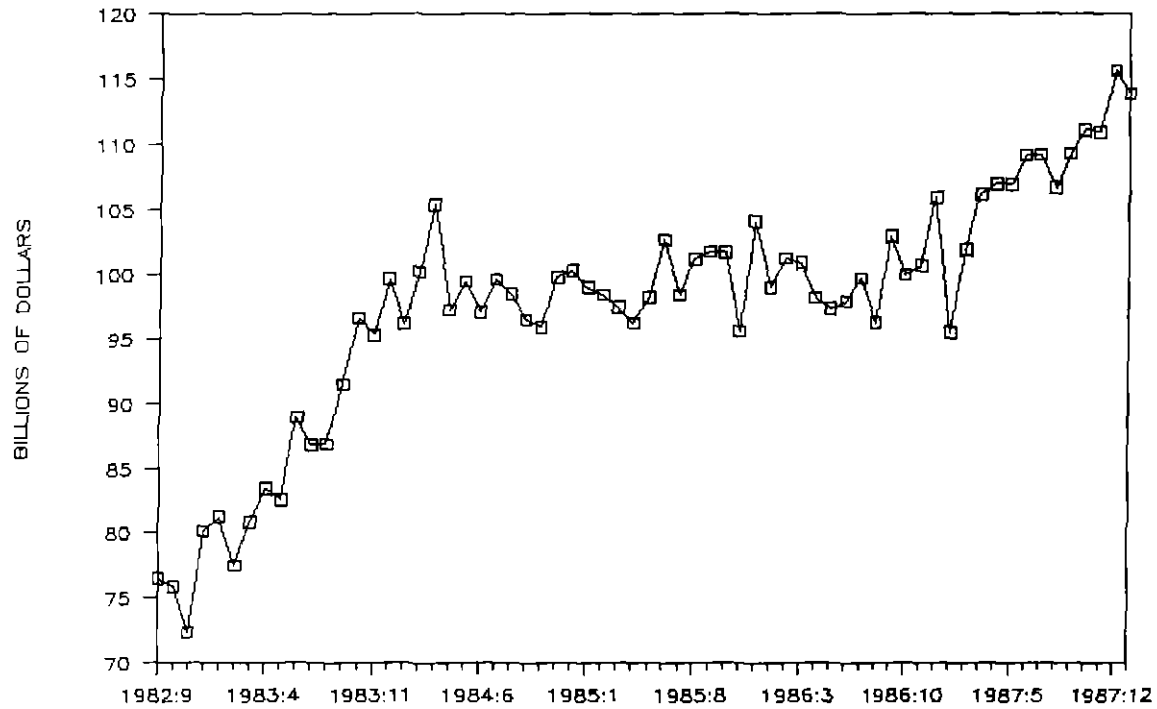
The rise in interest rates that stemmed from the late summer and early fall tightening of monetary policy clearly did play a role in the stock market's crash in October. But a far larger factor in the stock market's collapse was the fact that stock prices had risen to a level that was simply out of touch with reality, and they were ripe for a fall.

There may be some who would argue that the Federal Reserve should ignore the dollar's exchange value and focus its attention exclusively on the domestic economy. To me, such an argument makes no sense. The Federal Reserve needs to be concerned about the exchange rate precisely because movements in that rate have vitally important, and potentially very damaging, effects on the domestic economy -- effects on inflation, on interest rates, and on economic growth.

I do not have any reason to believe that international efforts to coordinate economic policy have undermined or compromised the independence of monetary policy. To my knowledge, agreements such as the Louvre Accord have involved sterilized intervention and understandings with regard to fiscal policies; they have not entailed, as far as I know, any understanding, explicit or otherwise, as to the course of Federal Reserve Policy.

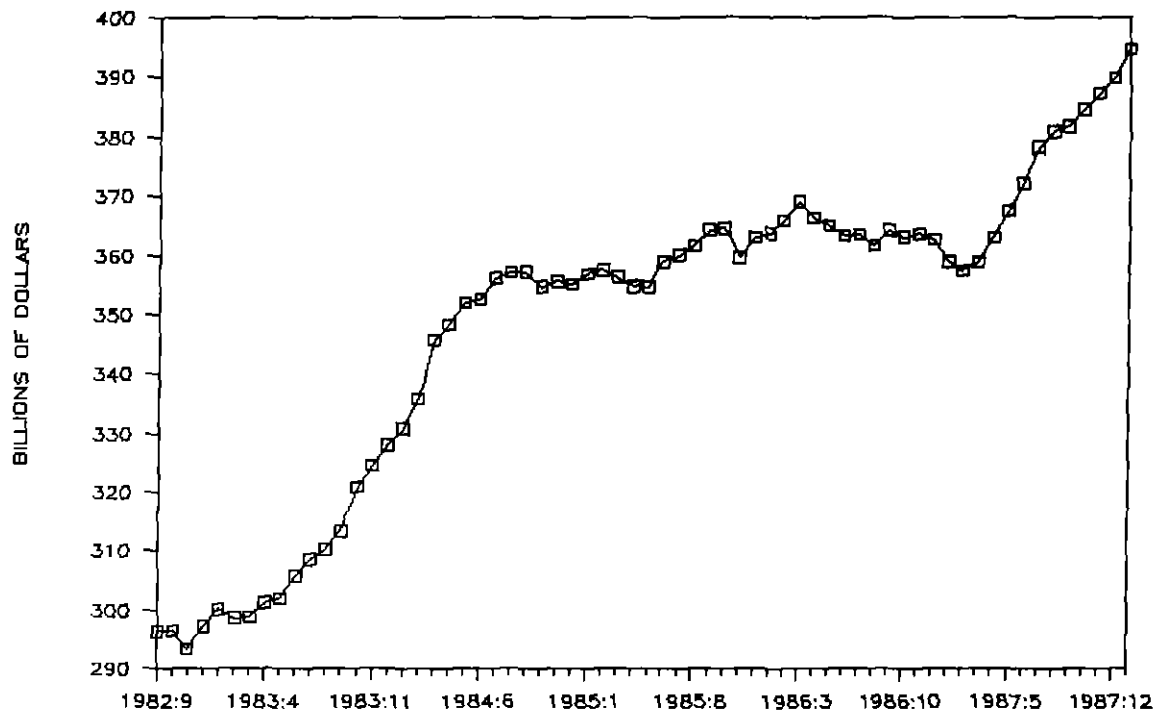
Such international agreements might sacrifice the appearance of independence if market participants misinterpreted them. I am not aware of any such problems. To be sure, downward pressure on the dollar during the spring and summer of 1987 led market participants to expect that the Federal Reserve might react by tightening monetary policy. The principal reason for that expectation, however, was that market participants assumed-- quite rightly, I think -- that the Federal Reserve could not sit idly by and watch the dollar collapse without risking very serious adverse consequences for the economy.

NEW ORDERS, ALL DURABLE GOODS



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UNFILLED ORDERS, ALL DURABLE GOODS



Average Monthly Employment Increases

(000)

	<u>July-Oct.</u>	<u>Nov.-Dec.</u>	<u>Jan.-Feb.</u>
Total Payroll Employment	291	315	353
Goods-Producing Industries	76	98	37
Mining	6	-4	-5
Construction	11	34	23
Manufacturing	58	68	19
Durables	36	42	5
Non Durables	22	26	14
Service Producing Industries	216	217	316
Transportation & Public			
Utilities	22	19	12
Wholesale Trade	13	20	16
Retail Trade	46	25	141
Finance, Insurance			
and Real Estate	16	9	5
Services	81	103	118
Government	39	42	25

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Comments on
The Summary Report of the Federal Reserve Board

A Statement by
Larry J. Kimbell
Director, UCLA Business Forecasting Project
Anderson Graduate School of Management
University of California, Los Angeles

before the
Subcommittee on Domestic Monetary Policy
of the
Committee on Banking, Finance and Urban Affairs
U.S. House of Representatives

March 17, 1988

The UCLA Forecast Calls for Recession in 1988

The March 1988 UCLA National Business Forecast calls for a mild three quarter recession in 1988, with only one quarter showing an annual rate of decline in excess of 1 percent. Higher savings by consumers and an inventory correction account for most of the projected weakness.

Monetary policy can afford to be moderately accommodative in view of the reduced threat of inflation and rising indications of slack that a recession will bring. The UCLA Forecast calls for the all-urban consumer price index to rise by 3.5 percent in 1988, held down by an average refiners acquisition cost of imported crude oil of \$16 per barrel, \$2 less than in 1987. Interest rates on 90-day treasury bills will average less than 5 percent in the second half of 1988, about 1 percent lower than currently.

The Consensus View Remains More Optimistic about 1988

The evidence for or against a recession in 1988 remains more mixed than I can recall in 15 years of forecasting. Evidence cited in the next three paragraphs is clearly positive and undoubtedly helped persuade the majority of economic forecasters surveyed in the monthly Blue Chip Economic Indicators that a recession in 1988 has less than a fifty-fifty chance of happening. The March 1988 Consensus, for example, shows a mean forecast for real GNP growth in 1988 of 2.4 percent.

The evidence against a recession includes:

Real exports grew at annual rates of 15 percent or higher in the last three quarters of 1987 reflecting the advantages to U.S. exporters of the lower foreign exchange value of the U.S. dollar against the currencies of our major trading partners, (see Table 2, Part B). Real imports fell or grew less than real exports in every quarter of 1987, allowing real net exports to improve each quarter. Real net exports improved in 1987 for the first time this decade, (see Table 1, Part B).

Job gains continued to be strong in January and February 1988, with the unemployment rate falling to the lowest level since July 1979.

Consumer confidence has been restored to levels higher than before the stock market Crash in October, 1987. The stock market itself has risen to nearly 2100 on the Dow-Jones Industrial Averages.

The Stock Market Crash of 1987

The stock market has been used as a leading economic indicator since the 1930s, as was often mentioned during the bull market from 1982 to August 1987. A severe drop in the stock market does not augur well for the economy and, according to several well developed lines of scholarly research, does not help the outlook for continue expansion. A few major strands of this literature include:

A Wealth Effect According to the life-cycle hypothesis, reduced wealth tends to reduce consumer spending. This effect alone would probably mean a slowdown but no recession.

A Consumer Uncertainty Effect The stock market in October 1987 was lower in value but, more importantly, fluctuate violently, leading consumers to be more pessimistic in first surveys. Confidence indicators have returned to normal but individual investors remain very wary of the stock market.

Tobin's Q Effect High market values of corporate assets relative to their replacement costs tend to increase investment. Low values tend to encourage acquisitions of existing firms and plants, instead of building new ones.

Interest Risk Premia Interest rates fell significantly after the Crash for the best rated borrowers, such as the federal government, or Aaa corporate bonds. The spread between junk bonds and better rated bonds widened significantly and remains in March 1988 much higher than before the Crash. Greater uncertainty means that higher risk premiums are likely to persist and will tend to depress investment by less than the best rated borrowers.

Equity Risk Premia Studies by James Poterba and Lawrence Summers indicate that higher volatility in common stock prices does not have major impacts on the stock market unless it is expected to persist. If volatility does persist, however, the cost of equity capital will rise substantially, reinforcing the higher interest risk premium in depressing business investment. The stock market reached a near meltdown condition in January 1987, when the Dow-Jones dropped 110 points in little more than 1 hour. It again reached near meltdown in January 8, 1988, when the Dow-Jones dropped 140 points, with more than 60 points of the decline in the last 30 minutes. Notice that these episodes of very high volatility came before and after the great Crash of mid-October, 1987. We have no assurances that another episode will not occur in 1988.

Pension Contribution Effect A potentially perverse implication of the stock market Crash on corporate profits stems from the potential that lower stock prices may raise corporate pension contributions. Alicia Munnell estimates that in 1986 capital gains in the stock and bond markets allowed reduced pension contributions in defined benefit plans and this raised corporate profits 18% higher than they would have been otherwise. In reverse, a stock market drop tends to raise contributions, lower corporate profits and may further exacerbate the stock market decline.

Some Indications of Recession were Already Apparent in the Real GNP Components in the Fourth Quarter of 1987

Other evidence that tips the odds toward recession is considerable, in my opinion; consider the following data from Table 2, Part A:

*Real GNP grew at the annual rate of 4.5 percent in the fourth quarter of 1987, but this means simply that production was high--more critical for sustained growth--real sales did not grow rapidly. High production with poor sales led to a very substantial rate of accumulation of inventories. Without the unintended inventory accumulation, the real GNP would have grown at only a 1 percent rate.

*Real consumption fell at the recessionary rate of 3.5 percent in the fourth quarter, only the second negative quarter since the last recession.

*Real business fixed investment turned abruptly negative after a very strong third quarter.

*Real federal purchases grew at the annual rate of 24.4 percent due to large purchases by the Commodity Credit Corporation; this means that inventory accumulation would have been even higher without this transfer from farmers to the federal government.

Other Evidence Pointing to Recession

*Real retail sales, excluding the automotive group, will drop an estimated 2.9 percent from the first quarter of 1987 to the first quarter of 1988, based on January and February data. Declines of this magnitude have never been seen except during recessions, as shown clearly in Charts 1 and 2.

*Michael Darby, Assistant Secretary of the Treasury for Economic Policy, (and a Professor on leave from the Anderson Graduate School of Management), sent a letter with accompanying charts of real money supply movements and business cycle developments to members of the Federal Reserve Board and Presidents of the regional Federal Reserve Banks. (To make this testimony self-contained, I have reproduced his chart for Real M2 below as Attachment A.)

Darby's chart shows clearly that declines in real M2 tend to lead downturns in the general economy so reliably that one could use this indicator alone with some considerable confidence. Furthermore, declines in real M2 during 1987 suggest recession in early 1988. The relationship shown by Darby is very widely known and accepted by scholars of business cycle developments, one reason this indicator is included with the stock market as a component of the index of leading economic indicators.

Is a Mild, Consumer-led Recession Undesireable?

This question is not asked facetiously. Suppose that the future of the U.S. economy were known and we knew it would unfold precisely as indicated in the UCLA Forecast. Should monetary (or fiscal policy) be used to alter the results significantly? One could easily answer that much of the recessionary story depicts a necessary restructuring of the economy, away from excessive dependence on consumer spending and toward more competitive international performance. Consider the following features:

- (1) Real consumer rises 1.1 percent in 1988, less than the increase in real disposable income, only the second such year since 1982. The savings rate rises to 4.6 percent, still more than one-third below its levels in the early years of this decade.
- (2) Real exports grow faster than real imports for the second year in a row. The gap between U.S. imports and exports remains large but at least the direction is finally correct.
- (3) The recession means that the unemployment rate averages 6.2 percent in 1988--identical to the average rate of 1987, although disappointing by comparison with recent monthly levels. Lower capacity utilization in manufacturing helps make room for the export boom without serious threats of reflation in the next two years.
- (4) High leverage by corporations makes profits vulnerable to a downturn and the forecast reflects this danger with a drop of 19.2 percent in 1988. Recovery in 1989, however, restores profits to higher levels than in 1987. To the extent that the stock market looks ahead several years, a mild recession need not be too worrisome.

The Key Problem for the Fed: Keeping a Slowdown or Mild Recession from Snowballing to Serious Recession

The obvious problem with this forecast is that the continuing nervousness in financial markets could lead to a more serious recession. As Chairman Greenspan's testimony acknowledges, major money center banks have problem loans to developing countries, energy producers and some real estate borrowers. Some of the thrift institutions are also not in a position to suffer further losses.

I draw the following implications for monetary policy during 1988:

- (1) The forecast implies that the money supply will need to grow faster than the mid-points of the target ranges, e.g., faster than 6 percent for M2, if recession is to be avoided.
- (2) The extreme volatility of the growth of the monetary aggregates, (too fast in 1985 and 1986, too slow in 1987, in my opinion), should be avoided, limiting the usefulness of an extremely aggressive change in policy at this point in time. A serious recession, should it develop, will mean a forceful

change would be recommended and, I presume, likely to be acceptable to the FOMC.

(3) Stabilization of exchange rates by any means other than control over domestic inflation is extremely difficult in light of the large volume of foreign exchange activity. It should not be an important objective of monetary policy, although assurances that the U.S. will continue to keep inflation under control will tend to reduce the chances of further substantial devaluations of the U.S. dollar.

In conclusion, it may be surprising that my policy recommendations are not nearly as far apart from those presented by Chairman Greenspan as my forecasts for the economy may seem to imply. The U.S. consumer cannot continue forever as the "buyer of last resort" for the entire world. It is time to shift resources away from the production of consumption goods and services and to encourage exports and investment. A mild, consumer-led recession is therefore not altogether undesirable.

The stock market Crash of 1987 must make monetary policy receptive to substantial changes in direction should a recession, if it develops, begin to snowball out of control. I interpret Chairman Greenspan's remarks as consistent with this suggestion.

This is not an enviable time to be Chairman of the Federal Reserve Board.

Table 1 Part A. Summary of the UCLA National Business Forecast

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Monetary Aggregates, Velocity, GNP--X change											
Money Supply (M1)	6.2	7.0	6.6	11.1	7.0	9.2	13.1	10.8	4.8	5.9	5.8
Money Supply (M2)	8.0	9.4	9.3	12.5	7.9	9.1	8.3	6.5	4.9	5.6	6.4
Velocity (M1)	2.5	4.4	-2.7	-3.2	3.5	-2.6	-6.6	-4.3	-0.7	0.7	1.7
Velocity (M2)	0.8	2.1	-5.1	-4.4	2.6	-2.6	-2.5	-0.5	-0.8	0.9	1.1
Gross National Product	8.9	11.7	3.7	7.6	10.8	6.3	5.6	6.0	4.1	6.6	7.5
Real GNP	-0.2	1.9	-2.5	3.6	6.8	3.0	2.9	2.9	1.0	3.2	3.7
GNP Deflator	9.1	9.6	6.5	3.8	3.8	3.2	2.6	3.0	3.1	3.4	3.7
Interest Rates (%) on:											
90-day Treasury Bills	11.4	14.0	10.6	8.5	9.5	7.5	6.0	5.8	5.0	4.9	4.9
Prime Bank Loans	15.3	18.9	14.9	10.8	12.0	9.9	8.3	8.2	7.5	6.8	6.9
New Corporate Aaa Bonds	12.5	15.0	13.9	11.6	12.3	11.0	8.6	9.3	8.8	8.4	8.2
Prime Rate Less Inflation	4.5	9.6	9.2	6.7	8.3	6.5	6.1	4.2	3.8	2.9	3.0
Federal Fiscal Policy											
Effective Tax Rates (%):											
Personal Income	13.6	14.1	13.7	12.5	11.8	12.3	12.1	12.7	12.0	11.9	12.2
Wages (Soc. Sec.)	13.6	14.5	14.7	15.1	15.5	15.7	15.8	15.7	16.5	16.5	16.8
Corporate Profits	29.6	29.0	28.9	29.4	31.3	33.9	35.1	40.3	41.1	41.5	41.0
Defense Purchases--X change											
Current \$	17.1	17.4	15.7	10.6	9.3	10.7	7.2	6.3	0.6	0.3	0.4
Constant \$	4.2	5.3	7.5	6.7	5.6	8.3	5.9	5.4	-1.1	-3.0	-3.5
Other Expenditures--X change											
Transfers to Persons	20.1	14.2	12.1	7.5	1.2	6.5	5.2	4.1	7.4	6.7	5.0
Grants to S&L Gov't	10.2	-0.9	-4.6	2.8	8.5	6.6	7.2	-3.3	5.9	3.6	4.7
Net Interest	25.4	35.7	16.8	11.5	22.7	12.6	4.2	5.1	3.0	2.1	3.4
Billions of Current Dollars											
Revenues	553.8	639.5	635.3	658.9	726.0	788.6	827.4	917.2	937.7	1012.4	1112.7
Expenditures	615.2	703.3	781.2	835.9	895.5	984.7	1032.0	1066.5	1110.8	1153.8	1193.6
Deficit	-61.3	-63.8	-145.9	-176.0	-169.6	-196.0	-204.7	-151.2	-173.1	-141.4	-80.9
As Shares of GNP											
Revenues	20.3	21.0	20.1	19.4	19.2	19.7	19.5	20.4	20.1	20.3	20.8
Expenditures	22.5	23.0	24.7	24.5	23.7	24.6	24.4	23.8	23.8	23.2	22.3
Defense Purchases	5.2	5.5	6.1	6.3	6.2	6.5	6.6	6.6	6.4	6.0	5.6
Transfers to Persons	9.0	9.2	10.0	10.0	9.1	9.1	9.1	9.0	9.2	9.2	9.0
Net Interest	2.0	2.4	2.7	2.8	3.1	3.2	3.2	3.2	3.1	3.0	2.9
Deficit	-2.2	-2.1	-4.6	-5.2	-4.5	-4.9	-4.8	-3.4	-3.7	-2.8	-1.5
Details of Real GNP--X change											
Real GNP	-0.2	1.9	-2.5	3.6	6.8	3.0	2.9	2.9	1.0	3.2	3.7
Final Sales	0.5	1.0	-1.1	3.0	4.7	4.7	2.8	2.1	1.7	2.7	3.2
Consumption	-0.2	1.2	1.3	4.7	4.8	4.6	4.2	1.9	1.1	2.3	2.8
Business Fixed Investment	-2.6	4.2	-7.2	-1.5	17.7	6.8	-2.3	0.9	3.5	0.8	6.3
Producers Durable Equip.	-6.1	1.4	-9.3	4.7	20.3	8.3	2.9	3.2	5.0	1.2	7.4
Structures	4.3	9.2	-3.7	-11.2	13.0	3.9	-12.8	-4.7	-0.3	-0.6	3.2
Residential Construction	-19.8	-7.6	-16.9	42.0	14.5	2.2	12.5	0.0	-3.6	8.4	6.8
Exports	9.1	0.9	-7.8	-3.8	6.8	-1.7	3.3	12.8	12.6	6.4	7.5
Imports	-6.0	3.4	-2.2	9.6	23.9	3.9	10.5	7.3	5.1	0.3	4.6
Federal Purchases	4.5	5.1	5.1	0.9	5.7	11.5	2.5	1.6	-1.4	-1.4	-2.3
State & Local Purchases	0.2	-0.9	-0.3	1.3	3.5	4.1	4.8	3.2	1.8	0.7	1.4
Billions of 1982 Dollars											
Real GNP	3187.2	3248.7	3166.0	3279.1	3501.4	3607.4	3713.3	3820.3	3858.3	3979.9	4126.8
Final Sales	3194.1	3224.9	3190.6	3285.5	3439.1	3600.1	3699.4	3778.4	3842.3	3947.3	4072.3
Inventory Change	-6.9	23.9	-24.5	-6.4	62.3	7.4	13.8	42.0	16.0	32.7	54.6

Table 1. Part B. Summary of The UCLA National Business Forecast

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Industrial Production and Resource Utilization											
Production--% change	-1.9	2.2	-7.2	5.9	11.2	1.9	1.1	3.8	0.5	4.7	6.0
Capacity Util. Manuf. (%)	79.3	78.3	70.3	73.9	80.5	80.1	79.7	81.0	79.1	81.0	84.2
Real Bus. Investment as % of Real GNP	11.9	12.2	11.6	11.0	12.1	12.6	12.0	11.7	12.0	11.7	12.0
Employment (mil)	99.3	100.4	99.5	100.8	105.0	107.2	109.6	112.4	114.4	115.5	118.0
Unemployment Rate (%)	7.2	7.6	9.7	9.6	7.5	7.2	7.0	6.2	6.2	6.3	5.5
Inflation--% change											
Consumer Price Index	13.5	10.4	-64.6	3.2	4.3	3.5	1.9	3.7	3.5	3.9	4.1
Consumption Deflator	10.8	9.2	5.7	4.1	3.8	3.4	2.2	4.0	3.7	3.8	3.9
GNP Deflator	9.1	9.6	6.5	3.8	3.8	3.2	2.6	3.0	3.1	3.4	3.7
Producers Price Index	14.1	9.1	2.0	1.2	2.4	-0.5	-2.9	2.6	2.6	3.2	3.7
Factors Related to Inflation--% change											
Nonfarm Business Sector											
Wage Compensation	10.5	9.4	7.8	4.3	3.9	4.4	3.9	2.8	3.6	4.0	4.7
Productivity	-0.5	1.0	-0.6	3.3	2.0	1.2	1.7	0.8	-0.0	2.0	1.9
Unit Labor Costs	11.0	8.3	8.4	1.0	1.8	3.2	2.2	2.0	3.6	2.0	2.8
Farm Price Index	3.4	2.1	-4.9	2.4	3.0	-9.9	-2.3	2.7	2.3	2.1	2.0
Natural Gas Deflator	19.3	13.2	20.7	16.7	0.7	-0.7	-4.9	-4.6	-1.9	1.3	4.8
Imported Crude Oil (\$/bbl)	33.97	37.07	33.59	29.35	28.87	27.00	14.32	18.06	15.03	17.95	19.85
New Home Price (\$1000)	64.71	68.82	69.29	75.45	80.02	84.27	92.23	104.39	111.03	115.09	123.72
Income, Consumption and Saving--% change											
Disposable Income	10.9	10.9	6.3	7.4	9.9	6.5	6.4	5.3	5.8	5.5	6.3
Real Disposable Income	0.1	1.6	0.6	3.1	5.9	2.9	4.0	1.2	2.0	1.6	2.3
Real Consumption	-0.2	1.2	1.3	4.7	4.8	4.6	4.2	1.9	1.1	2.3	2.8
Savings Rate (%)	7.1	7.5	6.8	5.4	6.1	4.5	4.4	3.8	4.6	4.1	3.7
Housing and Automobiles--millions of units											
Housing Starts	1,300	1,096	1,057	1,705	1,766	1,741	1,812	1,634	1,476	1,653	1,774
Retail Auto Sales	9.0	8.5	8.0	9.2	10.4	11.0	11.4	10.3	9.7	10.2	11.0
Corporate Profits											
Billions of Dollars											
Before Taxes	237.1	226.5	169.6	207.6	239.9	224.8	231.9	275.4	228.4	305.4	357.7
After Taxes	152.3	145.4	106.5	130.4	146.1	128.1	126.9	137.1	110.8	146.2	172.6
Retained Earnings	97.6	81.8	39.6	58.8	67.1	46.8	40.1	43.3	11.3	45.7	69.2
Percent Change											
Before Taxes	-7.8	-4.5	-25.1	22.4	15.6	-6.3	3.1	18.8	-17.1	33.7	17.1
After Taxes	-10.0	-4.5	-26.7	22.4	12.0	-12.3	-1.0	8.1	-19.2	32.0	18.0
S&P 500 Stock Price Index	118.8	128.0	119.7	160.4	160.5	186.8	236.3	286.8	274.6	298.8	302.3
International Trade											
U.S. Dollar--% change	-0.1	9.8	10.3	4.0	7.2	3.9	-16.7	-11.2	-7.0	-0.9	0.6
Industrial Production:											
Canada--% change	-1.5	0.4	-8.9	5.4	14.1	5.2	1.3	4.8	2.3	1.5	3.4
Japan--% change	4.6	1.1	0.4	3.5	11.0	4.5	-0.3	4.0	3.5	0.8	4.5
OECD Europe--% change	0.4	-2.0	-1.9	1.0	3.2	3.0	2.3	1.7	1.2	2.4	3.8
Real Exports--% change	9.1	0.9	-7.8	-3.8	6.8	-1.7	3.3	12.8	12.6	6.4	7.5
Real Imports--% change	-6.0	3.4	-2.2	9.6	23.9	3.9	10.5	7.3	5.1	0.3	4.8
Net Exports (bil. \$2\$)	57.1	49.3	26.4	-19.9	-84.1	-108.2	-145.8	-135.7	-110.8	-82.0	-72.4

Table 2. Part A. Quarterly Summary of the UCLA National Business Forecast

	1986:4	1987:1	1987:2	1987:3	1987:4	1988:1	1988:2	1988:3	1988:4	1989:1	1989:2
Monetary Aggregates, Velocity, GNP--% change											
Money Supply (M1)	14.4	13.9	6.8	0.8	4.0	5.3	5.5	6.2	5.8	6.0	5.9
Money Supply (M2)	9.3	6.6	2.7	2.8	4.1	6.6	5.4	5.9	3.8	6.6	5.7
Velocity (M1)	-10.7	-4.6	-0.5	6.5	3.1	-2.5	-5.0	-3.1	0.4	3.2	0.9
Velocity (M2)	-6.6	1.9	3.5	4.4	3.1	-3.6	-4.9	-2.8	2.4	2.6	1.2
Gross National Product	2.1	8.6	6.3	7.3	7.3	2.7	0.2	2.9	6.3	9.4	6.9
Real GNP	1.5	4.4	2.5	4.3	4.5	-0.2	-3.1	-0.6	3.5	5.9	3.0
GNP Deflator	0.7	4.2	3.5	2.8	2.7	2.9	3.5	3.5	2.7	3.3	3.8
Interest Rates (%) on:											
90-day Treasury Bills	5.4	5.5	5.7	6.0	5.9	5.6	5.2	4.7	4.6	4.7	4.8
Prime Bank Loans	7.5	7.5	8.0	8.4	8.9	8.5	7.6	7.1	6.8	6.6	6.5
New Corporate Aaa Bonds	8.4	8.1	9.1	9.7	10.2	9.4	8.8	8.6	8.5	6.5	8.4
Prime Rate Less Inflation	5.8	4.6	3.9	4.1	4.1	4.6	3.9	3.4	3.3	2.7	2.7
Federal Fiscal Policy											
Effective Tax Rates (%):											
Personal Income	12.4	12.3	13.2	12.6	12.6	12.1	12.4	11.7	11.8	11.8	11.8
Wages (Soc. Sec.)	15.7	15.8	15.8	15.7	15.7	16.5	16.5	16.4	16.4	16.6	16.6
Corporate Profits	36.5	40.1	40.2	40.2	40.8	41.5	41.1	40.9	41.1	41.2	41.4
Defense Purchases--% change											
Current \$	-11.4	12.8	10.1	6.3	1.2	-0.9	-2.2	-1.6	-1.8	5.3	-1.0
Constant \$	-10.5	7.6	9.8	7.5	-1.5	-4.1	-3.6	-2.7	-3.0	-2.5	-3.4
Other Expenditures--% change											
Transfers to Persons	0.9	5.2	5.7	2.2	2.5	12.0	9.5	9.2	6.5	9.4	4.1
Grants to S&L Gov't	-22.3	-2.3	15.7	-9.1	-8.2	24.4	9.4	1.5	4.0	3.6	3.5
Net Interest	11.2	5.0	0.9	9.2	16.3	-1.7	-3.1	-4.4	9.8	-0.2	1.7
Billions of Current Dollars											
Revenues	852.5	879.3	922.9	923.0	943.8	940.5	941.2	921.8	947.3	979.3	998.4
Expenditures	1041.2	1049.8	1062.1	1058.8	1103.1	1098.1	1100.2	1105.7	1139.2	1144.6	1146.4
Deficit	-188.7	-170.5	-139.2	-135.8	-159.3	-157.7	-159.0	-183.9	-191.9	-165.2	-148.0
As Shares of GNP											
Revenues	19.9	20.1	20.8	20.4	20.5	20.3	20.3	19.7	20.0	20.2	20.3
Expenditures	24.3	24.0	23.9	23.4	24.0	23.7	23.7	23.7	24.0	23.6	23.3
Defense Purchases	6.5	6.6	6.6	6.6	6.5	6.5	6.4	6.3	6.2	6.2	6.0
Transfers to Persons	9.1	9.0	9.0	8.9	8.8	9.0	9.2	9.4	9.4	9.4	9.3
Net Interest	3.2	3.2	3.1	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.0
Deficit	-4.4	-3.9	-3.1	-3.0	-3.5	-3.4	-3.4	-3.9	-4.0	-3.4	-3.0
Details of Real GNP--% change											
Real GNP	1.5	4.4	2.5	4.3	4.5	-0.2	-3.1	-0.6	3.5	5.9	3.0
Final Sales	3.7	-2.3	3.5	6.0	1.0	0.6	0.4	0.8	3.6	3.7	2.4
Consumption	0.5	-0.7	1.9	5.4	-3.1	3.8	-1.3	0.8	1.6	3.8	2.6
Business Fixed Investment	5.1	-14.6	11.7	25.8	-0.5	1.9	2.7	-5.4	-3.0	-0.2	3.6
Producers Durable Equip.	4.6	-15.3	16.5	26.4	-2.7	5.4	5.3	-4.3	-1.8	-0.7	3.5
Structures	6.5	-13.0	0.0	24.6	5.3	-6.9	-3.9	-8.3	-6.3	1.3	3.9
Residential Construction	2.2	-7.7	-2.8	-6.5	8.1	-17.5	-1.4	2.0	13.2	8.0	10.4
Exports	9.5	10.2	17.9	23.7	15.1	12.6	8.1	6.9	6.6	6.1	6.1
Imports	-0.8	-5.2	11.1	22.4	9.7	3.9	-2.8	-0.4	-3.5	-4.8	6.0
Federal Purchases	15.2	-18.6	6.6	4.5	24.4	-20.5	-5.7	-2.0	10.5	-8.2	-2.1
State & Local Purchases	2.4	5.0	1.7	1.2	5.3	0.8	1.1	1.0	0.8	0.6	0.6
Billions of 1982 Dollars											
Real GNP	3731.5	3772.2	3795.3	3835.9	3877.9	3876.0	3845.2	3839.4	3872.8	3928.4	3957.5
Final Sales	3745.8	3724.5	3756.3	3811.4	3821.3	3826.9	3830.9	3838.6	3873.0	3908.5	3931.9
Inventory Change	-14.4	47.6	39.0	24.6	56.7	49.1	14.3	0.9	-0.2	20.0	25.6

Table 2. Part B. Quarterly Summary of The UCLA National Business Forecast

	1986:4	1987:1	1987:2	1987:3	1987:4	1988:1	1988:2	1988:3	1988:4	1989:1	1989:2
Industrial Production and Resource Utilization											
Production--% change	3.9	3.1	4.3	8.7	6.6	-5.8	-3.4	-0.8	3.9	6.1	6.1
Capacity Util. Manuf.(%)	79.8	80.0	80.5	81.4	82.2	80.4	79.1	78.2	78.5	79.4	80.2
Real Bus. Investment as % of Real GNP	11.9	11.3	11.5	12.1	11.9	12.0	12.2	12.0	11.8	11.7	11.7
Employment (mil)	110.4	111.3	112.1	112.9	113.5	114.4	114.4	114.3	114.3	114.7	115.2
Unemployment Rate (%)	6.8	6.6	6.2	6.0	5.9	5.7	6.0	6.4	6.7	6.6	5.4
Inflation--% change											
Consumer Price Index	2.7	5.4	4.9	3.9	3.6	3.0	3.5	3.4	3.6	4.2	4.1
Consumption Deflator	2.6	5.8	5.1	3.9	4.3	2.5	4.1	3.7	3.5	3.9	3.9
GNP Deflator	0.7	4.2	3.5	2.8	2.7	2.9	3.5	3.5	2.7	3.3	3.8
Producers Price Index	1.4	4.5	6.1	5.3	1.8	1.2	2.7	2.2	3.1	3.6	2.8
Factors Related to Inflation--% change											
NonFarm Business Sector											
Wage Compensation	4.0	1.1	3.1	3.5	3.4	4.3	3.2	3.2	3.3	4.9	4.0
Productivity	0.0	0.4	1.5	4.1	-0.4	-0.6	-3.7	0.5	4.1	3.7	0.5
Unit Labor Costs	4.1	0.7	1.6	-0.7	3.8	5.1	7.2	2.7	-0.8	1.2	3.4
Farm Price Index	6.2	-9.9	21.4	-2.2	-2.6	5.6	0.4	3.0	-0.0	4.5	1.2
Natural Gas Deflator	-9.1	-2.2	-1.1	-5.1	-4.1	-0.7	-0.4	-1.0	-0.8	1.1	2.9
Imported Crude Oil (\$/bbl)	13.47	16.88	18.28	19.03	18.05	16.10	15.65	15.91	16.45	17.46	17.52
New Home Price (\$1000)	95.13	97.37	103.47	106.10	110.63	109.54	110.19	111.96	112.41	113.17	114.28
Income, Consumption and Saving--% change											
Disposable Income	3.1	8.7	0.6	8.5	10.2	5.6	1.9	6.3	4.0	6.9	5.3
Real Disposable Income	0.5	2.7	-4.3	4.5	5.7	3.0	-2.1	2.5	0.5	2.9	1.3
Real Consumption	0.5	-0.7	1.9	5.4	-3.1	3.8	-1.3	0.8	1.6	3.8	2.6
Savings Rate (%)	3.6	4.4	3.0	2.8	4.8	4.7	4.4	4.8	4.6	4.4	4.2
Housing and Automobiles--millions of units											
Housing Starts	1.717	1.779	1.606	1.619	1.534	1.426	1.456	1.494	1.527	1.584	1.643
Retail Auto Sales	11.3	9.5	10.0	11.5	10.0	10.6	9.7	9.2	9.2	9.9	10.1
Corporate Profits											
Billions of Dollars											
Before Taxes	247.9	257.0	268.7	284.9	291.1	246.7	214.0	205.9	247.3	280.7	292.0
After Taxes	134.0	129.0	134.5	141.9	143.2	119.1	104.0	100.5	119.5	135.3	140.0
Retained Earnings	45.4	38.7	42.1	46.7	45.9	20.4	4.5	0.7	19.6	35.3	39.8
Percent Change											
Before Taxes	21.1	15.5	19.5	26.4	9.0	-46.4	-43.4	-14.3	108.1	66.1	17.1
After Taxes	12.2	-14.1	16.2	23.9	3.6	-52.1	-42.0	-12.5	99.6	64.3	14.6
S&P 500 Stock Price Index	243.7	279.3	293.3	319.4	255.4	264.6	271.4	276.0	286.4	295.0	298.9
International Trade											
U.S. Dollar--% change	-0.6	-19.9	-11.8	4.9	-19.7	-7.1	-3.8	-2.1	-1.2	-0.5	-0.8
Industrial Production:											
Canada--% change	2.3	6.8	6.5	9.9	8.9	-0.3	-2.5	-2.4	-0.3	2.3	4.2
Japan--% change	-0.2	5.2	0.3	15.1	18.1	-2.8	-3.0	-1.5	0.5	1.8	0.4
OECD Europe--% change	-2.3	-0.0	7.2	-2.3	7.5	-1.0	-1.9	1.1	1.9	2.2	3.7
Real Exports--% change	9.5	10.2	17.9	23.7	15.1	12.6	8.1	6.9	6.6	6.1	6.1
Real Imports--% change	-0.8	-5.2	11.1	22.4	9.7	3.9	-2.8	-0.4	-3.5	-4.8	6.0
Net Exports (bil. \$2\$)	-151.8	-135.2	-132.7	-138.4	-136.4	-128.4	-115.1	-106.5	-93.4	-79.1	-80.1

Chart 1
History of Real Retail Sales
(Excluding Automotive Group)
(Billions of 1982 Dollars)

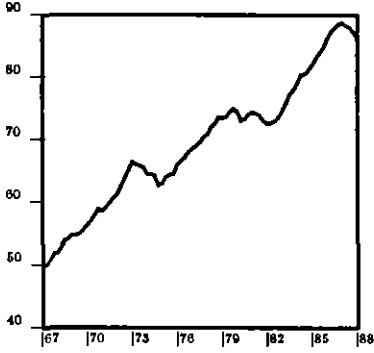


Chart 2
History of Real Retail Sales
(Excluding Automotive Group)
(Four-quarter Percent Change)

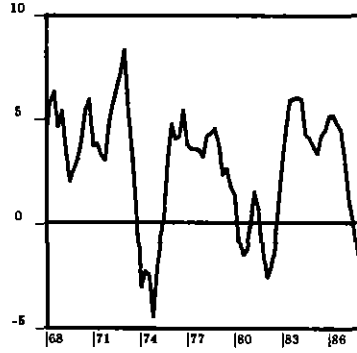


Chart 3
Real Gross National Product
(Annual Percent Change)

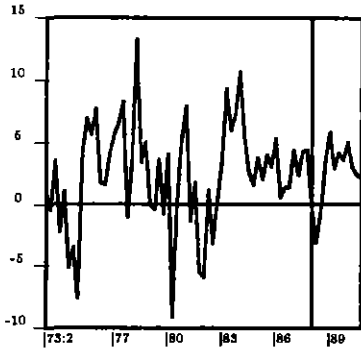


Chart 4
Real Final Sales
(Annual Percent Change)

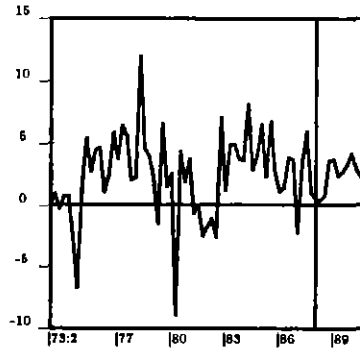


Chart 5
Real Gross National Product
(Billions of 1982 Dollars)

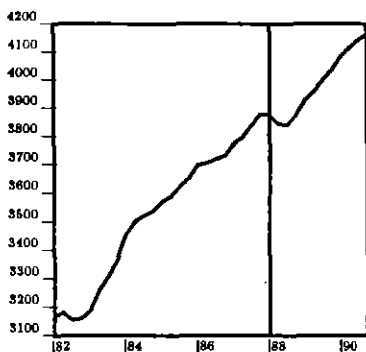


Chart 6
Real Gross National Product
(Four-quarter Percent Change)

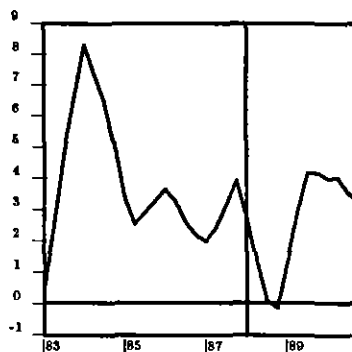


Chart 7
Corporate Profits
Before Taxes, ———
After Taxes, ———
(Billions of Dollars)

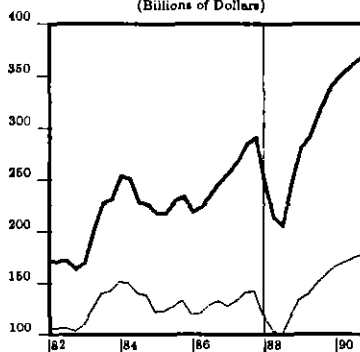


Chart 8
Standard & Poor's
Composite Index of Common Stock Prices
(Reindexed: 1982:1 = 1.00)

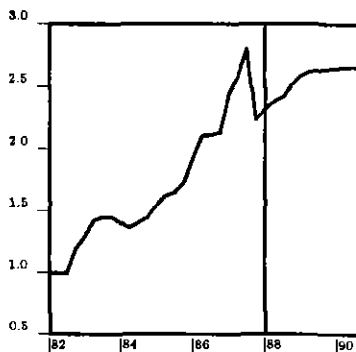


Chart 9
Nominal Price of Imported Crude Oil
(Dollars/Barrel), _____
Real Price of Imported Crude Oil
(1982 Dollars/Barrel), _____

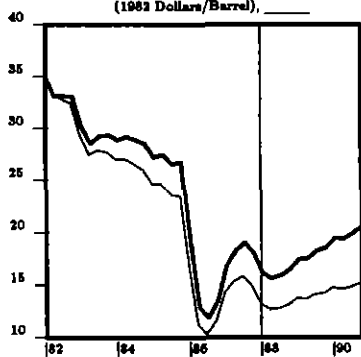


Chart 10
U.S. Dollar Exchange Rate
(1980-82=1.00)

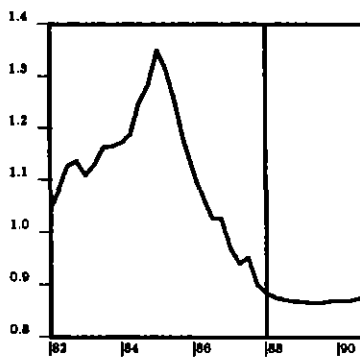


Chart 11
Consumer Price Index, _____
Producers Price Index, _____
(Four-quarter Percent Change)

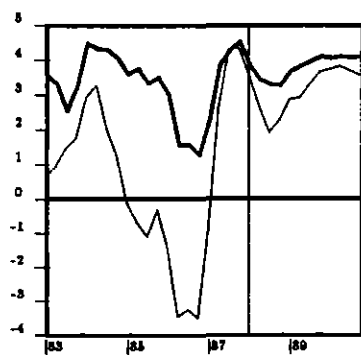


Chart 12
Consumption Deflator, _____
Index of Wage Compensation, _____
(Four-quarter Percent Change)

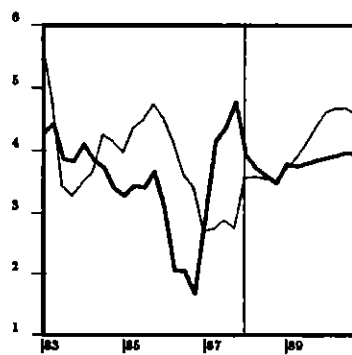


Chart 13
Real Money Supply (M1)
(Four-quarter Percent Change)

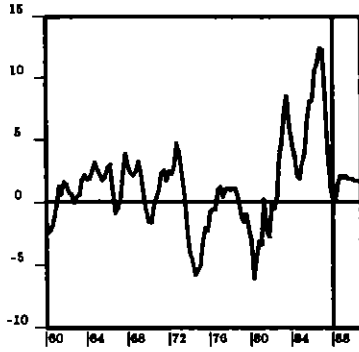


Chart 14
Real Money Supply (M2)
(Four-quarter Percent Change)

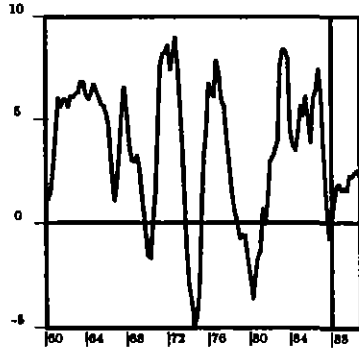


Chart 15
Velocity of Money (M1)
(Ratio of GNP to M1)

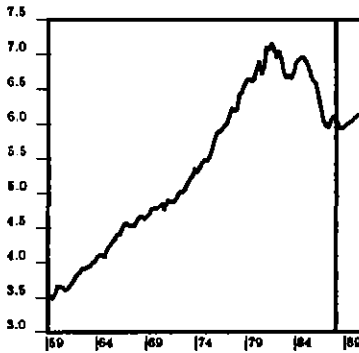
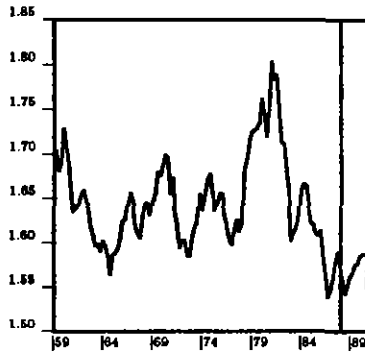
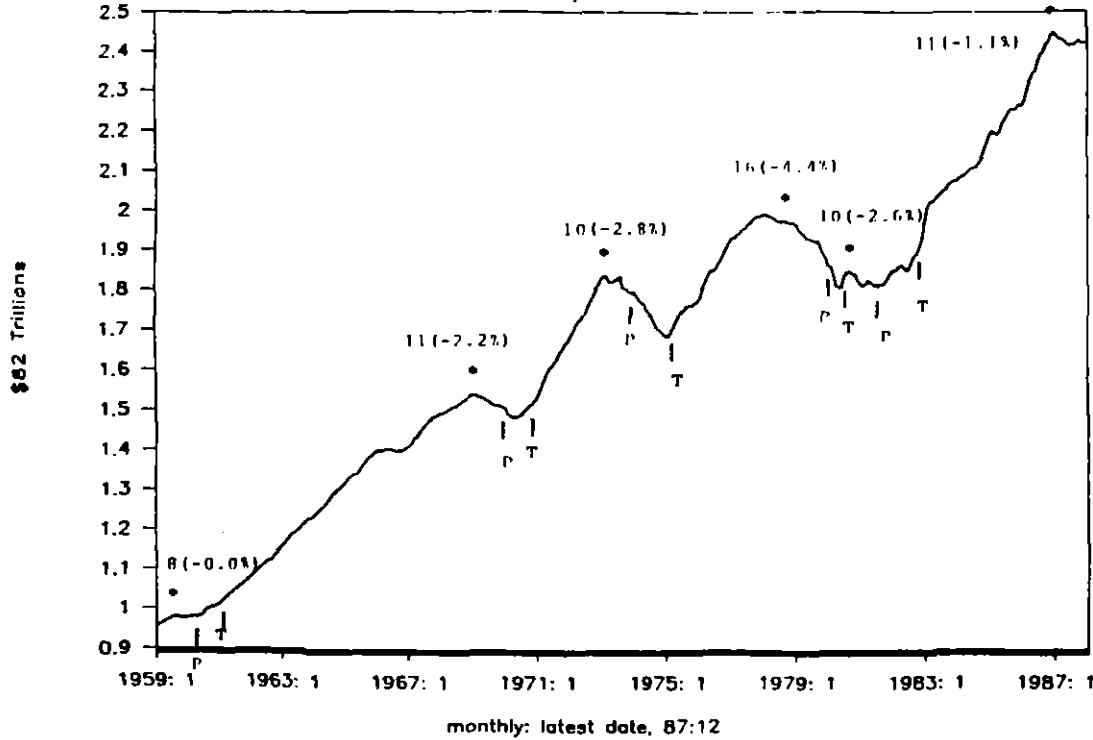


Chart 16
Velocity of Money (M2)
(Ratio of GNP to M2)



REAL M2

M2/CPI



Reproduced from Michael Darby's Letter of January 1, 1988 to the Members of the Federal Reserve Board and the Presidents of the Regional Federal Reserve Banks.

ATTACHMENT A

Release Time: 10 A.M., EST, March 17, 1988

Statement by
Milton W. Hudson
Senior Vice President and Senior Economic Advisor
Morgan Guaranty Trust Company of New York
to the
Subcommittee on Domestic Monetary Policy
of the
Committee on Banking, Finance, and Urban Affairs
U.S. House of Representatives
One Hundredth Congress
Washington, D.C.
March 17, 1988

I am very pleased to participate in this Committee's consideration of the conduct of monetary policy. I am here both in my capacity as Chairman of the Economic Advisory Committee of the American Bankers Association and as Senior Vice President and Senior Economic Advisor of Morgan Guaranty Trust Company of New York.

The statement which I will make is primarily a personal one, but it is broadly consistent with views held by a dominant majority of the members of the ABA's Economic Advisory Committee. That group last met on February 3rd and 4th and, with 15 members in attendance, spent a full day's time deliberating current monetary policy issues. I have appended to my prepared testimony the summary statement released at that time giving the group's assessment of the 1988 economic outlook and its recommendations for the

Page 2

conduct of monetary policy. That early February meeting was the first such occasion on which the ABA's Economic Advisory Committee has sought in a systematic way to reach a collective judgment on monetary policy issues. Although that effort was experimental in nature, the format is one that we are likely to repeat at regular intervals in the future. That is because we were extremely pleased with the quality of the dialogue and because we have had confirmation that others are interested in knowing what the ABA's economics panel (which represents institutions that are very diverse in size, activity, and geographic location) think about the conduct of monetary policy.

The views which members of the ABA's Economic Advisory Committee expressed on February 4 turned out to be remarkably similar to those of the Federal Reserve as embodied in its Humphrey-Hawkins Report to Congress on February 23. Like the Federal Open Market Committee, the ABA panel anticipates that 1988 will be a year of reasonably good growth in the American economy, with continuing sizable gains in employment --accompanied (largely because of the lessened slack that now exists in labor and product markets) by some tendency for inflation to accelerate relative to last year.

The ABA panel explicitly recognized that in the uncertain environment generated by last October's stock market crash surprises are distinctly possible. It therefore urged that the FOMC remain very sensitive to the possible

need to change policy on short notice. The tenor of the discussion among the bank economists made clear, however, that they viewed the risks of a high side breakout of growth in 1988 (and hence of a high side breakout of inflation) to be larger than the risks of serious economic weakening; consequently, they advised that the FOMC be especially cautious about moving in the direction of additional monetary accommodation.

The ABA group did recommend adoption of a set of ranges for the growth of monetary and debt aggregates in 1988 modestly different from those that the FOMC subsequently specified; but that difference is not consequential, since the FOMC's action at its meeting of February 9th and 10th in widening its targeted ranges for each aggregate (from three percentage points in 1987 to four percentage points in 1988) was entirely consistent with the spirit of the ABA panel's discussion of the use and limitations of growth targets for money and debt. Stressing that historical relationships between monetary growth and economic performance have tended to deteriorate in recent years, the ABA economists emphasized that it would be inadvisable for the Federal Reserve to adhere rigidly to monetary policy target ranges. Discussion made clear that most members of the ABA panel had a strong preference for an eclectic approach to monetary policy determination very similar to that which the FOMC in practice follows. Within such a context, the behavior of the aggregates does have

important guidance value but needs to be evaluated in the light of patterns exhibited by a broad range of economic variables and financial variables other than the aggregates.

In summary of these general points, I would say there are relatively few differences between the views of members of the FOMC and the views of members of the ABA's Economic Advisory Committee with respect to either likely economic developments in 1988 or how monetary policy determination should be approached. The only notable contrast relates to the issue of cooperative efforts among leading industrial countries to stabilize exchange rates among major currencies. The formal statements of the Federal Reserve do not elaborate as fully as one might wish the views of officials on the extent to which monetary policy should be conditioned by exchange-rate stabilization efforts. Nevertheless, it is clear, particularly on the basis of Federal Reserve actions in the spring of 1987, that the objective of resisting dollar depreciation has at times been an important element in Federal Reserve policy, with no recorded dissent as to the advisability of that objective by any member of the FOMC. The ABA economists, by contrast, pointedly assert that monetary policy should not be significantly conditioned by a concern with the external value of the dollar, mainly because they question the ability of any group of officials, however able, to make better judgments than the marketplace as to what exchange rates are appropriate. The ABA panel members characterized

the Louvre Accord as "an unfortunate mistake." This matter of currency stabilization efforts is something I will return to a bit later on.

As I have mentioned, my personal views regarding the conduct of monetary policy are broadly the same as those of the ABA panel. In particular, I have no quarrel with the relative deemphasis by the Federal Reserve in recent years of the monetary aggregates as policy guides --either with the decision not to specify a target range for M1 or with the Fed's tolerance of alternating rapid and slow growth of the broader aggregates. For a variety of reasons¹ relating to such things as financial deregulation and innovation, the monetary aggregates have come to be increasingly sensitive to changes in interest rates. That has caused their behavior to be dominated as much or more by the public's financial portfolio decisions as by their economic transactions. This has made the aggregates inherently much more volatile than formerly. As long as these circumstances prevail, the monetary aggregates will have circumscribed usefulness in the conduct of monetary policy. That is because, to use Chairman Greenspan's words, growth in the aggregates can

¹These reasons have been repeatedly elaborated on by analysts in recent years, so there is no need to repeat them here. Chairman Greenspan's testimony before the House Banking Committee on February 23 set forth systematically the causes of the lessened linkage between money growth and economic growth. So, too, in very similar vein did comment in this year's Annual Report of the Council of Economic Advisers.

range over a fairly wide spectrum and still be consistent with satisfactory performance of the economy.

This does not mean, of course, that the aggregates can be ignored. On the contrary, because of the powerful evidence that money, prices, and income have been critically intertwined over the long run, the monetary aggregates need to be monitored closely, with technical analysis always seeking to try to isolate the extent to which economic activity is in fact being conditioned by money growth. And at some point, conceivably, especially as deregulation works itself out, a settling down could occur in which a tighter linkage is reestablished between money and the economy.

Since that does not appear to be imminent, however, the present realities are that the Federal Reserve must seek guidance from a broad range of indicators as it pursues its fundamental objective of trying to foster sustained noninflationary growth. Is growth too weak or too strong, is it balanced or unbalanced, are price pressures being reasonably contained, will they remain contained in the future? These are the key questions that repeatedly present themselves as Fed officials wrestle over and over again with the issue of whether policy should be eased or tightened relative to what it has been.

A great many of the economic and financial indicators that can contribute guidance in answering those questions are obvious ones that we would all agree upon, but ultimately there is really nothing in the economic and

Page 7

financial realm that is not germane, which means that evaluation in the end inevitably takes on a considerable element of subjectivity. Like it or not, monetary policy is an art not a science --with the quality of the result depending critically on the energy, ingenuity, and knowledgeability of the players. That emphasizes the importance of selecting the strongest possible candidates for Federal Reserve office and of maintaining supportive staff organizations of the highest quality. That is something, happily, that in the main our country has been very successful at.

The quest for insights into the economic and financial process --and for new indicators that can be helpful-- is an unending one. It has just been carried a useful step farther by Manuel Johnson's reminder that financial auction markets often yield important information of early warning value. The Vice Chairman of the Federal Reserve Board made no claim that commodity price markets, foreign exchange markets, and the yield curve relations that emerge in debt securities markets have unique capacity, either singly or in combination, to tell us what monetary policy should be. But he did make the very sensible observation that we ought to be maintaining a careful watch on these indicators (which condense the knowledge and expectations of large numbers of buyers and sellers and which are readily available all the time) as supplements to other information --paying attention in particular to

whether their directional movement is similar or disparate. To some extent, these indicators may have been neglected because their high volatility complicates interpretation; but their potential for yielding corroborating insights would seem considerable if their movements are studied within the context of all the other things that analysts watch. Mr. Johnson's highlighting of that potential is constructive, particularly to the extent that it stimulates research aimed at refining knowledge of the "lead" properties of the trio. The notion that information yielded by auction markets needs to be used within the context of a broader information framework is a critical qualifier. In the absence at present of any narrow group of indicators closely and reliably linked to the economy, it is movement in unison of a variety of indicators that provides the only comfortable foundation for policy formulation. That is my conclusion, but I believe it is clearly implicit in the things the Vice Chairman was saying.

In his discussion of the information yielded by auction markets, Mr. Johnson touched peripherally on the Lours Accord, which is the subject I want to turn to next. After stressing the potential value of foreign exchange markets as information conveyors, the Vice Chairman noted --without fully elaborating the point-- that official exercises aimed at stabilizing exchange rates remove information from the market. For some analysts that fact alone would be sufficient reason for officials to shun

stabilization endeavors.² Mr. Johnson's text does not make clear how troubled he is about the distortion of market signals caused by exchange market intervention, but it is at least useful that his discussion draws needed attention to that issue.

Controversy over the Louvre Accord is focused for the moment on issues that are far more laden with emotion. These include such matters as whether cooperative efforts at exchange rate stabilization damaged the performance of the American economy last year, whether Louvre II threatens damage at present, and whether cooperative efforts at exchange rate stabilization are compatible with meaningful Federal Reserve independence.

As I've noted, members of the ABA's Economic Advisory Committee strongly believe that the Louvre Accord was a mistake, and I emphatically concur. Indeed, I think it was one of the most bizarre events in modern financial history, inimical to our national self interest and responsive instead to the narrow economic self interest of nations such as Japan and West Germany (which quite understandably wished to shift as much as possible of the burden of correcting international trade disequilibrium away

²This concern about the loss of information in foreign exchange markets is closely akin to frequently voiced worries about the loss of information in debt markets on occasions when central banks pursue interest-rate targeting in a way that severely restricts rate fluctuations.

from themselves).³ And I worry very much that we do not seem to have yet fully extricated ourselves from the risks inherent in interventionist activities, despite the clear evidence that last year's involvement had seriously negative consequences and despite the dark shadow that has been cast over Federal Reserve independence.

The agreement fashioned at the Louvre in February a year ago was the product of official concern, so we were told, that market forces were capable of producing a further significant decline in the dollar (very possibly a "free fall"⁴) at a time when officials believed that the dollar

³The best short articulation of the extent to which the Louvre Accord served foreign interests and neglected ours is in an article written by Dr. Martin Feldstein that appeared on the editorial page of the Wall Street Journal on March 3, 1988.

⁴The "free fall" scenario has been dwelt on repeatedly but has been the subject to less analytical attention than one would wish. No one would deny the possibility of market overshoots (relative to levels "fundamentals" would imply) but to the extent such possibilities exist they would seem to provide justification for temporary official intervention (say, to correct conditions that are clearly disorderly) rather than for more lasting governance of exchange rate movements. That is meant to be a suggestive comment only, since obviously the question of how efficient or inefficient foreign-exchange markets are is exceedingly complex. But just to carry the suggestive comment a bit further, I would note that the "free fall" scenario downplays the importance of self-correcting and self-limiting tendencies of market movements. The notion that a fall in the price of the dollar will reduce rather than increase the demand for dollars, thus reinforcing the momentum of decline, is at the very least far from evident. Indeed, the reasonable assumption to make is that investor appetite for dollar assets will tend to increase as dollar assets become cheaper. Rudiger Dornbusch and Jeffrey Frankel have made an interesting
(Footnote Continued)

had fallen sufficiently to correct international payments disequilibrium. Officials offered no persuasive supportive evidence for their judgment that the dollar had reached an appropriate level and quite clearly few people in the marketplace shared their views, as became evident from the enormous official purchases of dollars that subsequently proved necessary to keep the dollar propped up.

It is impossible to say with precision how much weight the Federal Reserve gave to sustaining the value of the dollar in 1987. The series of FOMC policy records issued for 1987 are frustratingly obscure about that, and, since the Federal Reserve has long since discontinued its former useful practice of maintaining full minutes of FOMC meetings and publishing them with a lag, this is a matter that may never be entirely clarified. We do have a record, however, of the many public statements which Chairman Volcker made around the time of the Louve Accord that emphasized the risks he thought would attend a further decline of the dollar and we also know that, at the first full FOMC meeting after he returned from the Paris gathering, foreign exchange market developments were given

(Footnote Continued)

contribution to the discussion of foreign exchange market efficiency in "The Flexible Exchange Rate System: Experience and Alternatives" (National Bureau of Economic Research Working Paper Number 2464, December 1987). They conclude that market efficiency falls short of the theoretical ideal, but they do not embrace the view that government intervention would do better.

greatly elevated status, indeed primacy, in the FOMC policy directive. That provides a reasonable basis for concluding that the firming of monetary policy that subsequently occurred was importantly related to concern over the dollar and that throughout the spring and summer of 1987 policy was tighter than domestic considerations alone would have warranted.

In my judgment, the consequences of dollar-support efforts were very negative. Since market participants were clearly skeptical about the wisdom of support, a great deal of confusion and uncertainty was added to the financial marketplace. The official effort to sustain the value of the dollar clearly accentuated tendencies for private foreigners not to invest in dollar-denominated assets because of their conviction that the propping effort was doomed to failure and that sooner or later the dollar would resume its drop. With a disinclination to buy dollar assets at values that were regarded as artificially high, private capital inflows to the United States slowed, contributing to the very steep runup in U.S. long-term interest rates that occurred between the early part of the year and the autumn. This implies that the Louvre Accord bears some responsibility for the severity of October's slump in stock prices, since there can be no doubt that the widening spreads that emerged as 1987 progressed between equity yields and bond yields created vulnerability for stock prices.

Not only did the currency stabilization effort have that array of financial market consequences, the artificial propping up of the dollar unquestionably slowed the progress of U.S. industry in regaining competitiveness. After the dollar resumed its decline in the wake of October 19, there was considerable relief in industrial circles that the contradictions involved for the Fed in trying to manage both the dollar and the economy had seemingly been resolved in favor of the traditional focus mainly on the economy.⁵ That, however, is still not entirely clear, even though Alan Greenspan has been saying some things that are encouraging --most recently in testimony the day before yesterday at the Joint Economic Committee, where, according to news accounts, he indicated that last December's revisiting of the Louvre Accord had emphasized broad economic policy coordination to help stabilize currencies rather than intervention per se. But there remain elements of uncertainty about the scope and character of international cooperative efforts. And the lingering doubt that exists is worrisome, partly because it is still far from certain that the dollar has declined all that it needs to. Indeed, a substantial number of thoughtful analysts are convinced that a further considerable decline

⁵It's perhaps worth emphasizing that opposition to official management of exchange rates has no bearing on the matter of whether officials, in accord with Manuel Johnson's recommendations, should pay more heed to the information yielded by movements of foreign exchange rates. The two issues are entirely separate.

of the dollar is going to be necessary if reasonable international payments balance is to be restored. The lesson of 1987 is that officials ought not to try to substitute their judgment about appropriate exchange rates for that of the market.

The final reason for thinking that the United States ought to back away from cooperative efforts at exchange rate stabilization is that such efforts potentially compromise Federal Reserve independence from the executive branch. G-7 deliberations on exchange rates targets are implicitly deliberations on monetary policy because currency targets are achievable only if the domestic policy weaponry of central banks is devoted to defending them. The Secretary of the Treasury and the Finance Ministers of other G-7 countries are not only party to those deliberations; some would argue they are almost certainly senior parties even though the heads of central banks are present. In concept, there is admittedly no reason why the process of deliberation cannot go forward in a manner that leaves central bank participants entirely free at the end of the process to act according to their own best judgment. But, within the American framework of central bank independence, there is at the very least an element of untidiness in bringing the Treasury (to say nothing of other finance ministries) so actively into deliberations about the appropriate posture of monetary policy. And it is certainly

not hard to imagine circumstances in which a Treasury agenda (normally broader and at times potentially quite different from the Federal Reserve's agenda) could present awkward problems for a Fed Chairman. Beyond that set of issues, there is the further question of what efforts at exchange stabilization imply by way of full independence of decision for the eleven FOMC members that are not party to G-7 deliberations. Is their policymaking role diminished? Not necessarily, but there is certainly some risk that that could occur. These and other questions that bear on the independence of the Federal Reserve (or at a minimum on the appearance of independence) deserve more discussion and attention than they have had so far. That would be less so, perhaps, if there were cogent reasons for thinking that exchange rate stabilization were of tremendous utility. That, however, is not the case.



AMERICAN
BANKERS
ASSOCIATION

NEWS

PUBLIC RELATIONS □ 1120 CONNECTICUT AVENUE, N.W., WASHINGTON, D.C. 20036 □ (202) 663-5000

CONTACT: Mary-Liz Heagy
(202) 663-5468

FOR IMMEDIATE RELEASE
(88)

**ABA'S ECONOMIC ADVISORY COMMITTEE SAYS RECESSION UNLIKELY;
URGES FED TO MOVE CAUTIOUSLY IN EMBRACING EASIER MONETARY POLICY**

WASHINGTON, Feb. 4 -- Moderate economic growth fueled by improved exports and strengthening capital investment will keep a recession at bay during 1988, predicts the Economic Advisory Committee of the American Bankers association. The group does foresee the likelihood of some sluggish economic activity as inventory adjustment proceeds, particularly in the auto industry, according to Milton Hudson, chairman of the committee and senior vice president of Morgan Guaranty. "But we anticipate reacceleration in economic growth later this year because inventory adjustment will be short-lived and personal consumption will strengthen," he explained. "This will occur in response to an already emerging pattern of stronger private wage and salary gains."

On a fourth quarter to fourth quarter basis, the panel is expecting real GNP to grow by 2.3 percent in 1988. The group expects inflation to accelerate by the second half of the year with the CPI and the GNP deflator likely to grow by 4.4 and 3.9 percent respectively.

Strong exports reflective of both dollar depreciation and decidedly favorable cost trends in manufacturing will be critically important in sustaining economic growth. This means that 1988 will be a year of definite progress in reducing the country's external trade imbalance.

As a corollary, the group believes it would be a mistake for monetary policy to be significantly conditioned by a concern with the external value of the dollar. The group views the Louvre Agreement, which involved cooperative efforts among industrial countries to keep the dollar from declining, to have been an unfortunate mistake--one that contributed to rising interest rates in the U.S. It strongly hopes the Louvre was not a prelude to managed currency rates or what is known as a "target zone system."

With the major structural changes that have occurred in the world economy over the past five years, no group has the capacity to be sure what are appropriate cross rates for currencies. It is the panel's belief that this process is much better left to free market determination.

Keeping this in mind, the Economic Advisory Committee would, however, sanction occasional intervention by central banks in currency market to correct disorderly conditions.

The panel also determined that, while the Federal Reserve should set ranges for money and credit aggregates, it would be inadvisable to adhere too rigidly to monetary policy target ranges. This derives from the fact that the historical relationship between monetary growth and economic performance has tended to deteriorate significantly in recent years.

The panel did agree that monetary aggregates historically have been a very important conditioner of economic and price performance. It is advisable that the Federal Reserve continue to monitor the aggregates as long as policy is not mechanically determined by the aggregates.

With capacity utilization in many industries now approaching relatively high levels, the panel believes that capital spending will grow by at least 4 percent in real terms in 1986. This forecast is supported by the sizeable buildup of equipment order backlogs in 1987.

The growth of the economy in 1988 would be even more decisive if the European economic outlook were not cloudy. The panel places special emphasis on the need for more expansive policy actions by European countries, most particularly the Federal Republic of Germany whose policy caution is now perceived by many of her trading partners as constraining general European growth. The group is impressed by the current strength being shown by the Asian countries and most importantly Japan which reinforces its conviction that a recession is improbable.

With recession unlikely, the panel believes that the Federal Open Market Committee needs to be cautious in moving in the direction of additional monetary accommodation. But in the committee's judgement there are sufficient uncertainties regarding near-term economic strength, particularly relating to inventory adjustment, that a posture of flexibility is appropriate.

If the data that become available over the next month or so indicate any surprising slippage of economic performance, the group would urge the central bank to be responsive and to provide some insurance by way of additional ease to prevent cumulating weakness.

In its discussion, the group felt strongly that the principal preoccupation of the Federal Reserve should be with the objective of achieving stable, non-inflationary growth.

ECONOMIC ADVISORY COMMITTEE
of the
AMERICAN BANKERS ASSOCIATION

Monetary Policy Recommendation

Fourth quarter 1987 to fourth quarter 1988		
Ranges of Growth for Monetary and Debt Aggregates (percent change)	M2	5 to 8
	M3	5 to 8
	Domestic nonfinancial debt	7 1/2 to 10 1/2

Consensus Economic Forecast for 1988

		1987	1988
Percent change, fourth quarter to fourth quarter	Nominal GNP	7.2	6.4
	Real GNP	3.8	2.3
	Implicit deflator for GNP	3.3	3.9
	Consumer price index	4.4	4.4
Billions of dollars for fiscal year	Federal budget deficit	148	160
	Unemployment rate	5.8	6.0
Level at the end of the year	Federal Funds Rate	6.8	7.4
	Thirty year Treasury bond rate	9.0	9.5

February 4, 1988

ECONOMIC ADVISORY COMMITTEE of the AMERICAN BANKERS ASSOCIATION

CONSENSUS ECONOMIC OUTLOOK¹

	1987 by Quarter				1988 by Quarter			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th
National Product and Components² (annualized percent changes on seasonally adjusted economic statistics)								
GNP in current dollars	8.6	6.3	7.3	6.7	5.2	6.4	7.1	7.1
GNP in 1982 dollars	4.4	2.5	4.3	4.2	1.3	2.2	3.0	2.8
Personal Consumption	-0.7	1.9	5.4	-3.8	1.5	2.2	2.2	1.8
Nonresidential Investment	-14.6	11.7	25.8	-3.6	4.8	3.2	4.2	3.6
Residential Investment	-7.7	-2.8	-6.5	5.9	-3.4	-2.0	-0.7	0.0
Exports	10.2	17.9	23.7	16.2	10.8	9.3	10.5	10.0
Imports	-5.2	11.1	22.4	6.3	-1.4	1.6	2.2	2.4
Government Purchases	-6.2	3.8	2.6	12.6	-2.2	0.3	2.1	3.4
Inflation (annualized percent changes on seasonally adjusted economic statistics)								
GNP Implicit Price Deflator	4.2	3.5	2.8	2.7	3.5	3.8	4.1	4.3
Consumer Price Index	6.2	4.6	3.6	3.2	3.8	4.2	4.7	5.0
Automobiles and Housing (seasonally adjusted annual rate)								
Automobile Sales (millions)	9.5	10.0	11.5	10.0	9.9	10.0	10.1	10.0
New Private Housing Units Started (thousands)	1795	1612	1610	1517	1524	1526	1535	1520
End of quarter								
	1987				1988			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Other Business Indicators³								
Index of Industrial Production	127.4	129.1	131.2	133.3	133.7	134.8	136.2	137.3
Unemployment Rate (percent)	6.6	6.1	5.9	5.8	6.0	6.0	6.0	6.0
Interest Rates⁴								
Federal Funds (effective)	6.14	6.79	7.26	6.81	6.63	6.75	7.00	7.37
30-Year Treasury Bonds	7.79	8.44	9.61	8.95	8.50	8.60	9.00	9.50
Fed. Gov't Budget Deficit (fiscal year)								
	1981	1982	1983	1984	1985	1986	1987	1988
Deficit in Billions of Dollars	78.9	127.9	207.8	185.3	212.3	220.7	148.0	160.7

¹ Historical data through 1987; 1988 is forecast.

² Growth rates of national product components in 1982 dollars.

³ Historical data from the Federal Reserve Bulletin.

⁴ Historical data from Federal Reserve Statistical Release H.15 (519).

ATTENDEES LIST

Economic Advisory Committee
 Capital Hilton Hotel
 Washington, DC
 February 3-4, 1988

CHAIRMAN

Milton W. Hudson
 Senior Vice President & Senior
 Economic Advisor
 Morgan Guaranty Trust Company
 23 Wall Street
 New York, NY 10015

MEMBERS

James E. Annable, Jr.
 Senior Vice President & Chief
 Economist
 First National Bank of Chicago
 One First National Plaza, Suite 0476
 Chicago, IL 60670

Paul A. Anton
 Director of Economics
 First Bank System, Inc.
 1200 First Bank Place East, 5FE129
 Minneapolis, MN 55480

Frederick S. Breimeyer
 Vice President & Chief Economist
 State Street Bank & Trust Company
 225 Franklin Street M-7
 Boston, MA 02110

Robert H. Chandross
 Vice President & Chief Economist/
 North American Head Office
 Lloyds Bank PLC
 199 Water Street, 9th Floor
 New York, NY 10038

Frederick W. Deming
 Senior Vice President
 Chemical Bank
 277 Park Avenue
 New York, NY 10172

MEMBERS (Cont'd)

Sydney Smith Hicks
 Senior Vice President & Director
 First Republic Bank Dallas, N.A.
 FRB #3, Post Office Box 83100
 Dallas, TX 75283-3100

Thomas F. Huertas
 Vice President
 Citibank, N.A.
 399 Park Avenue
 New York, NY 10043

Peter P. Kozel
 Senior Vice President & Chief
 Economist
 Shawmut Bank, N.A.
 One Federal Street
 Boston, MA 02211

Carol A. Leisenring
 Executive Vice President & Chief
 Economist
 CoreStates Financial Corp
 Broad & Chestnut Streets
 Philadelphia, PA 19101-7618

David Lereah
 First Vice President
 Sovran Bank, N.A.
 Sovran Center, 3rd Floor Pavilion
 12th & Main Streets
 Richmond, VA 23219

David L. Littmann
 Vice President & Senior Economist
 Manufacturers National Bank
 Post Office Box 659
 Detroit, MI 48231

MEMBERS (Cont'd)

Norman Robertson
Senior Vice President & Chief Economist
Mellon Bank, N.A.
5222 One Mellon Bank Center
Pittsburgh, PA 15258

Daniel T. Van Dyke
Vice President & Senior Economist
Department #3015
Bank of America, N.T. & S.A.
Post Office Box 37000
San Francisco, CA 94137

TESTIMONY

BEFORE THE

SUBCOMMITTEE ON DOMESTIC MONETARY POLICY

OF THE

COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS

MICHAEL W. KERAN
VICE PRESIDENT AND
CHIEF ECONOMIST
THE PRUDENTIAL INSURANCE COMPANY OF AMERICA

WASHINGTON, D.C.
MARCH 17, 1988

TESTIMONY BEFORE

HOUSE BANKING COMMITTEE/SUBCOMMITTEE ON MONETARY POLICY

Mr. Chairman, thank you for inviting me to appear before your committee. I participated in monetary policy staff work within the Federal Reserve for 19 years (including 10 years attending FOMC meetings). For the last 3 1/2 years I have observed monetary policy from the outside. I am pleased to share this combined 22 years of experience with you and Congress. My written testimony includes a background paper with a more detailed discussion of my views than is possible in the 15 minutes I will talk this morning.

In your letter of invitation you asked four questions. I would like to answer those questions within a broader framework that I use for thinking about monetary policy.

It is useful to distinguish two aspects of monetary policy -- strategy and engineering. By monetary strategy I mean an evaluation of the goals of monetary policy. By monetary engineering I mean how effective is the Federal Reserve in implementing these goals.

Monetary Strategy

Economists do not typically spend much time thinking about monetary strategy. The tools of the economist are not designed to provide insights in this subjective area. The goals of policy have been set by law in the Employment Act of 1946 and by the "Humphrey/Hawkins" Act of 1978 of which this hearing is part.

However, these laws represent a Congressional wish list.

- Stimulate economic growth.
- Stabilize the price level.
- Promote balance in international trade and, more recently, a stable exchange rate.

- 2 -

Because Congress has not set legislated priorities, the Fed, in effect has considerable discretion in deciding which of these desirable goals will be treated as dominant when there is a conflict between goals.

To the best of my knowledge, there is no document which states how the Fed prioritizes these goals. However, I believe that the Fed has revealed its priorities by its actions. I see the Federal Reserve as having the following priorities.

Domestic goals dominate international goals. The last time the Fed allowed an international goal to dominate a domestic goal was in September-October 1931 (over 56 years ago) when the British left the gold standard. The Federal Reserve tightened monetary policy dramatically by raising the discount rate in two steps from 1.5% to 3.5% in an attempt to prevent an outflow of funds to the United Kingdom. That episode contributed to turning a serious recession into "The Great Depression". The Fed has never again let international goals interfere with domestic goals.

The Fed has changed its domestic goals in recent years.

Before Volcker, the Fed's domestic goal appeared to be maximum real growth as long as the inflation rate stayed below some politically intolerable level.

The Fed's domestic goal, under Volcker and his successor, Greenspan, appears to be to minimize the inflation rate subject to avoiding a recession.

If you accept this, we can then prioritize the Federal Reserve's monetary goals as follows:

- (1) Minimize inflation.
- (2) Avoid recession.
- (3) Stabilize the exchange rate.

With this perspective we can answer two of the questions posed in your letter.

Was stabilizing the dollar a major goal in 1987?

- Is international coordination of monetary policy desirable?

My reading of Fed behavior suggests that international objectives of stabilizing the dollar and international coordination were not significant factors in 1987.

Let me give some examples.

April 1987. The dollar fell 10% against the Japanese yen. (Chart 1) The Fed responded with a very modest tightening in monetary policy. (Chart 2) The Fed funds rate was raised 30 basis points from the average in March to the average in April. However, the Treasury bill rate was largely unchanged which is indirect evidence that the financial market did not take the rise in the funds rates as a serious/permanent change in policy. That is, the slippage between the funds rate, which the Fed controls, and the *three-month Treasury bill rate, which the Fed wishes to influence*, was in line with past experience. Why was the Fed's apparent tightening taken so lightly by the financial market? I'd argue it was because the economic data at the time suggested that the economy was relatively weak. Industrial production had increased less than 4% at an annual rate in the previous six months (Chart 3). The markets believed the Fed was not going to tighten monetary policy substantially because it did not want to risk a recession. The domestic priority of avoiding recession superseded the international goal of stabilizing the dollar.

August-September 1987. The dollar declined only 5% against the yen. Nevertheless, the Fed tightened monetary policy more significantly and publicly than in April. It raised the discount rate by one-half percent in early September and allowed the funds rate to rise by 60 basis points

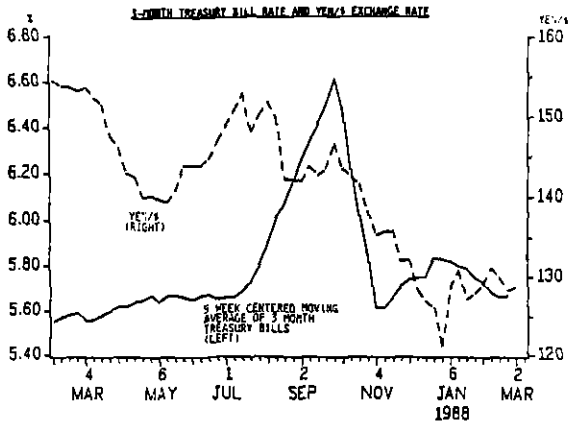


CHART 1

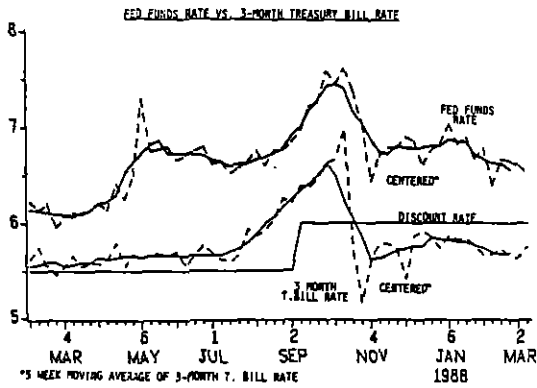


CHART 2

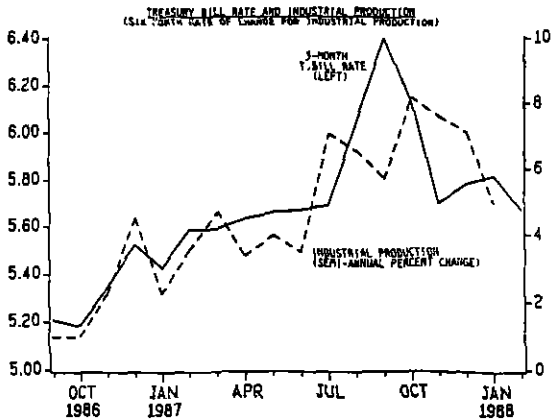


CHART 3

- 4 -

between July and September. The fact that the Treasury bill rate rose in parallel fashion suggests that the financial market treated this episode as one when the Fed was serious about tightening monetary policy. Why was the Fed more credible in this episode? Because the incoming economic data suggested the economy was getting stronger. First half real GNP was known to have increased by 3.5% and the incoming data on industrial production and employment suggested that second half real GNP would be even stronger. (We now know that real GNP in the second half of the year grew at 4.5% rate.) The Fed was prepared to tighten policy to prevent future inflation because it was reasonably confident such action would not risk a recession. October-November 1987. The stock market crash was matched with a 15% fall in the dollar/yen exchange rate (Chart 1). But, because the perceived risks of a recession had increased, the Fed immediately responded with a substantial easing of monetary policy and an announcement of its classic lender of last resort role. The Fed funds rate fell 1.0% and the Treasury bill rate fell by 1.1% between the first two weeks in October and the first two weeks in November.

What the 1987 experience shows is:

- (1) The Fed will work to achieve international goals only when they are consistent with domestic goals. It will abandon international goals when they are perceived to be inconsistent with domestic goals.
- (2) The Fed will take anti-inflation actions, even if current inflation is not moving up, if it can do so without risking a recession.

I believe this set of priorities is quite appropriate.

Monetary Engineering

The other domain of monetary policy has to do with the Fed's implementation of its goals. For lack of a better term, I call this monetary engineering.

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The internal engineering side of monetary policy is handled very capably by the Federal Reserve Staff. When the policy directive comes from the FOMC, it is faithfully and accurately executed by the New York Trading desk. What Annie Oakley was to target shooting, the Federal Reserve staff is to hitting an interest rate target. The Federal Reserve staff is so good that it can hit a Federal funds target with one arm tied behind its back, looking at the target through a mirror.

The major problems of implementing policy occurs in what I call external engineering. How does a change in the funds rate, the Treasury bill rate (or in a different policy regime -- the money supply) affect GNP and inflation? Answering this external engineering question requires a macroeconomic theory which describes the behavior of the public. The Fed has no special insights on this issue. It must rely on the economic profession, in general, and academic economists in particular (including academic economists within the Federal Reserve Staff).

At the moment there is a major disarray in macroeconomic theory.

Keynesian theory largely lost its credibility in the 1970's.

Monetarist theory largely lost its credibility in the 1980's.

There has been no other empirically supported theory which has come to prominence within the economics profession to fill the void. Many researchers are working to fill this gap. (I have developed my own model which attempts to fill the external engineering gap. A summary version of that model is included in the background version of this testimony.)

In this environment, the Fed needs some proxy or leading indicator which may or may not be well grounded in economic theory.

I believe the Fed looks at nominal GNP as the single most comprehensive measure of its domestic policy goals. On the basis of the Fed's Humphrey-Hawkins presentation on February 23, it seems to want nominal GNP

- 6 -

growth of approximately 6%. How does one arrive at that number? If you assume that the potential rate of growth of the economy (year in and year out) is between 2.5% and 3%, then real GNP cannot exceed that on average. Inflation (measured by the GNP price deflator which excludes imported inflation) has recently been in the range of 3% to 3.5%. The sum of the potential GNP growth plus the recent average rate of inflation implies nominal GNP growth of about 6%. This is also consistent with the Administration's forecast for 1988.

Treating this as a Fed target, I would expect the Fed to operate on the following rule.

-- If nominal GNP grows in excess of, say 7%, tighten monetary policy so as to prevent inflation from systematically rising above the 3% to 3.5% range.

If GNP grows less than 5%, ease monetary policy to avoid a recession.

The problem with this approach is that GNP responds to changes in monetary policy with a six to nine month lag. It would be desirable to shorten that lag. In that spirit the Fed is probably looking for other indicators of the direction of the economy. It is in that spirit I believe that one might look at the yield curve, commodity prices or the exchange rate.¹

There is some weak evidence that the yield curve is a leading indicator of changes in real GNP. (See Chart 4.) A positive yield curve suggests easy monetary policy and rapid GNP growth. A negative yield curve suggests tight monetary policy and weak or falling GNP.

Prices of sensitive commodities are a leading indicator of future inflation and of changes in industrial production. Chart 5 shows that commodity prices do lead the general inflation rate; but, it may also be a false signal. Just as

¹See address by Manuel H. Johnson, "Current Perspectives on Monetary Policy" delivered at the CATO Conference, February 25, 1988.

CHART 1

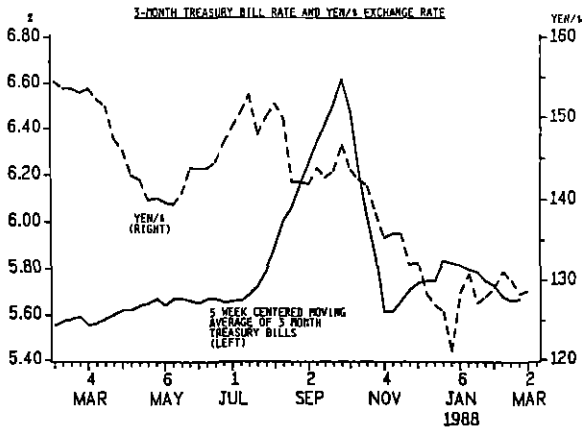


CHART 2

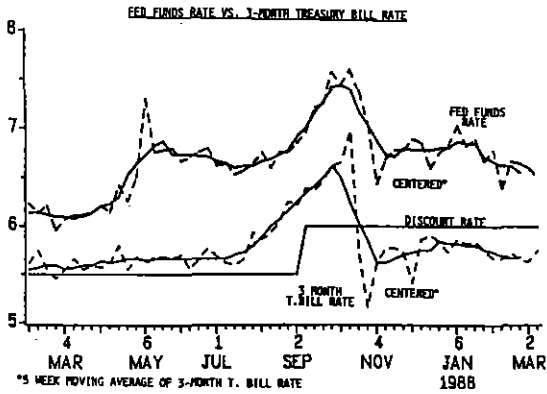
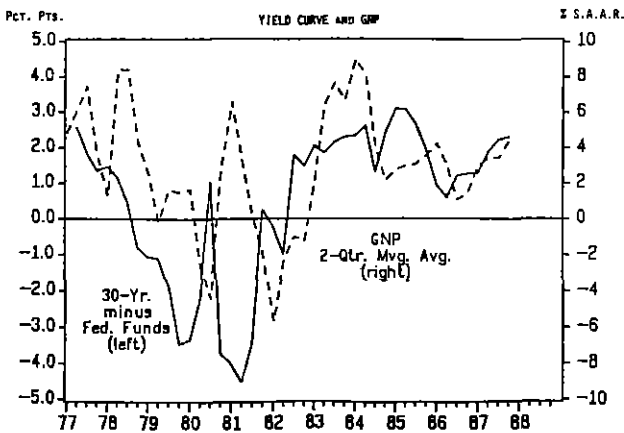


CHART 3



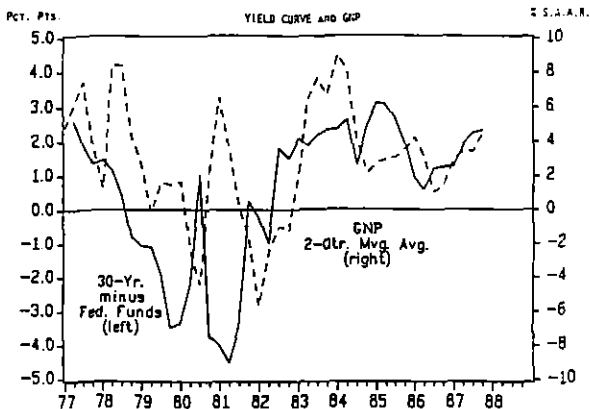


CHART 4

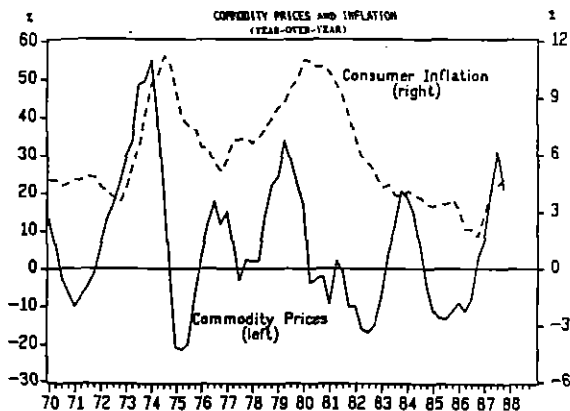


CHART 5

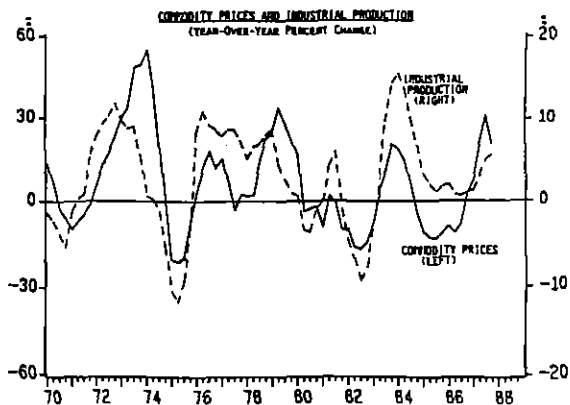


CHART 6

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the stock market has forecast nine of the last six recessions, commodity prices have forecast five of the last two surges of inflation. Commodity prices, however, may be a better indication of the strength of aggregate demand and do track changes in industrial production more accurately (Chart 6).

Finally, changes in the exchange value of the dollar through its effects on the price of internationally traded goods can be a major leading indicator of future inflation. The statistical association is not that strong but when combined with other indicators such as commodity prices, it may do a better job of forecasting future inflation.

I am now in a position to answer the other questions in your invitation letter.

Are the monetary aggregate targets for 1988 appropriate?

Will rapid M1 money growth in 1985-1986 suggest future inflation and will slow money growth in 1987 suggest future recession?

- Are there other indicators of monetary policy, interest rates, commodity prices, GNP?

My answer would be that the monetary aggregates, be they M1, M2 or M3, are not a useful guide to monetary policy and the economy at this time. I say that even though I have been a charter member of the monetarist club for the last 25 years.

The Fed has correctly abandoned targets for M1. The announced target ranges for M2 and M3 are not particularly relevant because I do not believe they will "bind" the Federal Reserve to take any actions simply because their growth rate is outside of the ranges.

Given the disarray in macroeconomics it is not possible to know how a particular change in monetary aggregates or the fund rate will affect the economy. It is quite appropriate, in this case, for the Fed to focus on nominal

GNP as a guide to policy and on the yield curve, commodity prices and the exchange rate as leading indicators of what happens to real GNP and inflation.

Conclusion

My bottom line is that the Fed conducted monetary policy with considerable skill in 1987. With the benefit of hindsight we might say that the Fed was unduly tight in August and September given what happened in the stock market in October. However, if real GNP grows at the 3% rate that I am forecasting in the first half of 1988, then six months from now, with the benefit of even more hindsight, we might say that the Fed's actions in 1987 were exactly correct.

Monetary policy is clearly an art. Attempts to make monetary policy a science have taken a major step backward in recent years because of the disarray in macroeconomic theory. Until there is a reasonably robust macroeconomic theory which is well supported by the data, it will be difficult for monetary policy to be any different from what it is now.

BACKGROUND ANALYSIS: THE THREE DIMENSIONS OF MONETARY POLICY

Monetary policy is a complex and confusing topic. The reason is that there are different ways to approach it. It is analogous to the story of the seven blind men who were asked to describe an elephant. Each has a piece of the reality but none sees the big picture.

To comprehend this monetary "elephant" one must examine its three components.

- (1) Internal engineering. This is largely the domain of the Federal Reserve's staff as they attempt to link up the tools of monetary policy with the ability of the Fed to control the market for bank reserves. The quality of the internal engineering determines the degree of precision in controlling the price of bank reserves (the federal funds rate).
- (2) External engineering or the link between monetary policy and the economy. This is the domain of the academic economists who study the relationship between changes in interest rates or the money supply and the effect on the wider economy. How does monetary policy affect the business cycle in the short run and inflation in the long run?
- (3) The grand strategy (or intentions) of monetary policy.
 - Should policy be directed to maximizing real growth subject to keeping inflation at or below some politically acceptable level?
 - Should monetary policy be designed to minimize inflation subject to avoiding a recession?

Confusion About Monetary Policy Comes In Mixing Up These Three Elements.

- Wall Street Fedwatchers typically understand and analyze the internal engineering issues. They rarely understand or analyze the external engineering issues.

The chairman and the staff of the Federal Reserve know the internal engineering. However, there is no guarantee that they know or understand the external engineering.

- Economists outside of the Fed system don't necessarily know the internal engineering but they may understand the external engineering as well or better than the Federal Reserve staff.

The disarray in macroeconomics comes from a breakdown in the external engineering. As a result, "non-theoretic" leading indicators are being widely used.

- Congress is primarily interested in grand strategy but because the Fed is vague on this issue, Congress tries to pin the Federal Reserve down on the engineering issues.

I will attempt to sort out these three segments in more detail here than is possible in the testimony.

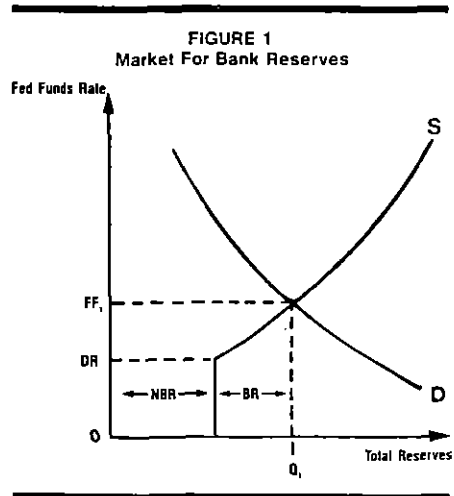
Internal Engineering of Monetary Policy

The Federal Reserve has three major tools in its monetary policy arsenal -- reserve requirements, open-market operations and the discount rate. These can be used to control the market for the reserves of financial institutions which issue checkable deposits. For convenience, we will refer to all such institutions as "banks". The modeling of the "market" for bank reserves is the internal engineering side of monetary policy.

Supply and Demand: We can define the market for the reserves of the banking system in terms of both supply and demand. From the demand perspective, 99% of reserves are required to be held as a fixed percentage against checkable deposits. The Fed can change the bank's demand for reserves by changing required reserves.

In Figure 1, we show that the demand for reserves rises as interest rates fall. The reason is that the public demand for checkable deposits rises with a fall in interest rates so the derived demand by banks to hold required reserves must also rise.

From the supply side, the banking system can only acquire reserves from the Federal Reserve -- either borrowing or buying reserves. The banks can borrow reserves from the Fed by paying the discount rate. Alternatively, the banks can buy reserves by selling Treasury securities when the Federal Reserve is engaged in open-market operations. From the Federal Reserve's perspective, the latter is called "non-borrowed reserves". Non-borrowed reserves represent by far the largest share of the reserve supply. It is the ability of the open-market operations to control the level of non-borrowed reserves which makes it the primary instrument of Fed policy.



In Figure 1, the two components of reserve supply are depicted. Non-borrowed reserves (NBR) will be invariant to the interest rate because they are determined by open-market operations of the Fed. In principle, these open-market operations can be conducted at any level of interest rates. Borrowed reserves (BR) will be a significant share of reserve supply when the interest rate on bank reserves, the federal funds rate, is above the discount rate (DR). As the funds rate moves above the discount rate, the supply of reserves will rise because the incentive of banks to borrow reserves increases. The supply

- 3 -

function becomes progressively less elastic the more reserves banks borrow from the Fed. This reluctance to borrow is based on active Fed discouragement of large extended borrowings as well as a tradition among bankers that large borrowings from the Fed is a sign of poor management. The intersection of the supply and demand for reserves will determine the price of reserves (FF_1) and the quantity of the total reserves in the banking system (Q_1).

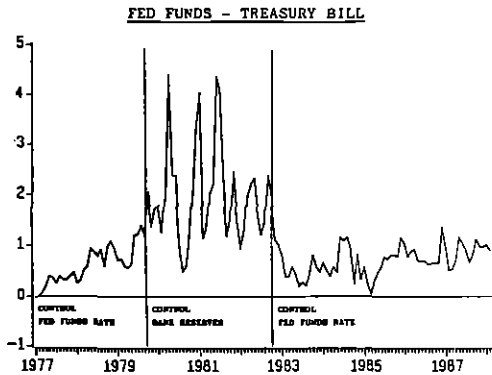
The Federal Reserve is technically capable of controlling the market for bank reserves over a two-week "control" period. The quality of that control is dependent on the quality of the internal engineering conducted by the Federal Reserve staff. It is fair to say that the Federal Reserve staff does a superb job with internal engineering.

Except for direct participants, i.e. people who buy and sell overnight funds, the federal funds rate is not important for its own sake. Its importance has to do with the effect on other short-term interest rates such as 90-day Treasury bills. The Fed can have a strong, if indirect, influence on these longer dated securities when the financial market perceives that the Fed is controlling the funds rate. If the Fed is not attempting to control the funds rate, then there will be little relation to T.Bills. This is illustrated in Chart 1.

Between October 1979 and October 1982 the Federal Reserve focused its monetary policy tools on controlling bank reserves -- it did not control the funds rate. In this environment, there was only a weak relationship between changes in the funds rate and changes in Treasury bills. However, in the period before October 1979 and after October 1982, when the Fed was either directly or indirectly controlling the funds rate, there was a close relation to Treasury bill rates.¹

When the funds rate is controlled, then any change (over a four-week period) can be interpreted as a change in Federal Reserve policy.

CHART 1



¹The average monthly difference between the funds rate and Treasury bills in the reserve control period was 200 basis points with a standard deviation of 100 basis points. The average monthly difference between the funds rate and Treasury bills in the funds rate control period was 60 basis points with a standard deviation of 30 basis points. The higher average funds rate is due to the higher credit risk.

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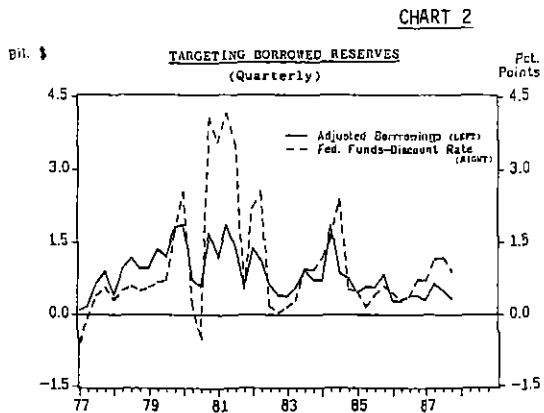
This month's federal funds rate is a good forecaster of the funds rate three months from now unless there is a reason to assume that the Fed is going to change policy.²

There are two techniques that the Fed has employed to control the funds rate -- direct and indirect.

- (1) Direct. The Fed can set a fed funds rate target and stand ready to buy and sell to all qualified government security dealers at that rate. This was the technique used before October 1979. In Figure 1 the supply function would be represented by a horizontal line at the target funds rate.
- (2) Indirect. It can set a target for bank borrowing from the Fed through the discount window. The Fed can ensure that banks will borrow the targeted amount by manipulating non-borrowed reserves of the banks via open market operations. The larger the fraction of their reserve needs met by borrowing from the Federal Reserve bank, the higher the federal funds rate. This indirect technique has been used by the Fed since October 1982.

Chart 2 shows the history of the relationship between borrowing and the funds rate less the discount rate. For reasons discussed above, the higher the level of borrowing, the higher will be the funds rate relative to the discount rate.

If the Fed wishes to tighten monetary policy, it needs to raise the federal funds rate. It can accomplish this either by raising the discount rate or by raising the borrowing target. An increase in the discount rate will raise the floor for the federal funds rate. However, the discount rate is a very public way of changing monetary policy. If the Fed wishes to tighten without making it public, it can do so by simply raising its borrowing target.



²Applying the expectations theory of interest rates, a 90-day rate will be equal to the current 1-day rate and the expected 1-day rate for the next 89 days. When the Fed is explicitly controlling the 1-day rate (the fed funds rate), it sets up market expectations that the future rate will be close to today's rate unless there is a change in credit risk.

External Engineering: Monetary Policies Effect on the Economy

In the previous section, we showed that the Fed has both the tools and ability to control either short-term interest rates or bank reserves (and the money supply). However, the Fed cannot control both. It must make a choice.

- If the Fed chooses to control the bank reserves and money supply, it must have a good idea of the public's demand for money.

If the Fed controls short-term interest rates, it must have a good idea of what rates would have been without Federal Reserve intervention.

In contrast to internal engineering, the Fed has no special advantage in evaluating the behavior of the public -- external engineering. Yet this is what is needed to understand how changes in short-term rates or the money supply will affect GNP and inflation. Research on this subject conducted within the Federal Reserve is identical to that conducted in academic institutions.

Virtually, all of the external engineering research has been done with respect to estimating the public's demand for real money balances. It is perhaps one of the most intensely analyzed concepts in economics. Having a good idea of the public's demand for money is key to interpreting the effects of changes in the money supply on GNP.

- If the supply of money rises in proportion with the demand for money, there will be no effect on GNP.

If the money supply rises in excess of growth in the demand for money, that will increase GNP.

- If the money supply increases at a rate less than the demand for money, that will depress GNP.

It was the long-standing stability in the demand for money combined with the stable ratio of money to GNP (velocity = $GNP/M1$) that did so much to bring monetarist economics to prominence.

The apparent breakdown in the demand for money combined with the large increased variance in velocity has undermined the role of monetarism as a guide to policy. This has been a serious blow to the use of the money supply, total reserves or the monetary base, as a target for the Fed. It is the major reason why the Fed went back to targeting the federal funds rate. However, from an external engineering perspective the funds rate has precisely the same problems as money supply.

High or increasing short-term interest rates do not necessarily imply tight monetary policy which might reduce the growth in GNP.

Low or falling short-term interest rates do not necessarily imply easy monetary policy which might promote faster GNP growth.

Stable short-term interest rates do not necessarily imply neutral monetary policy which might lead to stable GNP growth.

One cannot interpret changes in interest rates without knowing what they would have been without Federal Reserve intervention.

Little research has been done on this topic either inside or outside the Federal Reserve because:

There is no widely accepted theory.

-- Data collection and analysis are complex.

Theoretical controversy. Keynesian economists say that the interest rate is the price of money and it will be determined by the supply and demand for money. This is called the liquidity preference theory. It has broken down as a guide to forecasting for exactly the same reason that the monetarist approach has -- the inability to model the supply and demand for money.

Monetarists argue that the interest rate is the price of credit and is determined by the supply and demand for credit. Changes in the money market are only one of several factors that can influence the credit market. This is called the loanable funds theory. Monetarists have been generally unsuccessful in converting the loanable funds theory into a quantifiable model. The data needed to test this theory does not appear to be available. The data that is available, primarily flow of funds data, has not worked.

In general, the breakdown of the monetarist approach and the lack of a viable and widely accepted interest rate approach means that there is considerable disarray in macroeconomics in general and in the external engineering aspects of monetary policy in particular.

This disarray in macroeconomics has induced most forecasters and policymakers to look for leading indicators which are not necessarily closely tied to economic theory but which history has shown to be reliable indicators of the future course of the economy or inflation.

An Experimental Loanable Funds Model

In 1985 I constructed an experimental loanable funds model. It has been used in the Prudential to forecast the effects of monetary policy on GNP with considerable success. This model accurately forecast the slow (2%) real GNP growth in 1986 and the faster (4%) real GNP growth in 1987. I briefly describe the model here. A more detailed description of the model including empirical estimates is available upon request from the author.

If the Fed is to effectively use an interest-rate control procedure, two conditions should be satisfied.

- (1) Short-term interest rates must be, in fact, a good measure of the true opportunity costs of holding liquid balances.
- (2) There must be some way of deciding whether a particular level of short-term interest rates represents tight or easy monetary policy.

- 7 -

- (2) There must be some way of deciding whether a particular level of short-term interest rates represents tight or easy monetary policy.

Deregulation: With respect to the first issue, there were serious problems with using interest rates as a guide to monetary policy when Regulation Q constrained the interest rate paid on deposits of banks from the mid-1960's through the mid-1970's. Market interest rates rose on several occasions above Regulation Q ceilings and banks lost funds to the unregulated market. This decline in deposits led to a parallel decline in bank loans and a contraction in the economy which was disproportionately large for the size of the interest rate rise. Disintermediation had at least as big an impact on the economy as the rise in interest rates.

In July 1978, banks were permitted to issue deposits which paid interest rates which were reasonably close to market rates. This solved the disintermediation problem and interest rates became a good measure of the opportunity cost of liquidity.

The Equilibrium Rate: We define the equilibrium as that rate of interest which is consistent with real GNP growing at the rate of growth of the labor force. Thus, parallel changes in actual and equilibrium interest rates would be associated with constant real GNP per worker. When the actual interest rate rises above the equilibrium rate, monetary policy would be considered tight and therefore put downward pressure on the growth of GNP. When the actual interest rate falls below the equilibrium rate, monetary policy would be considered easy putting upward pressure on GNP growth. (Chart 3) shows the equilibrium interest rate, as we construct it, in comparison with the actual interest rate on 3-month Treasury bills.

The equilibrium interest rate is made up of the following.

- (1) **Short-run inflation expectations.** Changes in market interest rates associated with changes in short-run inflation expectations do not change real interest rates and therefore do not change the real opportunity cost of funds or real GNP growth.
- (2) **Equilibrium real interest rate.** (Chart 4) We have identified three factors which could affect real interest

CHART 3
3-MONTH TREASURY BILL RATE

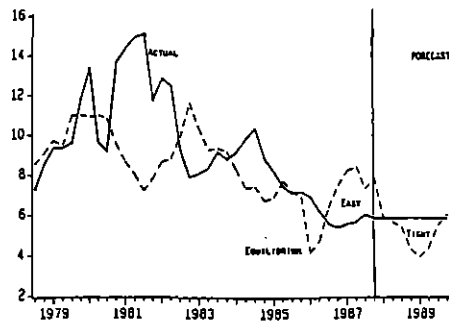
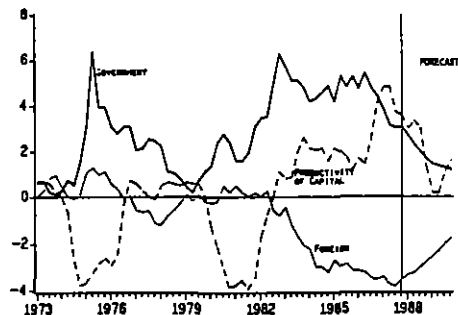


CHART 4
COMPONENTS: EQUILIBRIUM REAL INTEREST RATES



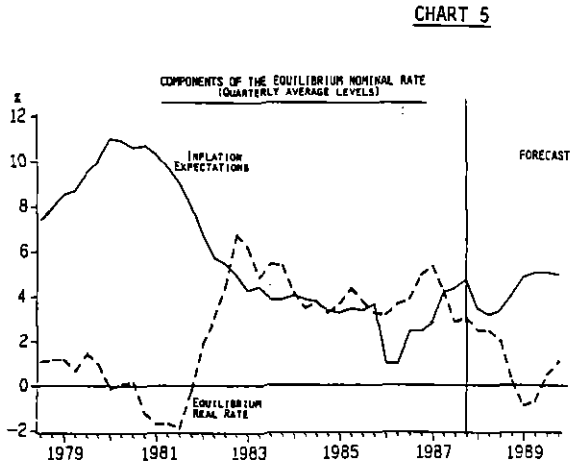
on real GNP. These are (1) budget deficits, (2) trade (or more generally, current account) deficits and (3) the productivity of capital.

An increase in budget deficits will increase government credit demands and therefore drive up real interest rates without putting downward pressure on real GNP. This is because the government credit demand is matched by a government demand for goods of equal magnitude and therefore is neutral with respect to GNP.

Current account deficits play a similar role but in the opposite direction. The current account deficit increases the foreign supply of funds which would tend to lower real interest rates without increasing GNP. The increased foreign credit supply will lower real interest rates sufficiently to offset the trade deficit's depressing effect on GNP.

An increase in the productivity of capital will increase private credit demand. There is some rise in real interest rates which is sufficient to offset the positive effect on real GNP of a rise in productivity.

The equilibrium nominal rate is the combination of these three effects on real rates plus inflation expectations. (See Chart 5.) The importance of distinguishing between actual and equilibrium interest rates is illustrated in Chart 3. The actual interest rate has been largely unchanged since mid-1986. The equilibrium interest rate has moved such as to create easy monetary policy from mid-1986 to the present. This is the reason we forecast strong GNP growth in 1987 and first half 1988. We forecast a decline in the equilibrium rate through mid-1989. This is the reason we have forecast a 50% probability of a recession in 1989.



Grand Strategy of Monetary Policy

Most economic analyses focus on the engineering issues and not on strategic issues. There are two reasons for this.

- (1) Engineering issues are more tractable from an analytical perspective and therefore are within the appropriate domain of professional economists.
- (2) It is widely believed that once the engineering issues have been solved and there is good execution of monetary policy, the proper goals of policy are so obvious as to be unnecessary for serious debate and analysis.

I would argue that monetary strategy is not obvious. Furthermore, the Federal Reserve fundamentally changed its monetary strategy in May 1983 under the leadership of Chairman Volcker. His successor, Alan Greenspan, appears to be following the same strategy.

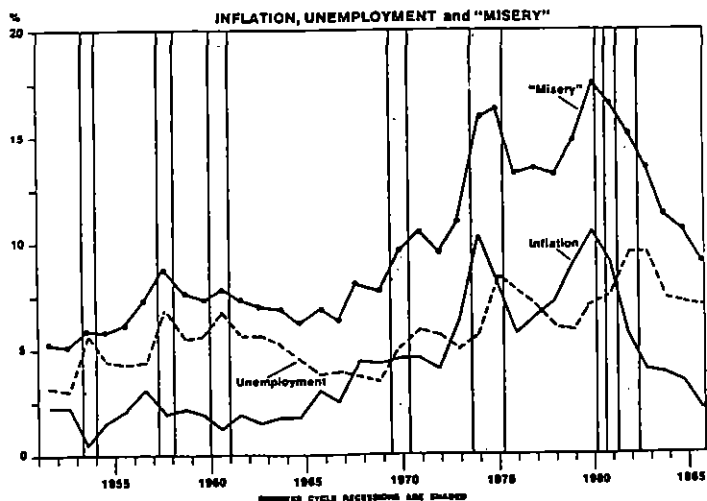
This change has had a profound impact on both the short-run business cycle and long-run inflation. To put the issue in perspective, we will first describe the strategy that existed prior to May 1983 and then the new strategy that has been in place since then.

Monetary Strategy Before May 1983. In the past, the primary focus of monetary strategy was to maximize the growth in real GNP over the business cycle. To implement this strategy, monetary policy was easy until the inflation rate exceeded a politically tolerable level. Because it took some time for inflation to respond to easy monetary policy, there were three to five years of easy money before the rise in the inflation rate triggered tight monetary policy.

As the inflation rate moved higher, the political constituency for anti-inflation action became larger -- and monetary policy grew tighter. It would remain tight until the unemployment rate exceeded politically tolerable levels. Because employment and unemployment respond relatively quickly to tight monetary policy, it only lasted for a year or less before easy monetary policy was renewed.

This monetary strategy worked reasonably well in the fifties and sixties. As illustrated in Chart 6, relatively long business cycle expansions were followed by relatively short recessions. The inflation rate never exceeded 4.5% and frequently fell to as low as 2%. The unemployment rate never exceeded 7% and frequently was below 4%. The sum of inflation and unemployment (labelled the misery index) was relatively stable in the range of 5% to 8%.

CHART 6



The problem came in the seventies and early eighties when this monetary strategy broke down. The inflation rate rose above 10% on two occasions triggering a sufficiently tight monetary policy which drove the unemployment rate close to 10%. The misery index surged above 14% in the 1970's and stayed there through the early 1980's. Both inflation and unemployment were higher than either Keynesian economic theory or historic experience would have previously considered possible.

There are two reasons frequently offered for the breakdown of this monetary strategy.

First, supply-side shocks associated with the rise in the price of oil led to simultaneously higher inflation and lower real growth.

Second, the business cycle, worldwide, became more synchronous which magnified the expansions and contractions in the domestic business cycle. In previous decades, the rest of the world acted as a stabilizing influence on the developments in the United States.

Whatever the causes, the consequences clearly were sufficiently undesirable that they called for a fundamental shift in strategy.

After May 1983. The focus of monetary strategy currently is to prevent inflation from ever reaching politically intolerable levels, not simply to react to inflation after it occurs. May 1983 is an important date because at that month's policy meeting the Fed moved modestly toward restraint even though the unemployment rate remained above 9%. There was no near-term risk of reaccelerating inflation and we were barely six months beyond the trough of the worst recession in over forty years.

The Fed implements this new monetary strategy in the following way: It allows policy to be easy until nominal GNP growth exceeds some target level which currently is about 7%. When this occurs, policy becomes tight until the nominal GNP growth falls below some target level which currently is probably about 5%. As the lag between changes in monetary policy and GNP is relatively short, about six months, this new strategy implies more frequent periods of tight monetary policy.

The goal of this strategy is to ensure that the cumulative growth in aggregate demand, represented by the growth in nominal GNP, never reaches a level that supports a systematic rise in inflation. By keeping inflation within politically tolerable levels, the Fed has been able to avoid the Draconian tightening of monetary policy such as occurred prior to the 1974-1975 and 1981-1982 recessions. Therefore the risk of a major business cycle contraction has been reduced. The success of this strategy is measured by the steady decline in the misery index from 15% in 1982 to 8% in 1986.

The emergence of lower and steadier inflation in the range of 3% to 5% and a less severe business cycle recession have been very positive developments.

-- Consumers have enjoyed a greater sense of confidence because of reduced variability in inflation and the steady decline in the unemployment rate.

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Business is able to make more credible long-run plans without the uncertainty with regard to their future costs, prices or demand for their product.

The bond market has responded to the lower and more stable rate of inflation with a substantial decline in long-term interest rates.

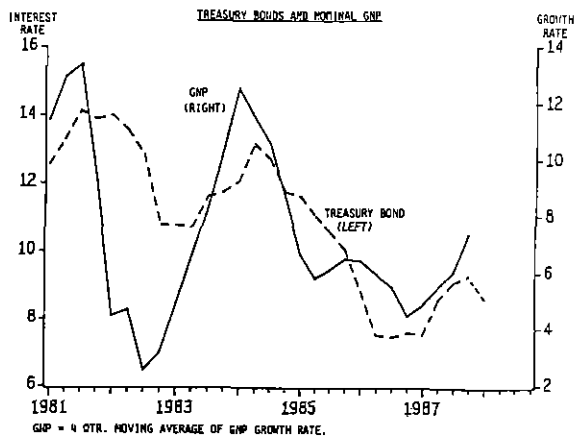
The stock market is less concerned about the severity of business cycle recession and this has been one important fact in the rise in the price earnings ratios.

It is reasonable to expect the Fed to continue following this strategy now that Paul Volcker, its author, is no longer in the position of authority. We are optimistic on that score. This strategy will most likely be continued for two reasons:

(1) The Federal Reserve's Governors as well as the professional staff understand the advantages of this strategy and can be expected to train Alan Greenspan in its virtues. However, if for any reason the new chairman should stray from monetary virtue, he will probably be brought back to the straight and narrow by the next factor.

(2) The bond market has an institutional memory of the negative effects which inflation has had on bond prices. It continues to be concerned about the Fed monetizing the large structural deficits and creating future inflation. The bond market appears to express that concern by pricing down bonds and raising long-term interest rates when GNP growth accelerates and conversely when GNP decelerates. (See Chart 7.) This happened in 1983 and 1984 when strong growth in GNP was matched by bond market concerns about future inflation, causing long rates to increase. Those fears dissipated in 1985 and 1986 when GNP decelerated and long rates declined.

CHART 7



However, they have picked up since April 1987 when the unexpected strength in nominal GNP renewed fears about future inflation. The stock market crash in October 1987 has temporarily abated inflation concerns.



ASSISTANT SECRETARY

DEPARTMENT OF THE TREASURY
WASHINGTON

February 25, 1988

I enclose for your information a copy of a letter detailing some research results I have been circulating for comment and evaluation, which you requested. The enclosed letter has not been cleared by any other Treasury official, so it does not represent a Treasury position on the usefulness of real monetary aggregates as forecasting tools. I believe that it would be premature for Treasury to consider taking such a position at this time.

As you may know, the July 7th FOMC minutes report some discussion of the potential usefulness of nominal M1A as a forecasting tool in response to earlier research done in my office and elsewhere. I have argued that this traditional definition of the money stock retains some value while the broadened M1 definition fares poorly relative to M2. On the other hand, Robert Laurent at the Federal Reserve Bank of Chicago is doing very interesting work using the spread between 20-year-Treasury-bond and federal-funds yields as an indicator which should not be subject to the influences of the major regulatory changes in the early 1980s. It will require much further research to sort out the relative usefulness of the various indicators which seem to give different signals.

Sincerely yours,

Michael R. Darby
Assistant Secretary
for Economic Policy

Subcommittee on Domestic Monetary Policy
House Banking Committee
Room 109, House Annex 2
Washington, D.C. 20515

Enclosure



DEPARTMENT OF THE TREASURY
WASHINGTON

ASSISTANT SECRETARY

January 21, 1988

Dear

I want to share with you some information I've been following on the behavior of real monetary aggregates. As you know, real M2 is a component of the leading indicators. But looking at real money alone seems to give an earlier warning of business cycle turning points than does the composite index of leading indicators. In addition, real money has been a quite accurate indicator of substantial slowdowns as well as recessions.

Historically, a decline in real money has preceded the onset of a downturn in the economy by about one year. Real money is derived by dividing the money data by the consumer price index, normalized on 1982. See the attached Table and Figures for details. The analysis is not affected by substituting the PCE deflator for the CPI. The CPI is chosen because it is available on a more timely basis.

The latest decline in real money has been taking place for about one year. If past relationships hold, this implies that economic weakness, if it is to occur, probably will begin sometime during the first quarter of 1988.

The sharpest decline in the present phase has been in real M1A (-4.2%p.a.), followed by real M1 and real M2 (-1.7%, -1.1%). The magnitude of the decline in real M1A is quite comparable to that for the recessions of 1960, 1970, and 1974-75. The decline in real M1 is much smaller than for past recessions, but this probably reflects the changed definition and character of M1 since 1981. The decline in M2 is comparable to that preceding the recession of 1960, but about one-half that of the recessions of 1970, 1974-75, and 1981-82. I suspect that the behavior of M2 is also being buffered by the payment of market related rates in contrast to its past behavior.

The real money supply data gave a "false" recession signal in 1966, but a correct signal for a slowdown in real growth. In the second half of 1966, real M1A and real M1 fell, while real M2 was approximately unchanged. In the first half of 1967 we had the so-called mini-recession which was just mild enough to miss being included in the NBER list as a recession. Its abortive nature may reflect the Fed's sudden move to ease in January 1967.

I would be most interested in your views on this information.

Sincerely yours,

Michael R. Darby
Assistant Secretary
for Economic Policy

President, Federal Reserve Bank

Attachments

Business cycles (Yr: Mo.)Peak of Real* Monetary Aggregates

Tableau format:

Months lead (%p.a. change to
business peak)

<u>Peak</u>	<u>Trough</u>	<u>M1A</u>	<u>M1</u>	<u>M2</u>
60:04	61:02	9 (- 3.7%)	9 (-3.7%)	8 (-0.0%)
69:12	70:11	11 (- 3.3%)	11 (-3.3%)	11 (-2.2%)
73:11	75:03	10 (- 4.2%)	10 (-4.2%)	10 (-2.8%)
80:01	80:07	16 (- 7.4%)	16 (-5.2%)	16 (-4.4%)
81:07	82:11	10 (-16.9%)	10 (-6.0%)	10 (-2.6%)

<u>Recent real money peaks</u>		<u>Duration</u>	<u>% growth to 87:11</u>
M1A	86:12	12 months	- 4.2%
M1	87:01	11 months	- 1.7%
M2	87:01	11 months	- 1.1%

* Deflated by Consumer Price Index

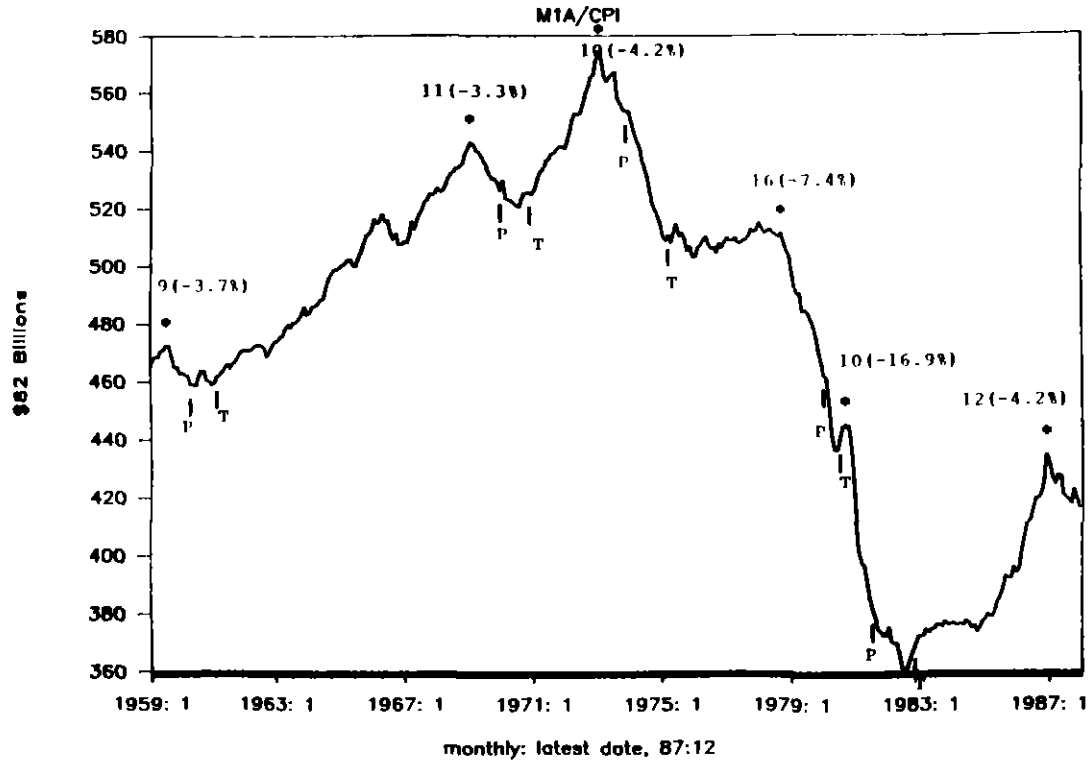
Notes for succeeding figures

P = Business cycle peak

T = Business cycle trough

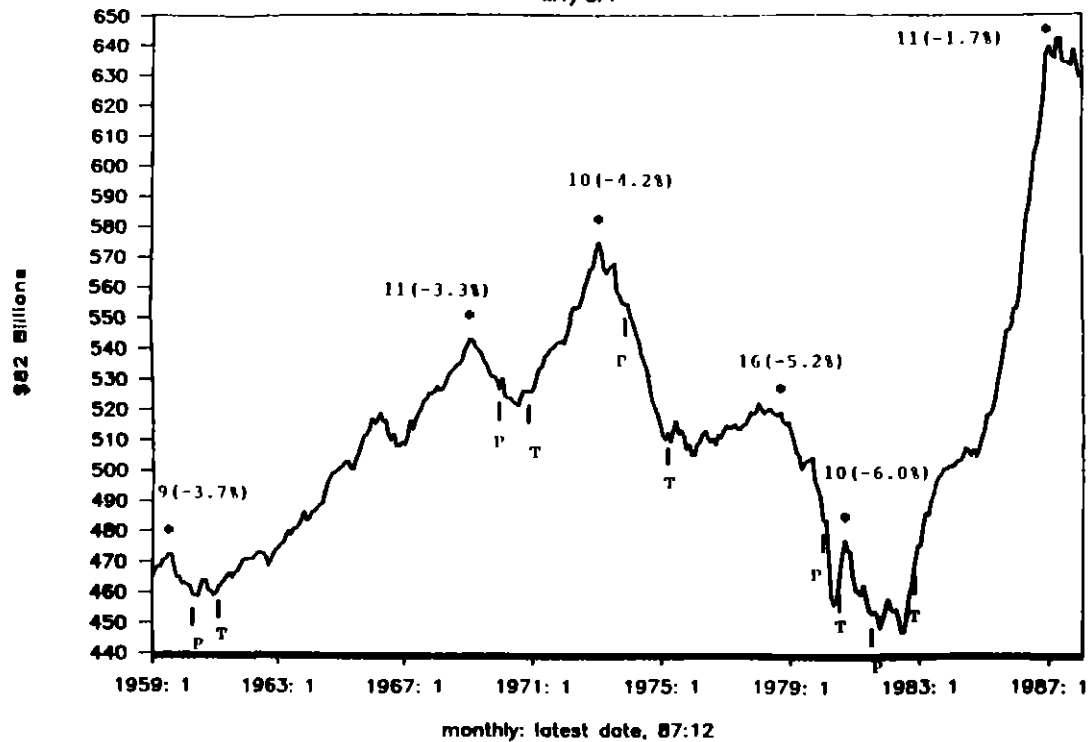
* = Lead month for real monty turning point.

REAL M1A



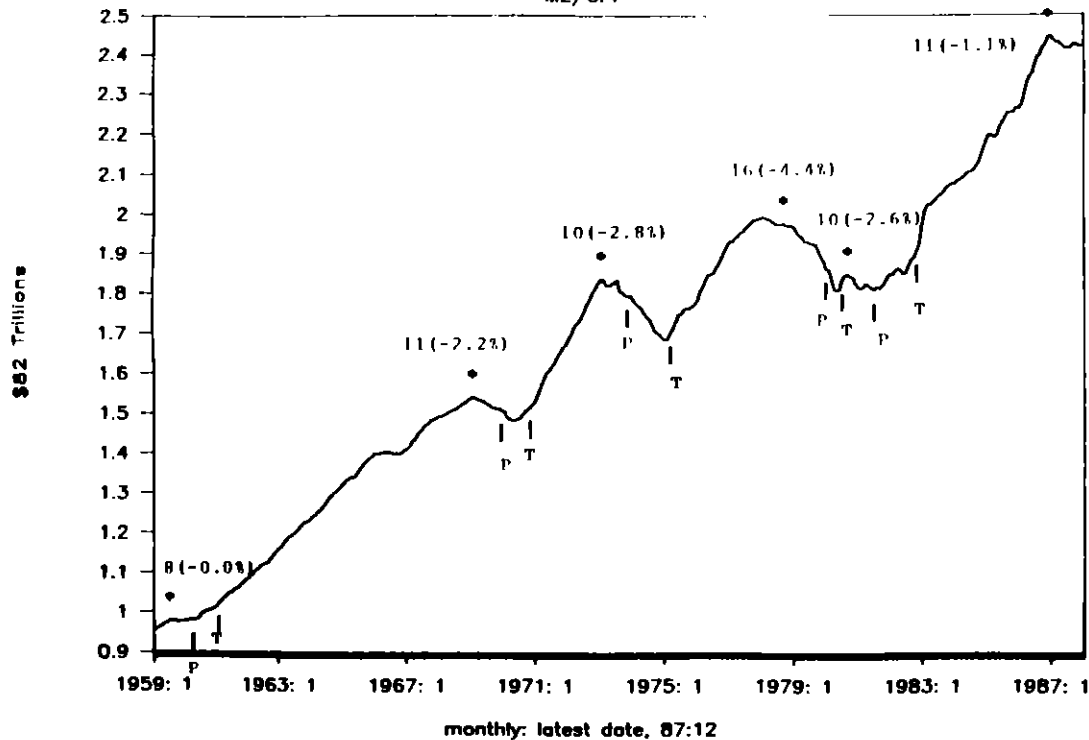
REAL M1

M1/CPI



REAL M2

M2/CPI



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A P P E N D I X

MARCH 24, 1988

TESTIMONY

BEFORE THE

SUBCOMMITTEE ON DOMESTIC MONETARY POLICY
HOUSING COMMITTEE ON BANKING,
FINANCE, AND URBAN AFFAIRS

DELIVERED BY:

MARIA FIORINI RAMIREZ
MANAGING DIRECTOR
MONEY MARKET ECONOMIST

DREXEL BURNHAM LAMBERT INCORPORATED

MARCH 24, 1988

Mr. Chairman, and members of the Subcommittee on Domestic Monetary Policy, my name is Maria Fiorini Ramirez, and I am Managing Director and Money Market Economist at Drexel Burnham Lambert Incorporated. I am pleased to be here today and to offer this committee my thoughts on the appropriate course of monetary policy in 1988. My expertise is in forecasting short term economic trends, interpreting news that affects the markets, and providing investment advice to market participants. Monetary policy is key to understanding the direction of the markets, and it is also a crucial issue that requires a great deal of my time. During the past several years, I have seen drastic changes in the behavior of market participants. More specifically, the massive quantity of new information and the market's volatility have created an insatiable appetite for immediate analysis of data. This, in turn, has been a major reason for wide gyrations in the markets.

Today, money managers around the world work around the clock and anxiously await such data as employment or trade releases, whether its 10:30PM in Tokyo or 2:30AM in Hawaii. Shifting billions of dollars around the globe in response to a number that can be revised drastically the following month is today's reality. Trying to forecast kneejerk reactions with an econometric model is impossible. No model can predict how different investors with different investment objectives will respond to various types of economic news. It is like trying to put many pieces of a puzzle together that look very much

-2-

alike in order to form a perfect picture of the economy in record time. This is a monumental task. All we can do, in some cases, is use our best judgement on how the markets as a whole may interpret economic, or other news, affecting them.

In looking at short term trends and trying to gauge the direction of the markets, it is very important to know consensus expectations. It helps to be a good listener, because absorbing information is always more than looking back at history and attempting to use it as a guide to the future. My testimony will touch upon the Humphrey Hawkins Report, how monetary policy is currently perceived by the markets, and what I believe the best course for monetary policy may be for 1988.

The last few years have been difficult ones for those involved on both sides of the markets. Those making policy have been led by events that have sometimes been surprising. Those involved in the markets have had a difficult time in interpreting and understanding different developments. Monetary policy, I believe, has been on the correct path, but there have always been some experts who contend that it was going in the wrong direction. In retrospect, given the complexity of international capital flows, the imbalances in the economies around the world, and the large trade flows with twin deficits, the policies adhered to have been generally correct.

Market participants are always quick to anticipate dramatic shifts in policy by the Fed. Although, in the past, if the Fed had changed policy as often as the markets had expected, it probably would have created more instability in the economy and prices. Even though there have been instances where monetary policy has been too slow to respond to changes in the economy, the result was stability on the inflation front during this decade. Before reaching a conclusion about what I believe the current course of policy should be for this year, it is appropriate first to discuss the money supply, which has been the cornerstone of such policy in the past.

In the past, the money supply has served as a useful tool in guiding monetary policy in the direction of balanced economic growth and price stability. However, more recently, the relationship between money and real economic activity has come unglued, causing market participants to focus on other leading indicators of economic growth. In part, this decoupling of money from real economic activity is due to deregulation of the banking industry following the Monetary Control Act of 1980. This legislation, among another things, caused a shifting of deposits away from traditional time deposits into new highly liquid interest bearing deposits, called "NOW" accounts. This shifting of deposits eventually led to a redefinition of the M1 monetary aggregate, as well as a refocusing of policy away from this narrower measure to the broader aggregates of M2 and M3. Between 1983 and 1986, the monetary aggregates (M1, M2, and M3) grew at a rapid pace (an average annual rate of 11.0 percent, 10.0 percent, and 9.0

-4-

percent, respectively), due to the easier Fed policy that prevailed as of mid-1981. This faster money growth was consistent with a pick-up in economic activity. Between 1983 and 1986, real GNP grew at an average annual rate of 4 percent.

As of spring 1987, however, the growth of the monetary aggregates slowed. For 1987 as a whole, M1 grew at an average annual rate of 11.5 percent, M2 at 6.5 percent and M3 at 6.8 percent. Both M2 and M3 in 1987 grew slower than the average growth rates between 1983 and 1986. The slowdown in money growth in the spring of 1987 coincided with the slightly more restrictive monetary policy that was put in place at that time. The tighter policy was due to building inflationary expectations in the financial markets from the continued deterioration of the U.S. dollar and the the lack of improvement in the U.S. trade deficit. The Fed's move to tighten reserve availability temporarily abated inflationary expectations. However, by August, the dollar once again came under downward pressure and without improvement in the monthly trade data, price pressures accelerated. This eventually caused the Fed to take a more overt tightening move by raising the discount rate on September 4th.

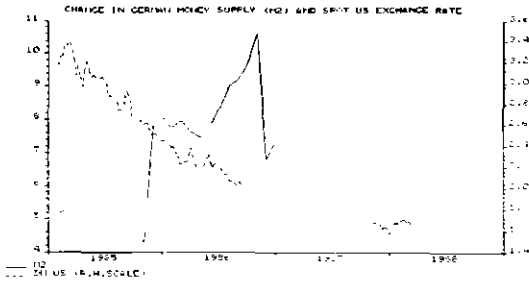
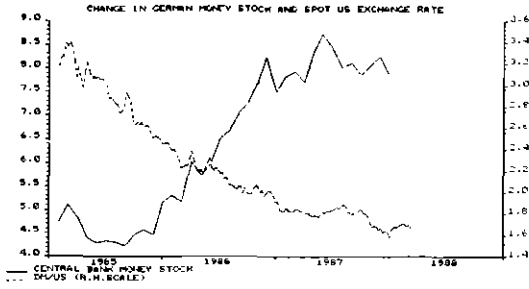
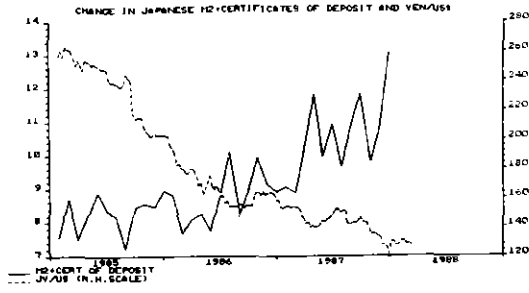
During this period, interest rates continued to climb and money growth continued to slow. At least some of the slower growth was due to the more restrictive monetary policy and correspondingly higher interest rates. It was also due to the shifts in international deposit flows resulting from the rapid dollar depreciation. I have included some charts that show the inverse relationship between a

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weakening dollar and foreign money supply growth. In particular, the charts on the following pages show the very rapid decline in the \$-Dmark from its peak in February, 1985 and the correspondingly rapid growth in German central bank money stock during this period. These charts show that at least some of the weaker growth in the U.S. monetary aggregates in 1987 was due to the unwillingness of foreigners to hold dollar-denominated deposits in U.S. banks. This led to a shifting of deposits from U.S. banks to foreign commercial banks. For the most part, these deposits were the highly liquid transaction deposits included in M1. This shifting of deposits became even more rapid in the last two months of the year after a further deterioration of the dollar, and M1 grew at an annual rate of negative 5.6 percent in November and negative 3.0 percent in December. This translated into weaker growth for M2 and M3 during the same period. Since the beginning of 1988, growth in all three of the monetary aggregates has bounced back quite nicely. It is no coincidence that this healthier growth came in a period of relative dollar stability.

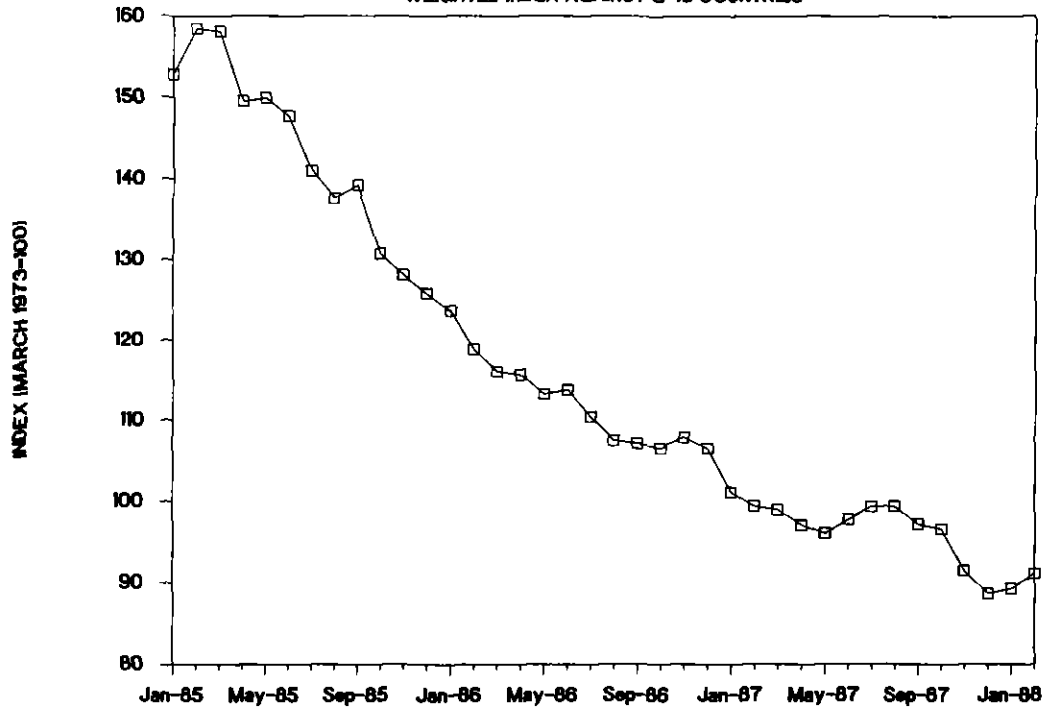
For 1988, as stated in the Humphrey Hawkins testimony a month ago, the Federal Open Market Committee (FOMC) has set somewhat lower growth targets for M2 and M3 than those prevailing in 1987. The growth bands for M2 and M3 have been lowered, from a range of 5 1/2 to 8 percent, to a range of 4 to 8 percent. In my opinion, the FOMC's decision to lower the targets is appropriate for some of the same reasons discussed by Chairman Greenspan in his testimony a month ago. Among the reasons cited in the decision to lower the ranges was the looser relationship between money and economic growth that I have just

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TRADE WEIGHTED DOLLAR

WEIGHTED INDEX AGAINST G-10 COUNTRIES



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discussed. The FOMC also decided to widen the growth bands to 4 percentage points from the more traditional 3 percentage points, in light of the unusual degree of uncertainty about economic growth in 1988. Implied in the Fed's decision to ease was also an indication of tightening. This is exactly the type of flexible approach to guiding monetary policy that I discussed earlier, and that I feel the Fed should be taking. The Fed is now focusing not only on the growth of money in relation to the economy, but also on a broad range of economic indicators. The Fed is using this information in its decisions to adjust the instruments of monetary policy - reserve availability and the discount rate - in response to deviations in monetary growth from anticipated rates. By widening the target bands, the Fed is allowing for the possibility of aberrant shifts in money flows, which could occur in 1988, as they did in 1987.

Looking ahead to the rest of 1988, real economic growth will determine whether M2 and M3 grow at the midpoint of the established ranges, as the Fed expects. If real GNP in 1988 accelerates at the 2.5 percent pace that I expect, the targeted ranges for money growth should be achieved. However, the "yet to be determined" impact on the economy from the October 19th stock market decline remains a very real consideration. As we are all well aware, the stock market collapse on October 19th wiped out \$700 billion of wealth and about one-third has been regained since then. The impact on consumer behavior is difficult to measure, both because of the offsetting interest rate decline that accompanied the crash, and the concentration of equity holdings among a small proportion of the

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population. As I mentioned in several of my daily commentaries at the time, the stock market decline had its greatest impact on those investors who refused to take profits as the market was rising to reach its peak in late August before faltering in September. In many investors' minds, greed was the motivating factor behind the decision to stay invested, and only when fear overcame greed on October 19th, did investors change their minds. However, it is clear that this event ushered in a more cautious mood on the part of consumers, as evidenced by the flight to liquidity that occurred immediately following October 19th. Indeed, as recent mutual fund activity indicates, there was a decisive shifting by individual investors from equity funds to more liquid money market funds. In addition, total assets under management in all mutual funds declined by \$53 billion in October. This mood should translate into more cautious borrowing and spending propensities by consumers in the months ahead. The most recent monthly economic data on personal income and consumption indicate a marginal advance in consumer activity in the first quarter, and the most recent data on retail sales and auto sales indicate slightly faster growth for the second quarter. Additionally, the latest report prepared by the St. Louis Fed for the March 29, 1988 FOMC meeting, otherwise known as the Tan Book, states the following:

"Without exception, reports confirm a moderate expansion of the nation's economy. Strength in the manufacturing sector and continued moderate growth in employment are sustaining the current expansion. Consumer spending, which had provided much of the earlier stimulus to the

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economy, has continued to expand sluggishly. Auto sales, however, improved and have risen strongly in some districts. Construction activity remains mixed, while bank loan demand is generally flat. Consumer lending has declined sharply in keeping with the slower growth of consumer spending. The farm sector outlook remains positive."

As for 1988, I believe the U.S. economy will continue to grow through the sixth year of this expansion, although at a more moderate pace than 1987. We anticipate real GNP to rise 2.5 percent in 1987. In terms of the composition, as the following table shows, I anticipate less of a build-up in inventories (\$35 billion vs \$42 billion) which would result in final sales (real GNP less changes in inventory) rising 2.7 percent compared to the 2.1 percent recorded in 1987. With an estimated improvement of \$17 billion in the net export sector, we should see an economy that is driven by a positive contribution from net exports. Domestic final sales (final sales minus net exports) may advance 2.2 percent compared to 2.4 percent in 1987.

In summary, we did not expect U.S. consumers to change their spending patterns, before or after October 19th, but it is natural that the consumer will contribute less to economic growth as the business cycle becomes more mature. The ongoing strength in employment, income, and spending should result in a 1.7 percent advance in consumer spending this year compared to 1.9 percent last year. Services are likely to continue to lead the way with an

GNP DATA	1987 GNP HISTORY						FORECASTS FOR 1988 GNP					
	4Q.86	1Q.87	2Q.87	3Q.87	4Q.87	1987	1Q.88	2Q.88	3Q.88	4Q.88	1988	% CHANGE
GNP	3731.5	3712.2	3795.3	3835.9	3877.9	3820.3	3888	3906	3925	3945	3916	2.5
GROWTH RATE		4.4	2.4	4.3	4.4		1.0	1.9	1.9	2.0		
CHANGE IN BUS. INV.	-14.4	47.6	39	24.6	56.7	42.0	25	35	33	46	35	
FINAL SALES	3745.7	3724.6	3756.2	3811.3	3821.3	3776.4	3863	3871	3892	3899	3881	2
GROWTH RATE		-2.3	3.4	5.9	1.0		4.4	0.8	2.2	0.7		
NET EXPORTS	-151.8	-135.2	-132.7	-138.4	-136.4	-135.7	-121	-118	-120	-117	-119	
DOM. FINAL SALES	3897.5	3859.8	3888.9	3949.7	3957.7	3914.0	3904	3989	4012	4016	4000	2.2
GROWTH RATE		-3.9	3.0	6.3	0.8		2.7	0.5	2.3	0.4		
CONSUMER EXPENDITURES	2400.4	2476	2487.5	2520.7	2500.8	2496.3	2517	2537	2541	2555	2538	1.7
DURABLES	399	375.9	385.4	406.9	384.3	388.1	387	367	385	382	385	-0.7
NONDURABLES	880.3	883.2	879	875.7	869.9	877.0	870	861	873	873	874	-0.3
SERVICES	1201.1	1216.9	1223.1	1238.1	1246.6	1231.2	1260	1269	1283	1300	1278	3.8
FIXED INVESTMENT	645.4	624.2	634.7	657.3	660.6	644.2	670	670	701	699	685	6.3
NONRESIDENTIAL	443.2	426	437.9	463.8	463.3	447.8	480	480	505	507	493	10.1
STRUCTURES	124.6	120.4	120.4	127.2	128.9	124.2	125	125	130	130	128	2.6
EQUIPMENT	318.6	305.6	317.5	336.6	334.4	323.5	355	355	375	377	366	13.0
RESIDENTIAL	282.2	196.2	196.8	193.5	197.3	196.5	190	190	196	192	182	-2.3
GOVERNMENT	771.7	759.6	766.7	771.7	795.3	773.6	797	782	770	762	778	0.5
FEDERAL	344.6	327.3	332.6	336.3	355.2	337.9	346	347	345	338	344	1.8
STATE AND LOCAL	427.1	432.3	434.1	435.4	441.1	435.7	451	435	425	424	434	-0.5

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-12-

expected advance of 3.8 percent. We do foresee a healthy refurbishing of industries and the need for new equipment, which may result in a 12.6 percent rise in equipment outlays. Finally, government spending should remain essentially flat. In so far as the housing sector is concerned, I doubt there is much pent up demand that will be accommodated at this current level of mortgage rates. Housing, therefore, will continue to be a drag on GNP.

In the months ahead, should the economy's pace exceed the 2.5 percent pace we foresee, it could lead to some revival of inflationary fears in the financial markets. Right now, the latest monthly data on inflation show modest inflationary pressures. While consumer prices may continue to average roughly 4.5 percent in 1988, there are some price pressures developing on the producer level. This should be a reason for caution in the months ahead. In particular, there have been steady increases in the prices of capital equipment, as well as raw materials used in durable and nondurable manufacturing. In my opinion, these price pressures may be developing because of some capacity constraints in those industries where export growth has picked up in the past several months. Should these price pressures translate into higher than expected consumer prices or a heating up of inflationary expectations in the financial markets, then, if other conditions warrant it, the Fed would most likely respond with a tightening of reserve conditions. Such a posture in limiting upward pressure on inflation could be received in a positive way, because bond markets generally respond favorably to a slightly firmer monetary policy with an expanding economy. This does not necessarily portend

another increase in the discount rate. Rather, a tightening of reserve availability, through higher discount window borrowings, might occur. At present, the Fed is targeting a "frictional" level of these borrowings, somewhere around the \$150-\$200 million level per day. A tightening may consist of a move to the \$400 or \$500 million per day. Indeed, this is exactly how the Fed responded to higher inflationary expectations last spring, when it first raised the targeted level of borrowings, and ultimately the discount rate in September.

After the stock market collapse in October, the Fed temporarily suspended this conventional operating procedure of targeting borrowed reserves, as it moved to provide excess liquidity to the banking system during a period of uncertainty. At this time, the borrowing target was abandoned, and instead, the Fed concentrated on providing stability to the markets by targeting a certain level of short-term interest rates. This level was around a 6 3/4 percent fed funds rate. In early January of this year, the Fed returned to targeting borrowed reserves. However, the low level of borrowings that the Fed is currently targeting has had a destabilizing effect on the fed funds rate due to the nature of the borrowings target-fed funds relationship.

If I may digress for just a few moments to expand on this point. At the end of 1982, the Fed moved away from a rigorous non-borrowed reserves target tied to the growth in M1, to a borrowed reserves system. In brief, this system is designed to produce a certain

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average spread between the fed funds and the discount rate by attempting to force a predetermined amount of borrowing at the discount window. Operationally, the Fed estimates the level of reserve demand, then tries to supply enough reserves through open market operations to satisfy that demand, less a certain amount that banks are forced to borrow at the discount window. Only when the spread between the fed funds rate and the discount rate widens beyond what the market perceives as an acceptable range, are banks induced to borrow at the discount window. In this way, the relationship between borrowings and the fed funds rate allows the Fed to use its initial borrowings assumption to regulate short-term movements in overnight rates. However, the system is flexible enough that there is still a certain amount of leeway in the fed funds-borrowings relationship.

Most recently, the spread between the fed funds rate and the discount rate has narrowed from $3/4$ of a point to $1/2$ a point, while the Fed's borrowing target most likely remained unchanged at \$200 million. This is the "small easing step" that Chairman Greenspan referred to in his testimony. It is the fairly loose relationship which exists between borrowings and fed funds rate which permitted the Fed to call the downdrift in the fed funds rate an "easing" even though there probably was no formal lowering of the borrowing target. Looking ahead, if the Fed were to tighten policy in the next several months, it would do so first by allowing the fed funds rate to drift upward toward the $6\ 3/4$ percent level, then by formally raising the

-15-

borrowing target to the \$300, \$400 or \$500 million per day level depending on the degree of tightening. For each \$100 million increase in borrowing there would correspondingly be an increase of roughly three-eighths of a point in the fed funds rate.

With regard to the concerns about the dollar, and whether the Fed's policy was appropriate in 1987, I offer these comments. First of all, it was my contention in September 1985 that the G-5 "Plaza Accord" to push the dollar lower may not result in the quick improvement that was generally expected in the net export balance, for the simple reason that there was at least 20 percent fluff at the peak of the dollar. Second, as I recall, at that time, and through most of 1987, a dollar bashing policy had been advocated by the U.S. Treasury, and the Fed was alone in trying to stabilize what at times was a free fall in the dollar and very disorderly markets. The "Japan" or "Germany" bashings and outspoken statements by some U.S. officials to stimulate domestic growth through monetary easing overseas has achieved the opposite of its intended result. Japan's economy is now growing at an 8 percent pace, and it has very well adjusted to a dollar that is 50 percent lower than 3 years ago. I would suspect a weaker dollar could make that economy even stronger domestically. In the UK, the economy has rebounded strongly. What was regarded as the "sick man of Europe" in the 1970's is now a thriving industrial economy. After a softer performance last year, the Germany economy has improved also. Not only have central bankers tolerated stronger

than targeted monetary growth, but they also eased monetary policy in the spirit of stabilizing the dollar. This came at a cost of about \$120 billion in dollar support operations by the major central banks outside the U.S. The cost to the Fed was less than \$10 billion. In effect, the dollar stabilized only at the point when the Fed and the Treasury intervened at the end of 1987. In the 3 months ending January 31, 1988, such intervention was \$4 billion.

I believe that such intervention was effective in turning around the bearish sentiment toward the dollar and preventing a useless free fall. U.S. goods will be produced for export if they are not only cheaper but also of higher in quality than those produced elsewhere. The weaker dollar has merely put U.S. real assets up for sale at a 50 percent discount from their value of 2 years ago. Concern that we need to have higher interest rates to attract capital flows to finance the U.S. budget deficit, and concern about the consumer consumption binge are both overdone. Last year, overseas private investors were net sellers of U.S. Treasury debt, and as I mentioned the capital inflows to finance the budget deficit were from central banks. Private investors' capital inflow started moving into real assets 2 years ago. That trend has accelerated dramatically in the last three months as the dollar's stability has made such investments easier to justify.

Dollar stability should be one of the many important objectives for monetary policy this year. While monetary policy may be coordinated in the general spirit of the Louvre Accord, it will become

-1/-

increasingly difficult for other central bankers to be as accommodative as they have been in their support for dollar stability. Domestic monetary policy will have to be increasingly sensitive to price pressures - both domestic and imported. To this extent, I believe that stability in the dollar at the current levels, plus or minus 5 percent in 1988, will allow more independence to the Fed in carrying out monetary policy in 1988 than it did in 1987.

There is no perfect and constant tool that the Fed can use as a guide in directing monetary policy. At best, it can monitor several indicators that either confirm what has happened in the past, explain what is currently taking place, or give us an indication of the direction or sentiment for the future. Because the tools and measures are constantly changing, the Fed has to be flexible and open-minded to change with it. Therefore, I believe that the larger the basket of these measures is, the more "in tune" the Fed will be with all possible developments. This will better the chance that the course of monetary policy will not be led astray.

Understanding the dynamic interplay of market forces has become more difficult and complex than ever before. Yet as the markets widen and their pace accelerates, the ability to analyze and interpret change accurately is becoming increasingly critical to issuers and investors. As the markets have expanded to incorporate a variety of new securities and derivative products, it has sometimes become difficult for investors, market and policy makers to keep themselves a step ahead in anticipating the impact of the more complex markets.

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Complex trading and hedging strategies have not always been successful, but they have affected the value of securities. The traditional debt markets now co-exist with a multitude of synthetic products that have basically been derived from treasuries, corporate, municipal, and mortgage backed instruments. A great variety of investments have also been developed in the equity market. When these complexities are looked at from a global viewpoint, it is virtually impossible to be so narrow minded as to use only one variable in conducting monetary policy. As I have discussed earlier, I trust that not only the Fed, but also the majority of members in Congress, will vote for the type of restraints that closely balance both anti-inflationary and pro-growth monetary policy.

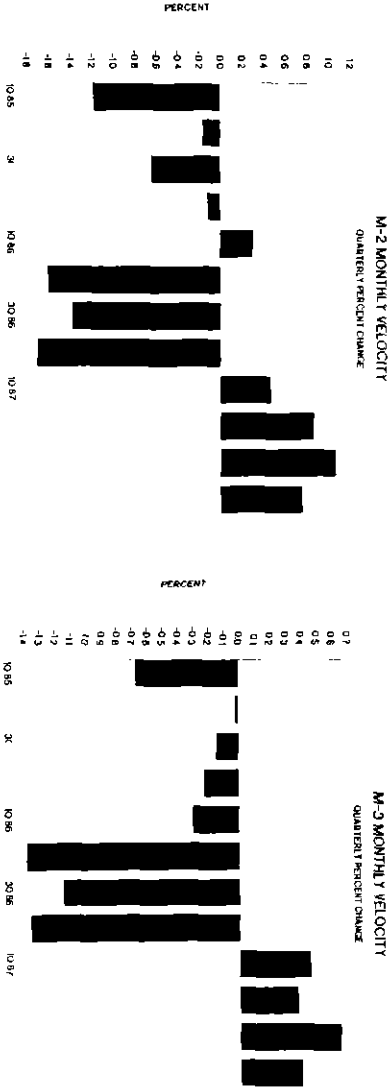
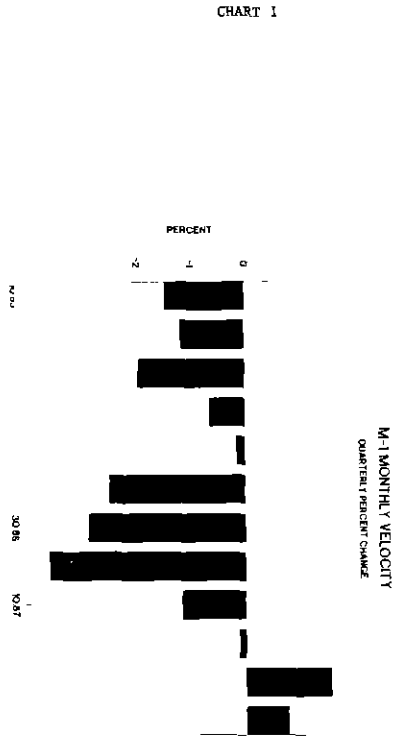
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AMONG THE SOURCES FOR THESE CHARTS WERE THE FOLLOWING:

Bureau of Labor Statistics
Bureau of the Census
Bureau of Economic Analysis
Federal Reserve Board Bulletins

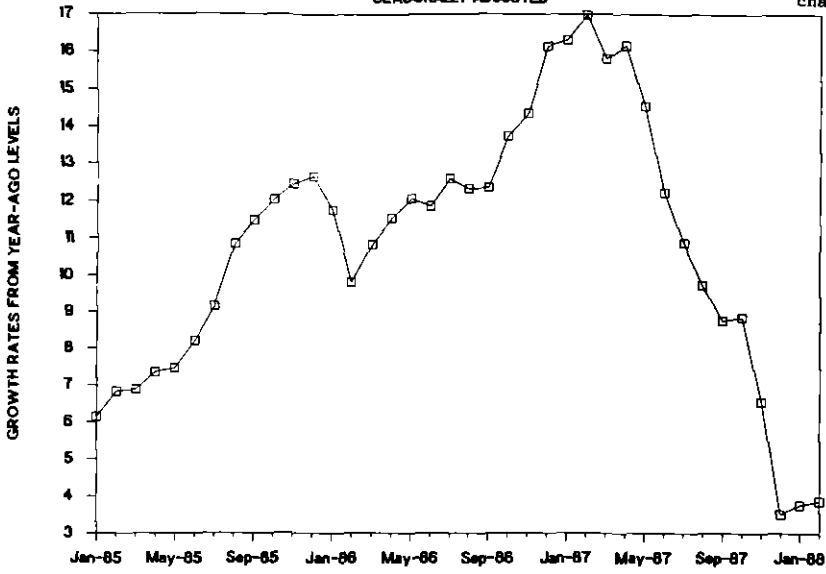
CHART 1



M-1 MONTHLY GROWTH RATES

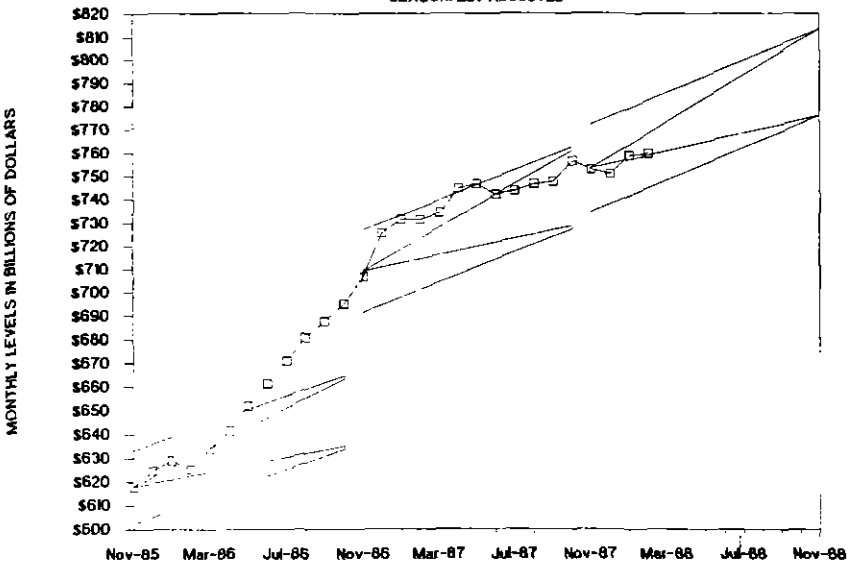
SEASONALLY ADJUSTED

chart 2



M-1 MONTHLY MONEY SUPPLY

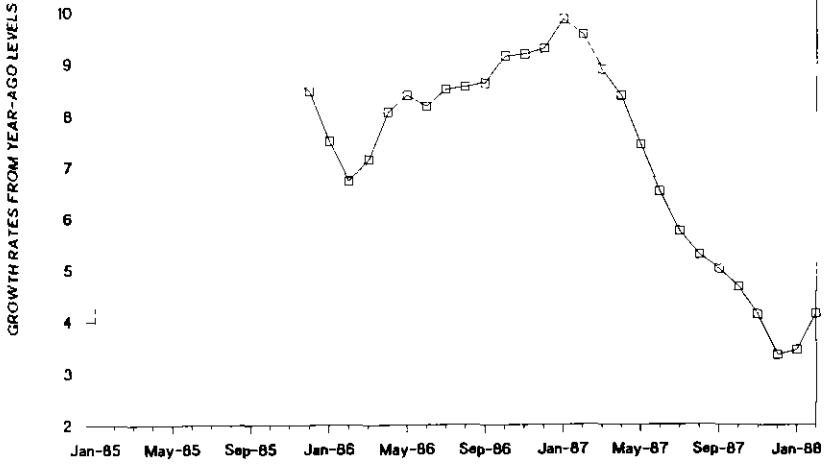
SEASONALLY ADJUSTED



M-2 MONTHLY GROWTH RATES

SEASONALLY ADJUSTED

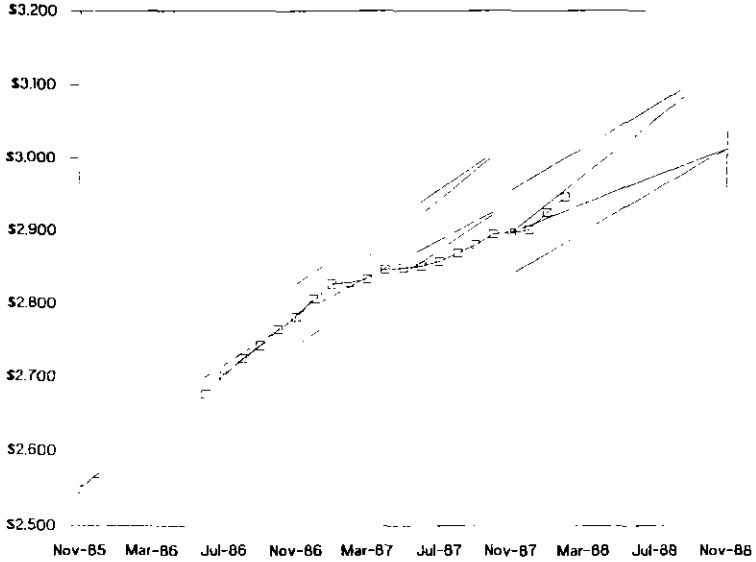
CHART 3



M-2 MONTHLY MONEY SUPPLY

SEASONALLY ADJUSTED

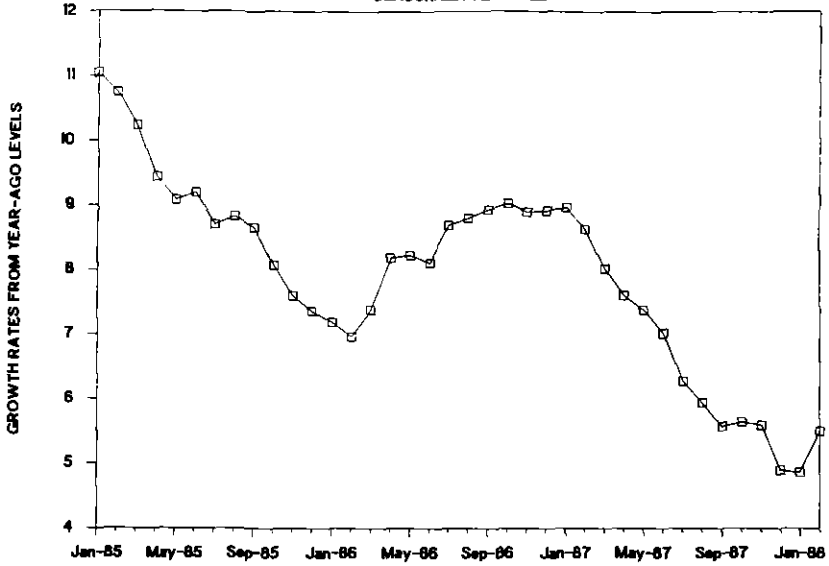
MONTHLY LEVELS IN BILLIONS OF DOLLARS



M-3 MONTHLY GROWTH RATES

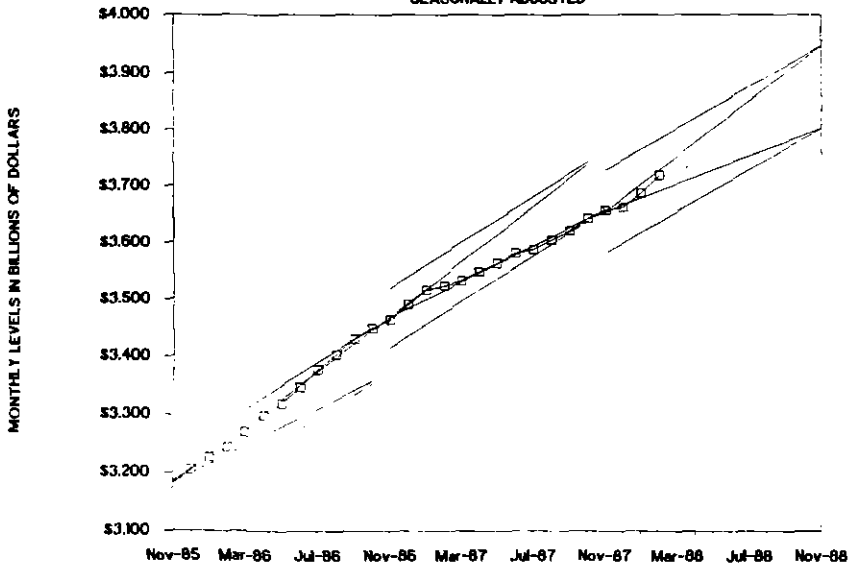
SEASONALLY ADJUSTED

chart 4

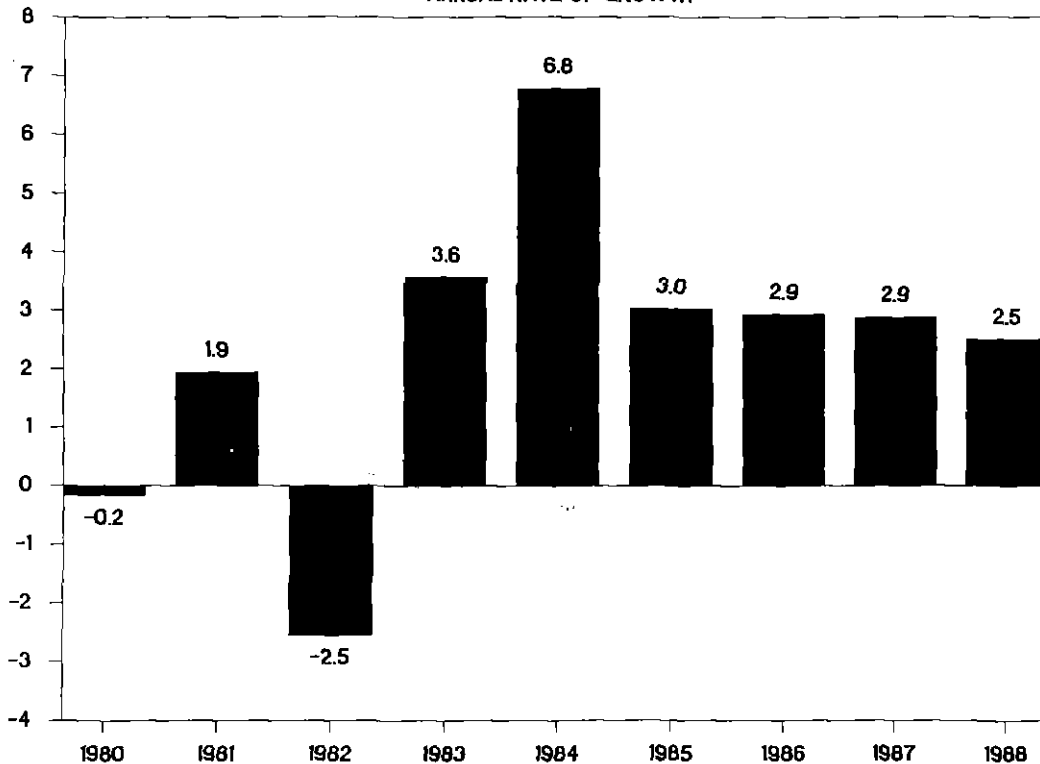


M-3 MONTHLY MONEY SUPPLY

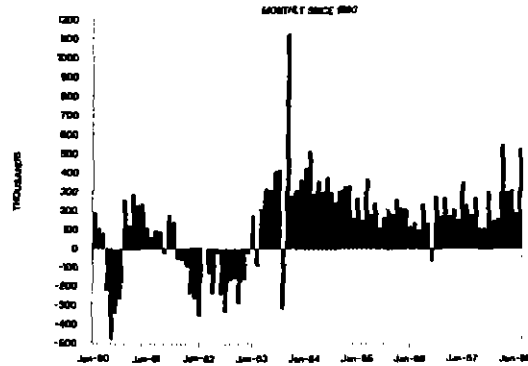
SEASONALLY ADJUSTED



REAL GNP ANNUAL RATE OF GROWTH



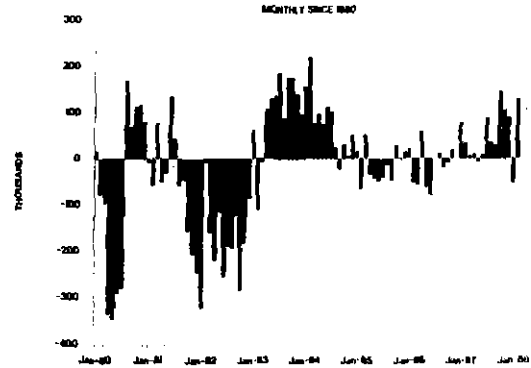
CHANGE IN TOTAL NONFARM PAYROLLS



CHANGE IN SERVICE PRODUCING PAYROLLS



CHANGE IN GOODS PRODUCING PAYROLLS



INDEX OF LEADING INDICATORS

MONTHLY SINCE JANUARY 1980

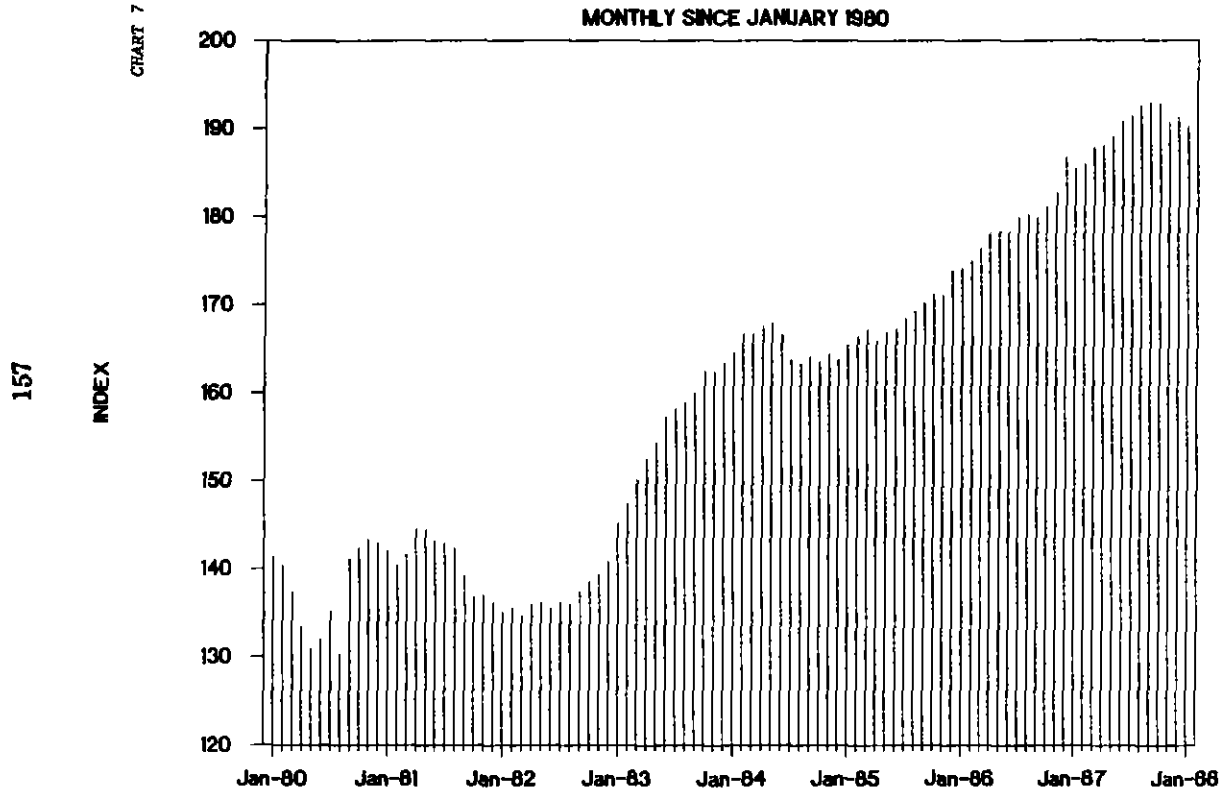
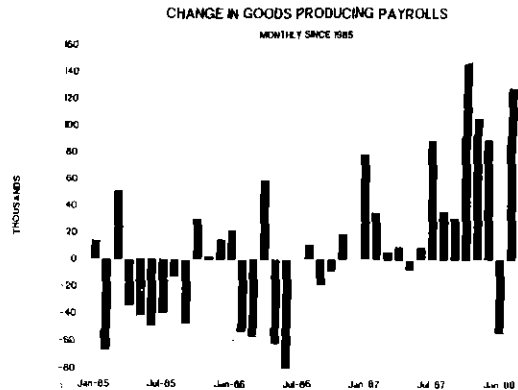
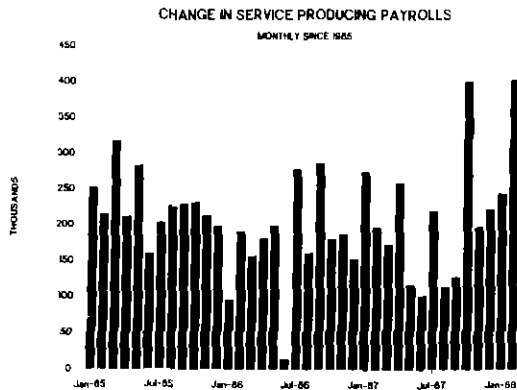
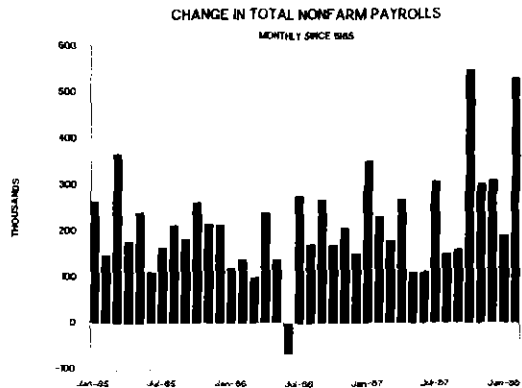
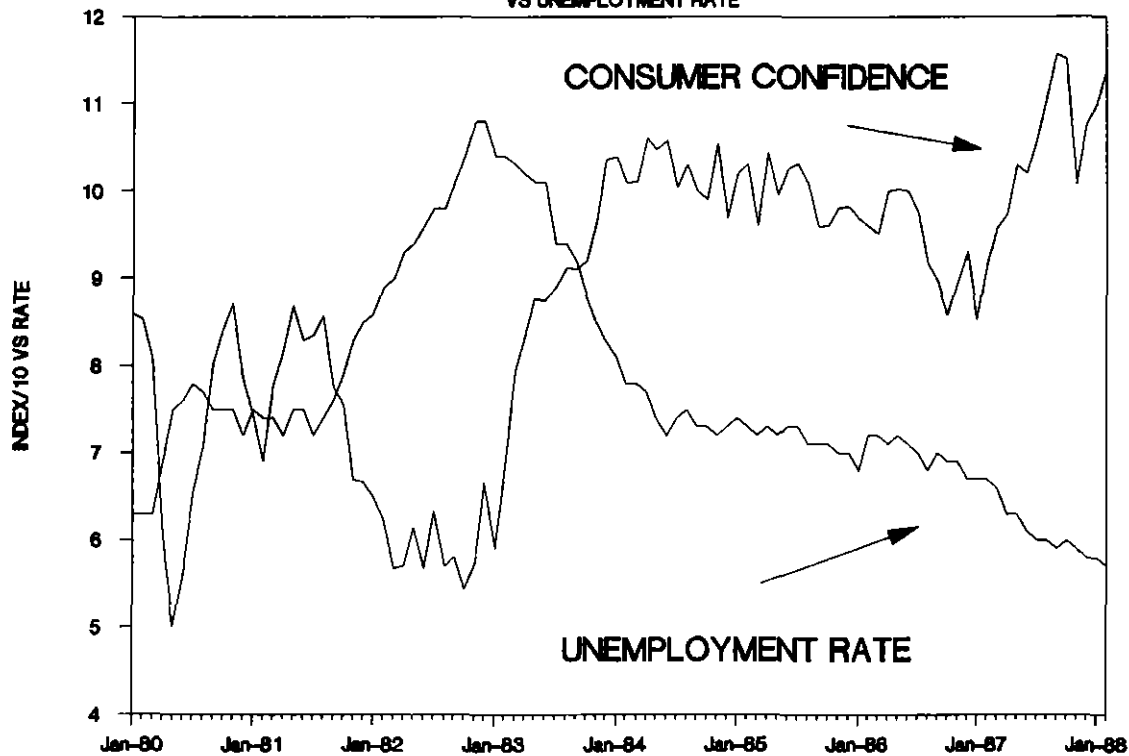


CHART 8



CONSUMER CONFIDENCE INDEX

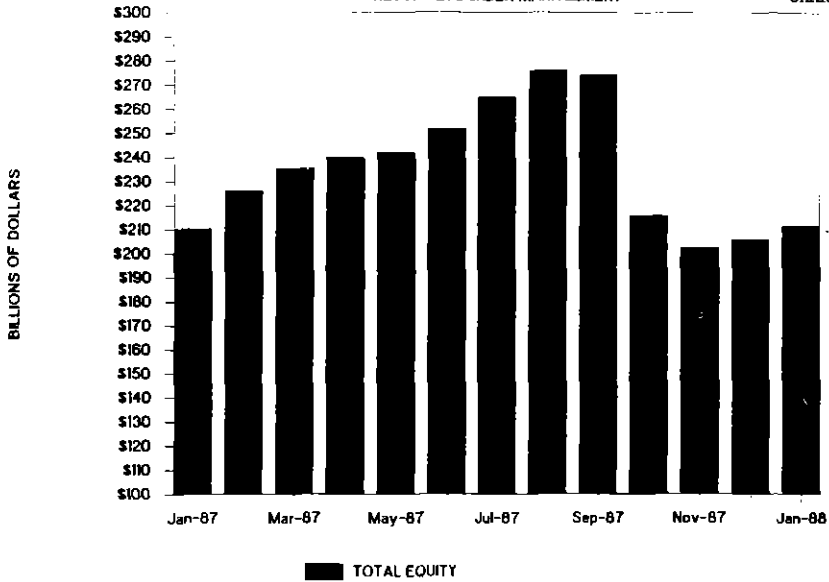
VS UNEMPLOYMENT RATE



MUTUAL FUNDS INDUSTRY

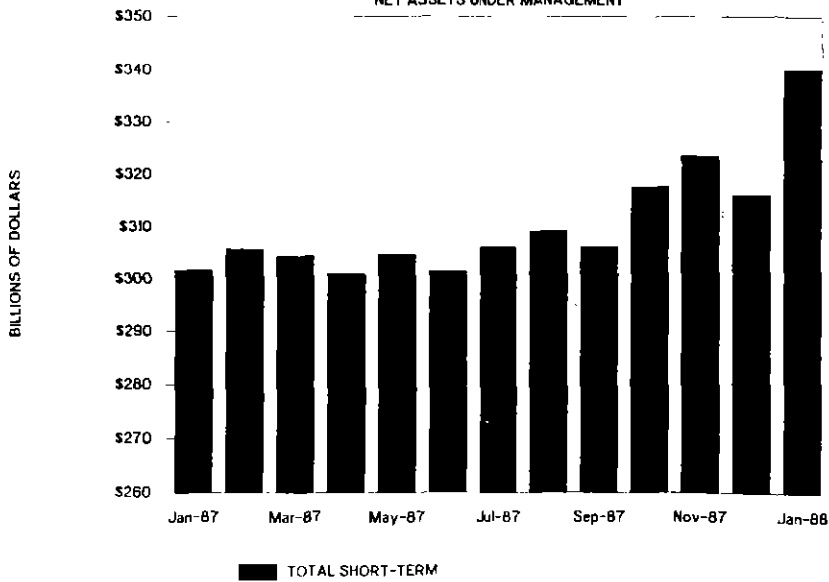
NET ASSETS UNDER MANAGEMENT

CHART 10



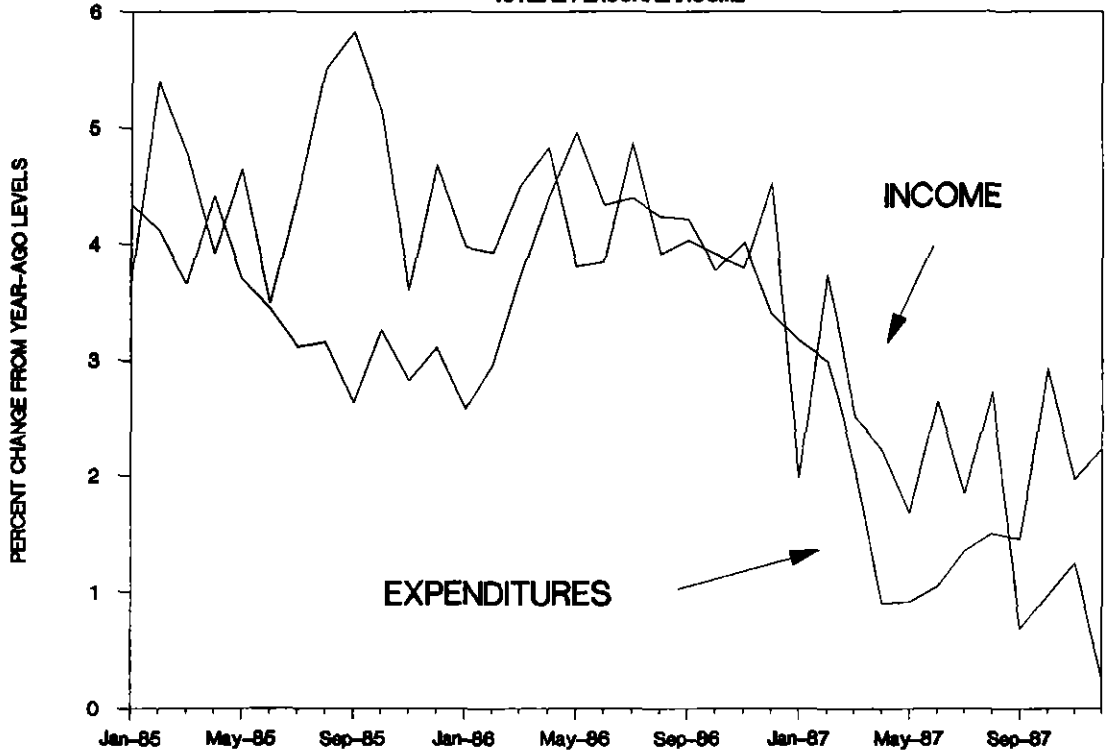
MUTUAL FUNDS INDUSTRY

NET ASSETS UNDER MANAGEMENT



REAL PERSONAL CONSUMPTION EXPENDITURES

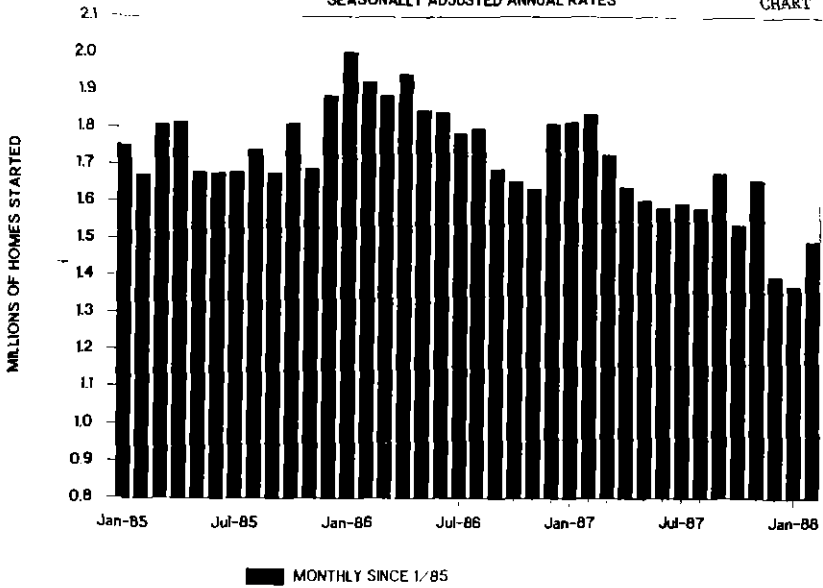
vs REAL PERSONAL INCOME



U.S. HOUSING STARTS

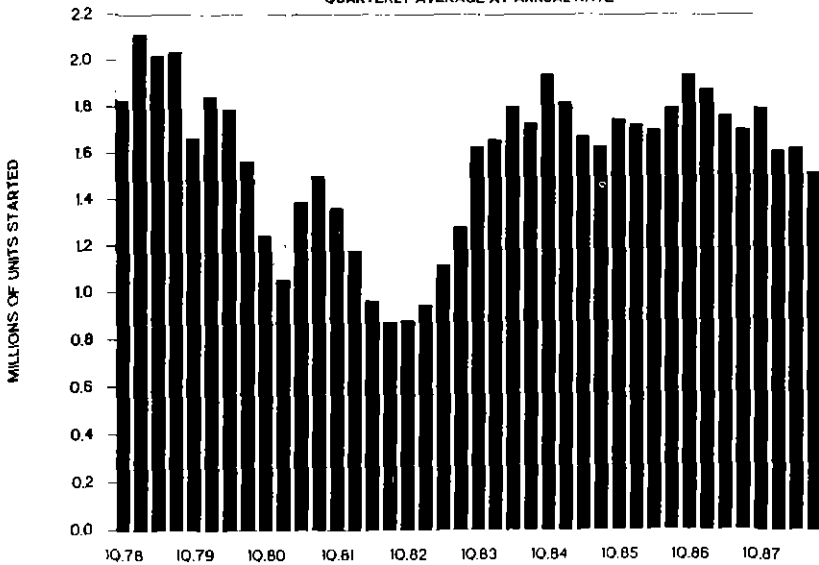
SEASONALLY ADJUSTED ANNUAL RATES

CHART 12



HOUSING STARTS

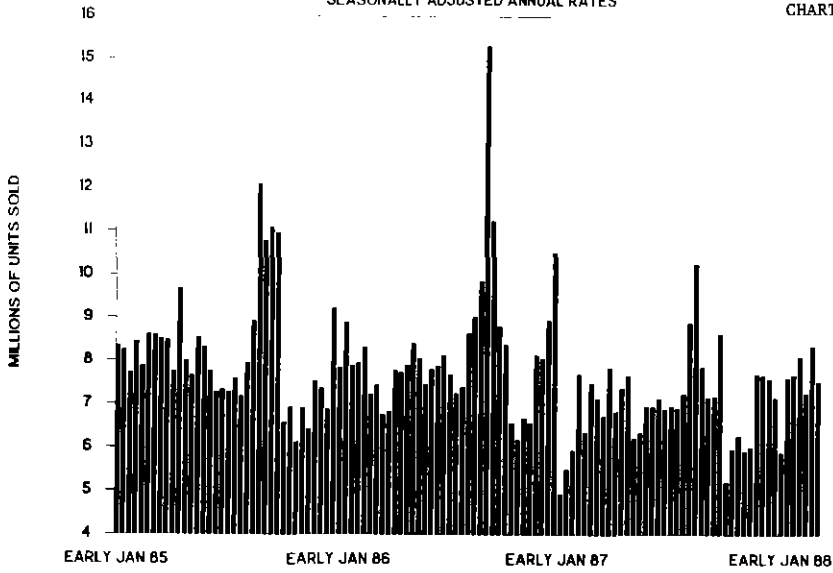
QUARTERLY AVERAGE AT ANNUAL RATE



TEN-DAY AUTO SALES

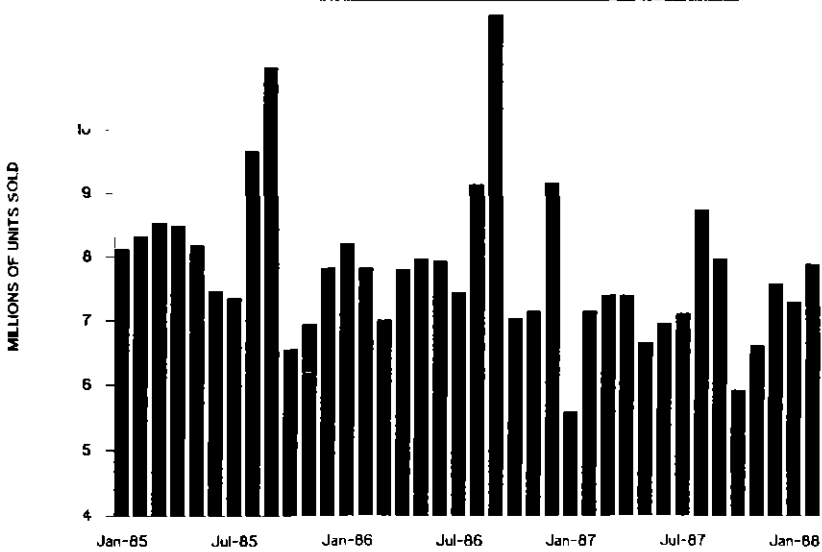
SEASONALLY ADJUSTED ANNUAL RATES

CHART 13



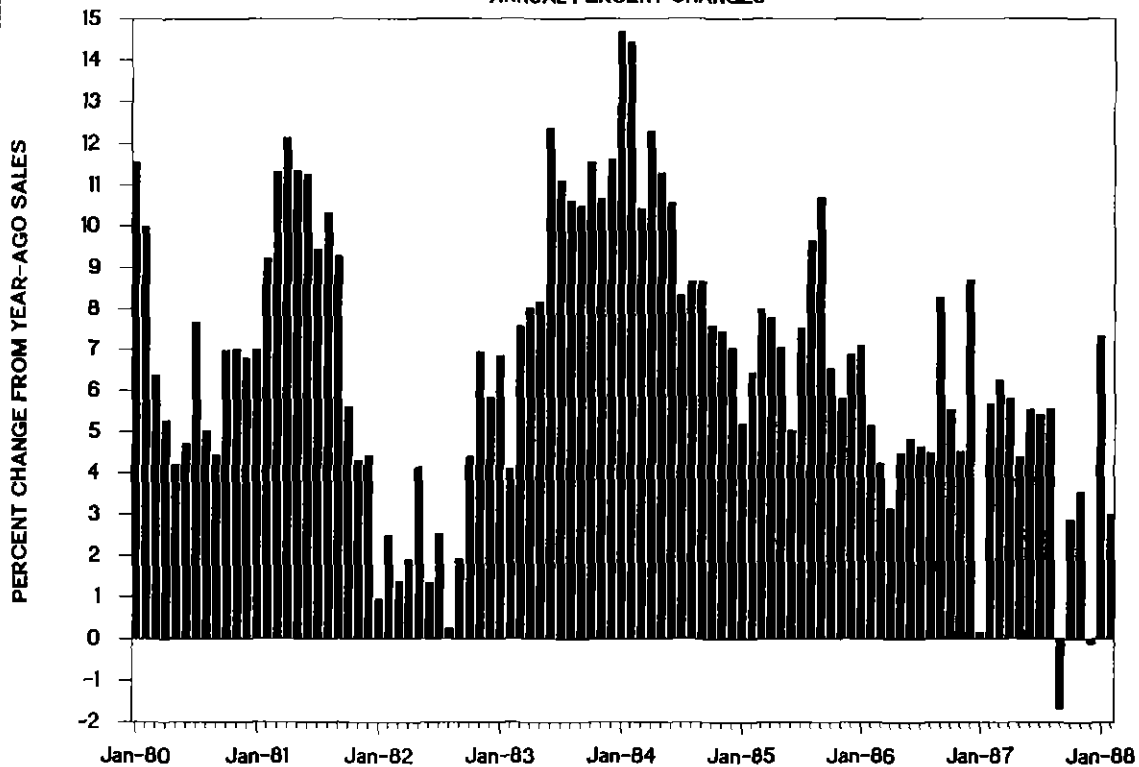
MONTHLY AUTO SALES

SEASONALLY ADJUSTED ANNUAL RATES



NOMINAL RETAIL SALES

ANNUAL PERCENT CHANGES



INDUSTRIAL PRODUCTION

ALL INDUSTRIES

CHART 15

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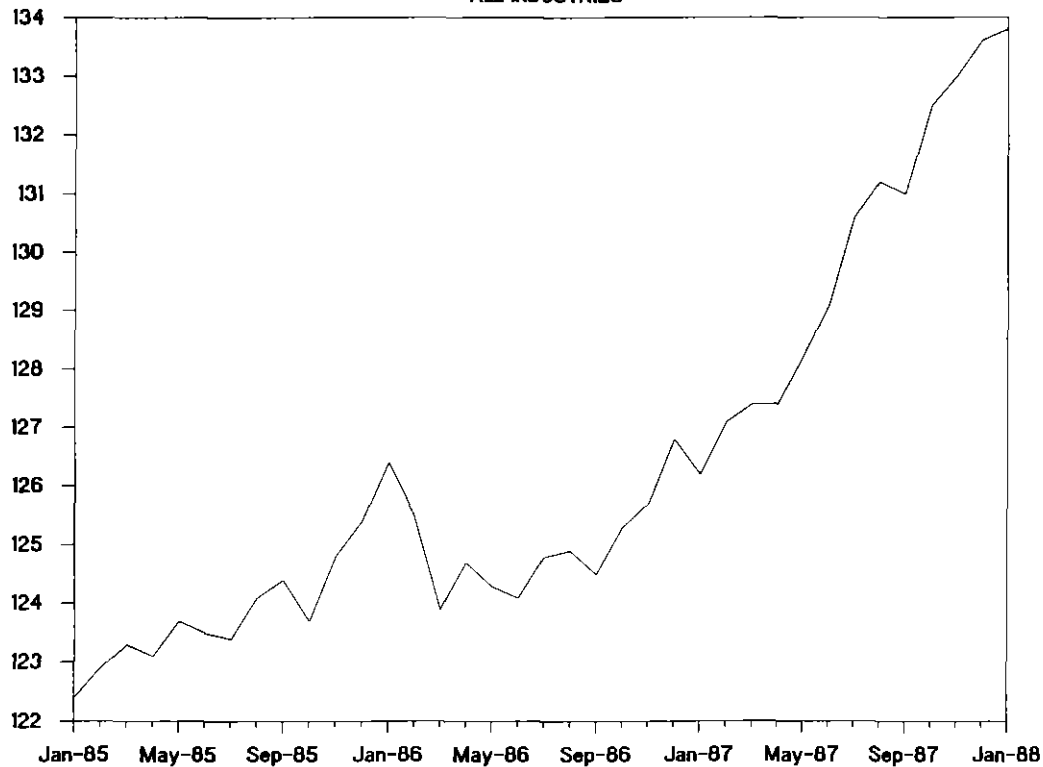
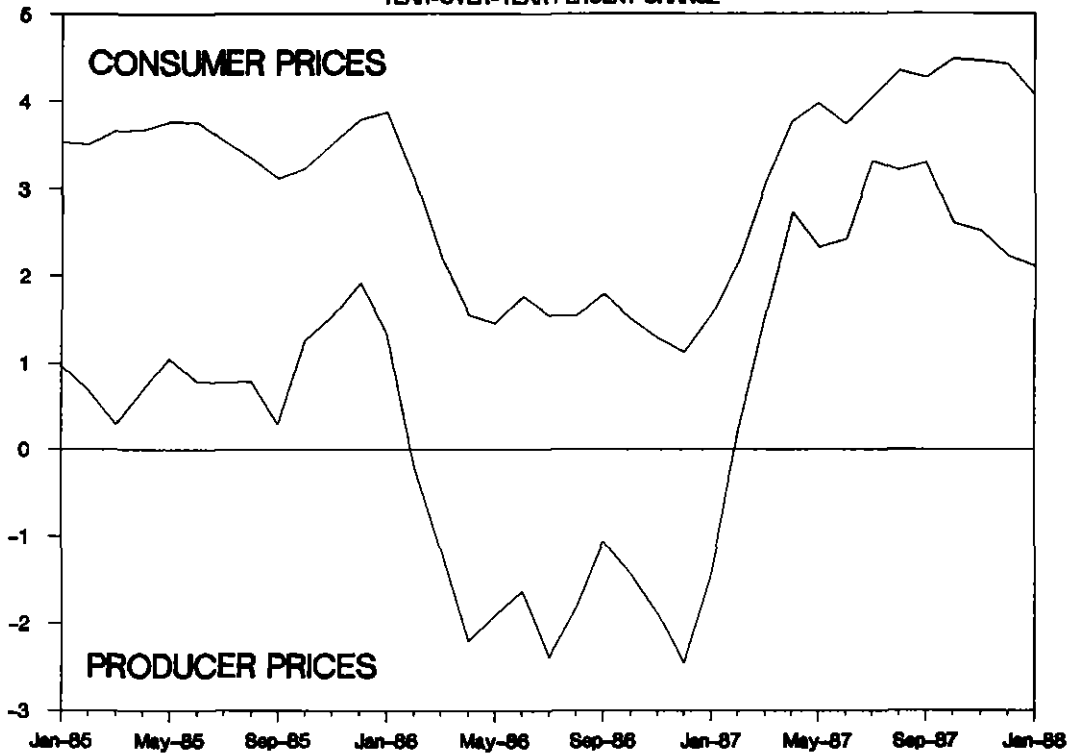


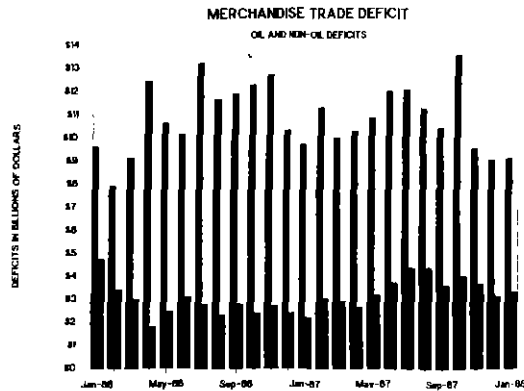
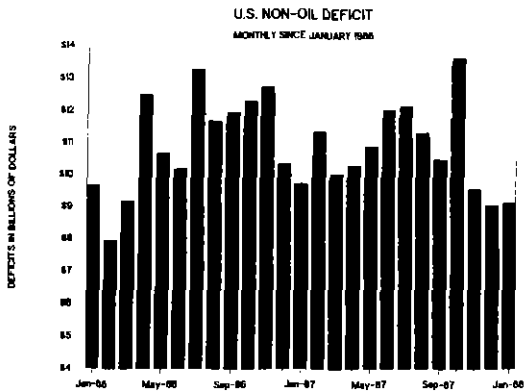
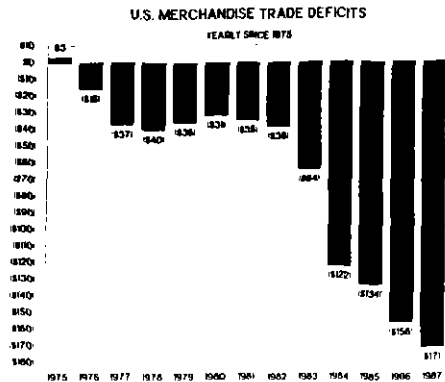
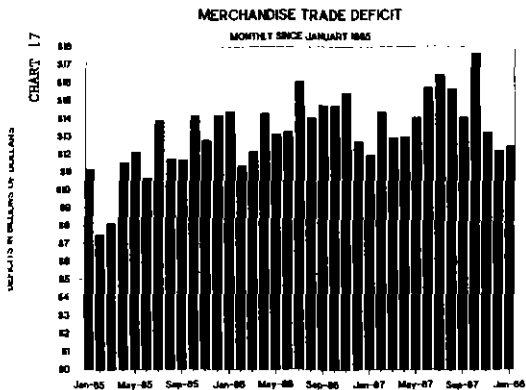
CHART 16

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PPI vs CPI

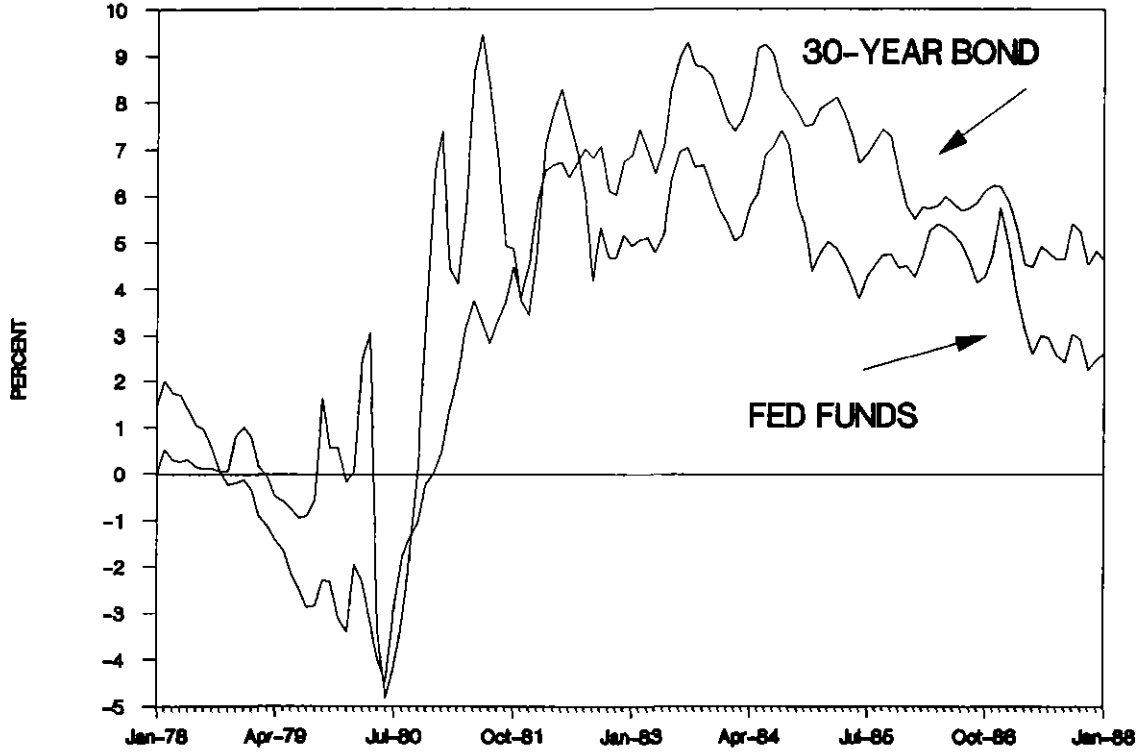
YEAR-OVER-YEAR PERCENT CHANGE

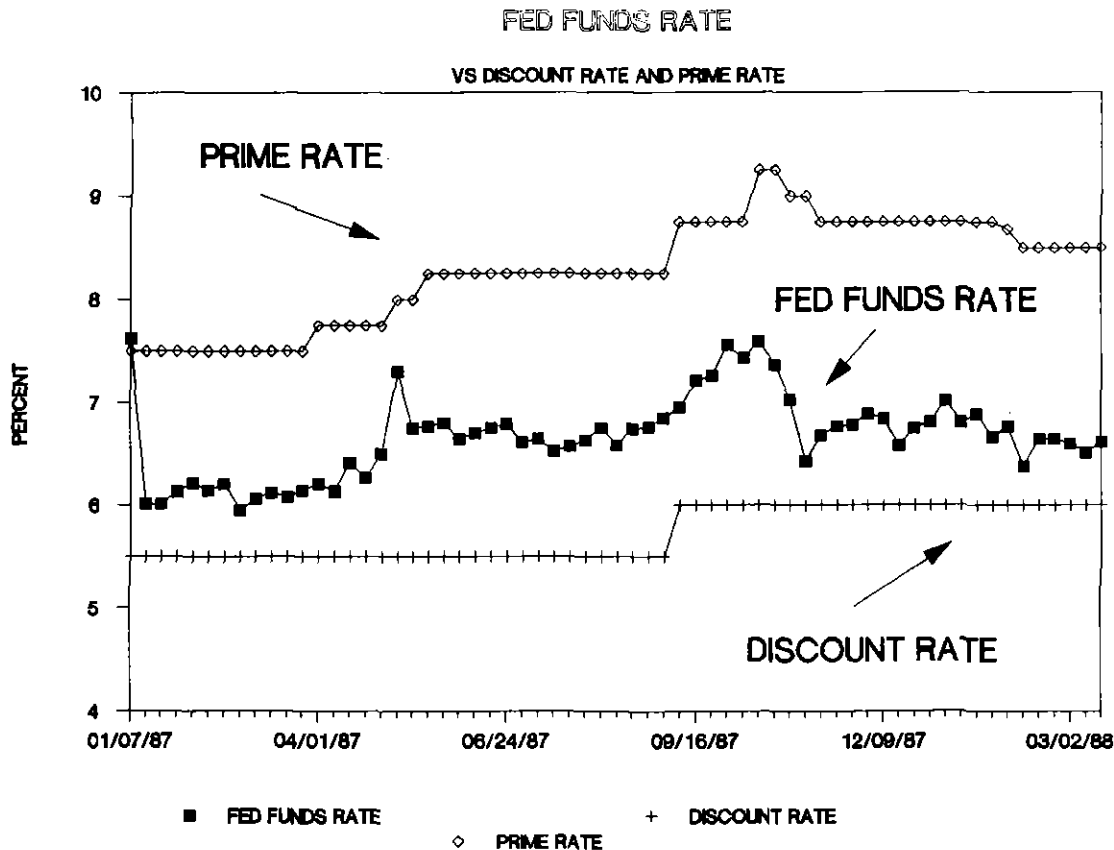




REAL INTEREST RATES

FEDFUNDS VS 30-YEAR BOND





The Federal Reserve and the Conduct of Monetary Policy in 1988

Statement of

Robert H. Rasche
Professor of Economics
Michigan State University
East Lansing, Michigan 48824-1038

Mr. Chairman, members of the committee, I am pleased to have the opportunity to appear before you today to present my views on the recent Monetary Policy Report to Congress by the Board of Governors of the Federal Reserve System and related statements, and to comment on issues in the conduct of monetary policy in the near future. My comments will focus on the following issues (1) the conception of the monetary process that is advanced by the Federal Reserve System, (2) the usefulness of monetary aggregates as guides to monetary policy and (3) the appropriateness of other guides to monetary policy that are the apparent focus of attention within the Federal Reserve at the present time.

1987 saw a sharp deceleration in the growth rates of a wide range of monetary aggregates, after very rapid growth during the previous two years. M1 growth (for which the FOMC choose not to set a target range in February, 1987) was 6.2 percent from the fourth quarter of 1986 to the fourth quarter of 1987, down from 15.6 percent during the previous year. M2 growth from the fourth quarter of 1986 to the fourth quarter of 1987 was 4.0 percent, down from 9.4 percent in the previous year. M3 growth was 5.4 percent from the fourth quarter of 1986 to the fourth quarter of 1987, down from 9.1 percent in the previous year. In the latter two cases the growth rates over 1987 are below the target ranges

set by the Federal Reserve System in the February, 1987 Report of Monetary Policy Objectives. In all three cases, the growth rates over 1986 are above the target ranges set by the Federal Reserve System in the February, 1986 Report of Monetary Policy Objectives. The FOMC responded to these historical developments by widening the ranges of the M2 and M3 target growth rates for 1988, while leaving the midpoints of those ranges relatively unchanged.

It appears that the Federal Reserve regards the extreme volatility in the growth of monetary aggregates as (a) outside of its control and (b) of no particular consequence to the economy. I wish to address these two issues in turn.

Almost twenty-four years ago, in a Staff Analysis prepared for the Subcommittee on Domestic Finance of the Committee on Banking and Currency of the U.S. House of Representatives, Professors Karl Brunner and Alan H. Meltzer critiqued the then current Federal Reserve conception of the monetary process. In their letter of transmittal of that analysis they commented: "the modified free reserves mechanism bears almost no relation to changes in the stock of bank credit or money. Indeed it is so poor that it raises questions about the usefulness of Federal Reserve policy as a means of controlling money or credit."

Today there is little substantive difference from the situation almost a quarter century ago. Since late 1982, the directives to the System Account manager issued at the various Federal Open Market Committee meetings have been framed in terms

of increasing, decreasing or maintaining the "degree of pressure on reserve positions". Though the language of the directive uses different words, and while there are virtually no excess reserves in the banking system today, the conception of the monetary process during the past five years is substantively identical to that of the early 1960s. Further it remains true that the modified free reserves mechanism bears almost no relation to changes in the stock of bank credit or money. Therefore extreme volatility in the year to year growth of the various monetary aggregates should come as no surprize to the Federal Reserve System, the Congress, or the public at large. The growth rates of the monetary aggregates that we observe are fortuitious outcomes of the operating procedures utilized by the Federal Reserve. Given current operating procedures of the Federal Reserve System it is only by accident that the observed growth rates of the monetary aggregates in 1988 will fall inside of the newly established ranges.

This need not be the case. While our understanding to the financial system and the economy does not permit the Federal Reserve to attain exact week to week, month to month or quarter to quarter growth of any monetary aggregate, we know enough to implement operating procedures that will maintain year to year monetary growth within much narrower ranges than those currently established by the Federal Reserve System.

Is there a cost to the observed volatile monetary growth? I believe that the unambiguous answer to this question is yes. The

rationale for this conclusion is straightforward. Chairman Greenspan restated the objective of his predecessors that the Federal Reserve facilitate progress toward price stability. He accepts the principle that such progress requires a reduction in monetary growth rates below the average of our recent experience. Excessive volatility in monetary growth rates brings such progress to a dead stop. When monetary growth rates are excessively high, then concern is expressed that rapid deceleration, such as we saw in 1981 or in 1987 will provoke a recession or at least a relatively slow growth in real economic activity. The only monetary policy for which an acceptable "environmental impact statement for economic expansion" can be written is to reduce monetary growth slowly. Conversely, when monetary growth rates are extremely slow concern is expressed that growth rates be returned quickly to higher levels, before a slowdown in real economic activity is induced. An example of this kind of concern is the recent letter of Assistant Secretary of the Treasury Darby to members of the Federal Open Market Committee.

The net result of these reactions to sharp year-to-year fluctuations in the growth rates of monetary aggregates is that little perceptible progress is made towards a world of price stability. This is quite evident in the inflation rate charts accompanying the 1988 Monetary Policy Report to Congress. Since 1982, the inflation rate in terms of either the fixed weight GNP deflator or the CPI has been almost constant at four percent per

year. The only exception is in 1986 when inflation dropped sharply in response to the collapse of prices in the world oil market. The projected central tendency of the GNP deflator by members of the FOMC for fourth quarter 1988 over fourth quarter 1987 is 3.25-3.75 percent, and the current monetary policy report states "no significant change is anticipated in the overall pace of inflation this year ...". The current calendar year forecasts for 1988 and 1989 from your CBO are for inflation measured by the implicit GNP deflator and CPI of 3.9 and 4.2 percent respectively. The argument that we are making progress toward price stability, or that we expect to make progress toward price stability in the near future, is contradicted by all the evidence. The erratic monetary growth rates permitted by and fostered by the prevailing Federal Reserve policies is in large part responsible for our current "dead-in-the-water" situation.

A second theme of the Monetary Policy Report is that the relationships between the various monetary aggregates and economic activity, particularly the narrowly defined monetary aggregates, continue to be affected by deregulation and institutional change. This argument appears repeatedly in discussions of monetary policy over the past fifteen years. There one an element of truth in the argument. Something happened to the relationship between nominal measures of economic activity and various monetary aggregates around the end of 1981. Exactly what caused the change is not well understood at the present time. However, there is little if any evidence that the

change at that time has continuing effects that persist today. Rather the best evidence is that there was a one time change in the relationship between the average rate of growth of monetary aggregates and the average growth rate of nominal income. The observed change occurred over a very short period of time (perhaps a few months). Since that time a new stable relationship is established which maintains almost all of the characteristics of the stable relationship that prevailed in the 50s, 60s and 70s.

The new relationship between the long-run growth rate of nominal income and the long-run growth rates of the various monetary aggregates shows no significant increase or decrease in uncertainty compared to the relationship that prevailed in previous quarter century. It is fortunate that this is true. Without such stability Chairman Greenspan's testimony that a reduction in the long-run growth rates of the monetary aggregates is appropriate to achieve price stability has little logical foundation. Indeed without such a stable relationship, manipulation of any nominal variable by the Federal Reserve System has little logical foundation.

This conclusion should not be misinterpreted. The existence of stable long-run relationships between the growth rate of nominal income and the growth rates of various monetary aggregates is not a basis for short-run manipulation of the monetary aggregates towards a goal of short-run economic stabilization. While we understand the forces that produce a large portion of the historical short-run fluctuations in the

growth of nominal income relative to the growth of the various monetary aggregates, the economic variables that drive these short-run fluctuations are largely unpredictable. The usefulness of monetary aggregates as a long-run guide to monetary policy comes as these unpredictable short-run fluctuations average out to close to zero.

Finally, I wish to comment on alternative guides to monetary policy. During the same week as Chairman Greenspan's testimony on the Monetary Policy Report, reports of a speech by Vice Chairman Johnson of the Board of Governors at the Cato Institute circulated widely. According to these reports, Governor Johnson indicated that a number of members of the Board of Governors are using, or at least looking at, measures such as sensitive commodity prices, the difference between short and long term interest rates and/or the nominal exchange value of the U.S. dollar as guides to the impact of monetary policy.

Such an approach to the conduct of monetary policy is dangerous and counterproductive in my judgement. There is no doubt that any of these measures can be and are affected by monetary policy actions. Indeed they are likely affected by market expectations of future monetary policy actions. Unfortunately, from the perspective of the Federal Reserve System, these variables are also affected by many other forces that buffet our economy.

Unless the current movements of such measures can be attributed reliably to the various forces driving our economy, it is

impossible to discern the meaning of of their movements for the conduct of monetary policy. This is not my insight. It is an old argument in the literature on monetary policy and was resolved at least a quarter century ago.

This problem is particularly acute if the variables being watched are driven primarily by market expectations of future monetary policy actions. If the Federal Reserve implements monetary policy solely on signals of what markets think future monetary policy will be, then Federal Reserve surrenders its independence. The appropriate role of the Federal Reserve is to define for economic agents what monetary policy it will pursue, and allow market expectations to adjust accordingly, not vice-versa.

Unfortunately, with all of the measures cited by Governor Johnson the reliable allocation of any movement to the fundamental determinants of these variables, including monetary policy actions, is beyond our current ability. This is particularly true of nominal exchange rates. Unlike Goldilocks, who knew which porridge was too hot, too cold, or just right, at present no one knows what exchange value of the U.S. dollar, however measured, is too high, too low, or just right!

The Federal Reserve's Monetary Policy Report of February 1988

Hearings of the
Subcommittee on Domestic Monetary Policy
of the
Committee on Banking, Finance, and Urban Affairs
U.S. House of Representatives

March 24, 1988
Revised

Testimony by

Bennett T. McCallum
H.J. Heinz Professor of Economics
Graduate School of Industrial Administration
Carnegie-Mellon University
Pittsburgh, Pennsylvania 15213

For some years now the center of attention in the Fed's reports to Congress has been the numerical monetary targets for the coming year--the projected "ranges of growth for monetary aggregates." These have been the figures by which the Fed ostensibly describes to Congress and to the public its policy intentions for the coming year. But the February 1988 report seems to indicate that at present these ranges are not actually targets, which the Fed will attempt to meet. Instead, they are its predictions or forecasts of what the M2 and M3 growth rates will turn out to be, in response to the Fed's policy actions during the year, which will be in part determined by the behavior of other variables. This interpretation of how policy is actually being conducted is supported by the following statement, referring to decisions taken during 1987, which appears in the first paragraph of the report's Section 3:

Such factors as the pace of business expansion, the strength of inflation and inflation expectations, and developments in exchange markets played a major role in governing the System's actions, and in light of the behavior of these other factors growth in the targeted aggregates, M2 and M3, was permitted to run at or below the established ranges.

From this passage it seems clear that the target ranges for monetary aggregates do not constitute a plan for future actions. There is therefore little reason to spend any substantial amount of time discussing the specific numerical ranges that are provided.

What does warrant discussion is whether the current methods of formulating monetary policy and reporting intentions are desirable. With regard to the reporting, it follows from the foregoing discussion that the current practice leaves much to be desired. For the following question arises naturally: If the aggregates' growth ranges do not express the Fed's intentions, what figures do?

And the only obvious candidates are the "economic projections" for nominal and real GNP, given in the report's second table. But these numbers are described as forecasts, not as goals or plans. Indeed, to this reader it appears that the report includes no explicit specification of goals and no stated criteria by which the Fed agrees that its performance can be evaluated.

The foregoing statements pertain to the Fed's reporting, not to its conduct of policy itself. To consider the latter, it will be helpful to have at hand an outline for a desirable strategy for monetary policy. Thus I will begin by explaining how, in my opinion, monetary policy should be conducted. In the process of explaining and justifying this strategy, some points will be brought out that will be helpful in developing answers to several of the specific questions posed in Chairman Neal's letter of February 24.

The most appropriate policy objective for a central bank is to generate a smooth and noninflationary growth path for aggregate demand, or total spending, measured in monetary units. To express this idea very simply, and in a manner that is applicable to the United States, the recommended objective for the Fed is to make nominal GNP grow smoothly and steadily at a rate of 3% per year. Let me first try to explain why this is a desirable objective and then consider how it could be attained.

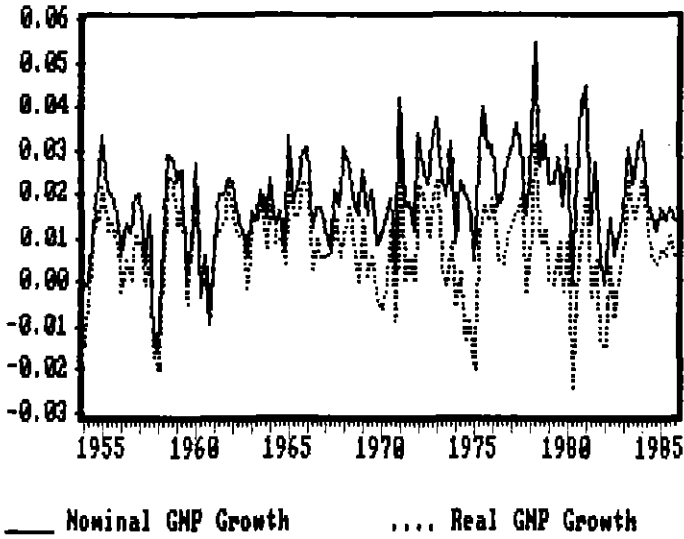
The reason for focussing on nominal GNP is as follows. The ultimate goals for monetary policy are to prevent inflation and to do as much as is possible to facilitate growth and minimize fluctuations of real aggregate output and employment. But there are severe limitations regarding the ability of the monetary authority to influence these real variables, i.e., output and

employment. While it is true that abrupt changes in the stance of monetary policy will often induce changes in real growth, such effects will last only temporarily. Indeed, this is one of the few things that most macro economists agree upon, namely, the temporary nature of monetary influence on real variables. Furthermore, there is substantial agreement on a related proposition, namely, that over extended periods of time the average growth rate of real variables will be essentially independent of the growth rate of monetary variables. Thus, for the U.S. the average growth rate of real GNP will be about 3% over the next 20 years whether monetary variables grow rapidly or slowly. And from that proposition it follows that, if nominal GNP growth is made to average 3%, then the average inflation rate will be approximately zero. So the recommended strategy for monetary policy would lead to attainment of one of the ultimate goals--the prevention of inflation.

In addition, the effects of steady 3% growth in nominal GNP would probably lead to improved performance of the real output and employment variables as well. They would not grow faster on average, according to the foregoing argument, but steady growth of nominal GNP would help to reduce the magnitude of output and employment fluctuations. In other words, the severity of the business cycle would be reduced. There are several theoretical reasons for believing this; one piece of evidence that I find impressive is illustrated in Figure 1. There quarterly growth rates of real and nominal GNP are shown to be highly correlated. Thus it seems likely that smoother growth of nominal GNP would help to induce smoother growth of real GNP.

Now some economists would suggest that you could do even better in terms of reducing real fluctuations by adopting a more activist policy, one that involves

FIGURE 1



attempts at countercyclical manipulation of nominal GNP. I am very doubtful of that because the design of an activist policy depends on the analyst's model of the connection between monetary policy actions and the responses of real output and employment. But if there is one thing that macroeconomists truly do not understand, it is the nature of this connection. Indeed, the disagreements among macroeconomists that one hears so much about are primarily concerned with this particular mechanism--which is often referred to as the short-run tradeoff between inflation and unemployment. There are many conflicting theories regarding its nature, and no convincing arguments or conclusive evidence in favor of any one of them.¹ For that reason, it would be unwise to attempt countercyclical manipulation of nominal GNP.

Some other economists would argue that, while good macroeconomic consequences would follow from steady 3% growth of nominal GNP, this is something that the Fed cannot accomplish. Nominal GNP, they correctly point out, is not a variable over which the Fed has direct control. But it is also true that the Fed does not have direct control over the monetary aggregates M1 and M2, much less total debt or the price level. These are all variables that, like nominal GNP, the Fed does not literally control but can strongly influence by varying its rate of open market purchases or its reserve requirements. The Fed can probably influence M1 somewhat more accurately than nominal GNP, and could do so even more accurately if it adopted operating procedures that were well-designed for that purpose. But that is beside the point, for the path of M1 is not itself of ultimate importance. The real question is: "Can the Fed, by manipulation of a variable that is under its control, induce nominal GNP to stay close to a steady 3% growth path?" This is a question that I have been studying in my recent research, and my findings suggest that the Fed could in fact keep nominal GNP quite close to a

target path of this type.²

What my studies indicate is, very briefly, as follows. One variable that the Fed certainly can control, rather directly, is the monetary base--the sum of currency in circulation plus bank reserves.³ So I have studied the possibility that a simple formula or rule prescribing settings for the monetary base would result in a nominal GNP path that stays close to a steady 3% target path. To determine whether something like that is true or not, one needs to conduct experiments. Macro economists cannot experiment with the U.S. economy, fortunately, so I have conducted my experiments with models of the economy. Now, you might justifiably wonder how I can be confident that I have a good model of the economy. In fact, I know that I do not have a good model. You will remember that I emphasized earlier that none of us understands certain important aspects of macroeconomic behavior. So my research strategy has taken account of this lack of understanding by using a rule (to specify settings of the monetary base) in a wide variety of macroeconomic models, a variety that represents different viewpoints about the monetary-to-real mechanism. What I have found is that one very simple formula works well in a variety of quite different models--that it keeps nominal GNP close to the 3% target path when the model economy is subjected to random shocks of the type that have hit the U.S. economy over the past 30 years. This rule is to set the base growth rate each quarter equal to a 3% annual rate, minus the average rate of growth of base velocity over the past four years, plus 0.25 times the proportionate discrepancy between target and actual values of nominal GNP in the most recent quarter.⁴

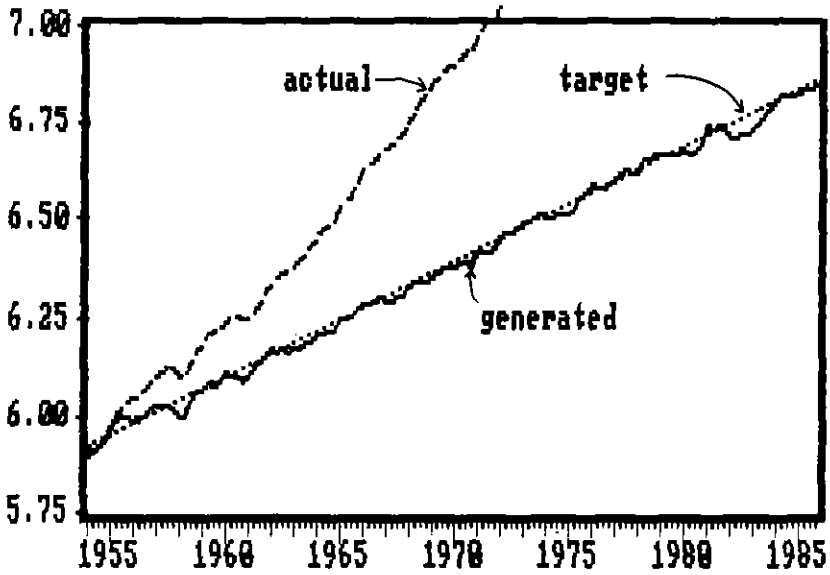
Let me be explicit about some aspects of the research exercise. Each of the examined models was fit statistically to the U.S. quarterly data for 1954-1985.

The models' various algebraic relations serve to explain movements in crucial macroeconomic variables, but they do so quite imperfectly--there are errors or "residuals" for each quarter which reflect the models' partial inability to account for the movement in the variables. These residuals are statistical estimates of the shocks of various types that buffeted the economy over that 32-year period, so they can be useful in examining the effects of conducting policy in any particular way. In the study under discussion I have used each of the models to estimate what would have happened over the 1954-85 period if monetary policy had been conducted as described by the monetary base rule, by generating simulated time paths implied by the formula and the models together. These simulation exercises begin with actual conditions prevailing in the U.S. at the start of 1954 and proceed with the estimated shocks fed into the system in each period. In this way, we obtain with each model an estimate of how nominal GNP would have evolved if the monetary base policy rule had been in effect and the economy was hit with the shocks that it actually experienced over 1954-85.

Two examples of nominal GNP paths generated by this procedure are given in Figures 2 and 3, which refer to models that are highly "classical" and moderately "Keynesian," respectively, in their specifications. It will be seen that the simulated nominal GNP paths stay quite close to the 3% target path. For comparative purposes, the actual historical path of nominal GNP is also shown in these figures. The actual values grew much faster than 3% on average, of course, so we experienced quite a bit of inflation. To be exact, the consumer price index increased to 4.0 times its 1954 value by 1985; a dollar came to be only 25% as valuable as in 1954.⁵

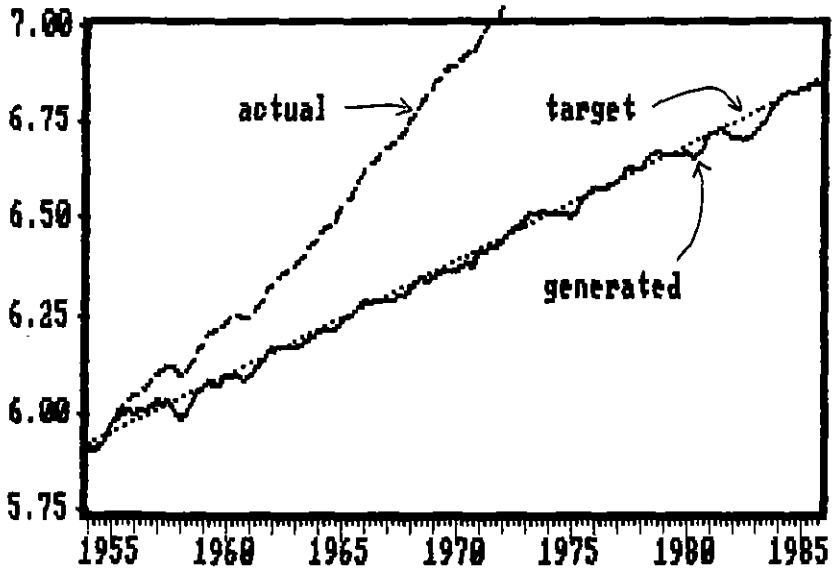
Thus far I have explained how I believe monetary policy should be conducted

FIGURE 2



Logarithms of nominal GNP, generated and actual

FIGURE 3



Logarithms of nominal GNP, generated and actual

and have provided a bit of evidence to suggest that such a policy would be feasible, i.e., could in fact be carried out by the Fed.⁶ It is now time to respond to some of the specific questions in Chairman Neal's letter.

One of these questions asks about quantitative measures for use in evaluating monetary policy. After mentioning recent volatility of growth in the M2 and M3 aggregates, the letter asks: "Would it be better to ignore the aggregates and judge monetary policy in other terms? If so, what? Interest rates? Commodity prices or general inflation? Nominal GNP?" From the foregoing discussion it is clear that my answer has to be that nominal GNP is the best of these indicators. In effect, the Fed's principal job is to keep total spending--nominal GNP--close to a path that grows smoothly at about 3% a year, because doing so would prevent inflation and provide a stable environment for real growth.

But why not, it might be asked, make the target variable one that pertains directly to the price level, rather than nominal GNP? My answer has to do with our lack of knowledge concerning the nature of the monetary-to-real output mechanism. If this mechanism has some slightly Keynesian features, in the sense that many prices and wages adjust slowly, then the automatic countercyclical response that is implied by keeping nominal GNP growth constant--even when real GNP is growing more strongly (or less strongly) than normal--would be beneficial. And if, on the other hand, the mechanism is in fact purely classical, with highly flexible prices and wages, then monetary policy behavior will have no systematic influence on real variables so it won't matter whether the target path pertains to the price level or nominal GNP. All that matters, to a classical economist, is the prevention of inflation and the avoidance of erratic policy actions that would provide unexpected monetary "surprises."

Interest rates, it should be emphasized, are extremely unreliable indicators of monetary policy. Many commentators on economic affairs take it for granted that "high interest rates" is synonymous with "tight monetary policy." But in fact tight monetary policy typically results in low inflation rates, if maintained for some time, and low inflation rates reduce the inflationary premium that is present in interest rates that clear loan markets. Thus interest rates were much higher during the 1970s, a decade of expansive monetary policy, than during the tight-money decade of the 1950s. The popular confusion arises because the temporary impact effect of a tightening in monetary policy may be to raise interest rates, while the delayed but longer-lasting effect is to reduce inflation and interest rates. This difference in the direction of its short-run and long-run responses makes any market interest rate a highly unreliable indicator.⁷

Another question raised in Chairman Neal's letter is the following: "Should the stabilization of nominal exchange rates be an important objective for monetary policy in 1988?" Again it should be clear that my answer must be "No." The dollar price of foreign exchange is of much less macroeconomic importance to American citizens than prices of U.S. goods or the growth rate of U.S. output. Recognition that the U.S. is an open economy does not diminish the importance of achieving the appropriate growth rate of demand for U.S. goods--i.e., nominal GNP.

In this regard it is important to emphasize that monetary policy cannot be simultaneously dedicated to two different objectives; it cannot be used to hit targets for both nominal GNP and the nominal exchange rate. Therefore, any international arrangement that stipulates exchange rate objectives for the U.S.

must have the effect of at least partially undermining the Fed's ability to conduct an appropriate monetary policy.⁸ More generally, it seems quixotic for the U.S. to be involved in attempts at international coordination that involve monetary (or fiscal) policy commitments, for it is unrealistic to expect independent nations to subordinate their domestic macroeconomic policies to the wishes of other nations. But independent commitments by the principal economic nations to non-inflationary domestic policies would lead to much less volatility in market-determined exchange rates than has existed in the turbulent years since 1973.

The foregoing arguments can be summarized very briefly, as follows. The job of the monetary authority is to keep total nominal demand growing smoothly at the long-term average rate of output growth. Doing so would prevent inflation and provide a stable environment for real growth to proceed unhampered by monetary disturbances. A smooth growth path for nominal demand can be achieved despite financial innovation and regulatory change by adherence to a simple formula governing growth of the monetary base.

Footnotes

1. See recent survey articles by Blanchard (1987), Dotsey and King (1987), and McCallum (1987a).
2. These results are reported in McCallum (1987b) (1988). Various economists, including Gordon (1985) and Taylor (1985), have promoted targets for nominal GNP. They have not, however, studied policy rules for achieving such targets.
3. As these items appear on the Fed's own balance sheet, it could collect observations daily and make adjustments as required, thereby keeping the level of the base extremely close to its specified path over periods of a month or so in duration.
4. In algebraic terms the formula can be expressed as follows, with b_t = logarithm of the base in period t , x_t = logarithm of nominal GNP, and x_t^* = target value of x_t :

$$\Delta b_t = 0.00739 - (1/16)(x_{t-1} - x_{t-17} - b_{t-1} + b_{t-17}) + 0.25(x_{t-1}^* - x_{t-1})$$
 The first term is 3% expressed in quarterly logarithmic units, the second is the average growth of base velocity over the previous 16 quarters, and the third is the adjustment for target misses. The form of the second term was suggested by work by Meltzer (1987).
5. On a 1967 basis, the CPI value was 322.2 in 1985 compared with 80.5 in 1954.

6. It is worthy of note that the recommended policy formula does not refer to M1 or M2 magnitudes. Consequently, it should be relatively insensitive to changes in regulations or financial practices that involve those variables.

7. Real interest rates are undesirable indicators of monetary policy for two reasons. First, the relevant concept involves expectations of future inflation, which are unobservable. Second, real variables are not reliably related to monetary conditions or actions. Indeed, attempts by the monetary authority to achieve real targets have the effect of introducing an inflationary bias into the policy process. This tendency is discussed in McCallum (1987b).

8. This statement is in response to Chairman Neal's question (4).

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