

**SHADOW OPEN MARKET COMMITTEE**

**Policy Statement and  
Position Papers**

**March 16-17, 1986**

**PPS-86-2**



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## SHADOW OPEN MARKET COMMITTEE

### Policy Statement and Position Papers

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PPS-86-2

1. Shadow Open Market Committee Members - March 1986
2. SOMC Policy Statement, March 17, 1986
3. Position papers prepared for the March 1986 meeting:

*Economic Outlook*, Jerry L. Jordan, First Interstate Bancorp

*Fiscal and Monetary Policy Overkills*, William Poole, Brown University

*A Positive Trend in the Federal Budget Outlook*, Mickey D. Levy, Fidelity Bank

*Multiplier Forecasts and the Velocities of Various M's*, Robert H. Rasche,  
Michigan State University

*External Debt and the Banking System*, Anna J. Schwartz, National Bureau of  
Economic Research, Inc.

*Tables submitted by*, H. Erich Heinemann, Ladenburg, Thalmann & Co., Inc.

## SHADOW OPEN MARKET COMMITTEE

The Committee met from 2:00 p.m. to 7:30 p.m. on Sunday, March 16, 1986.

### Members of SOMC:

PROFESSOR KARL BRUNNER, Director of the Center for Research in Government Policy and Business, Graduate School of Management, University of Rochester, Rochester, New York.

PROFESSOR ALLAN H. MELTZER, Graduate School of Industrial Administration, Carnegie-Mellon University, Pittsburgh, Pennsylvania.

MR. ERICH HEINEMANN, Chief Economist, Ladenburg, Thalmann & Company, Inc., New York, New York.

DR. JERRY L. JORDAN, Senior Vice President and Economist, First Interstate Bancorp, Los Angeles, California.

DR. MICKEY D. LEVY, Chief Economist, Fidelity Bank, Philadelphia, Pennsylvania.

PROFESSOR WILLIAM POOLE, Department of Economics, Brown University, Providence, Rhode Island.

PROFESSOR ROBERT H. RASCHE, Department of Economics, Michigan State University, East Lansing, Michigan.

DR. ANNA J. SCHWARTZ, National Bureau of Economic Research, New York, New York.

DR. BERYL SPRINKEL, On leave from the SOMC; currently Chairman of the Council of Economic Advisers.

The Committee noted with sadness the death of its friend and former colleague, Homer Jones, retired senior vice president and director of research at the Federal Reserve Bank of St. Louis. He was a wise man. We will miss him.

**POLICY STATEMENT**  
Shadow Open Market Committee  
March 17, 1986

At the start of 1986, the economy is poised for accelerated expansion. It will benefit from the favorable effects of a decline in oil prices. For the first time in decades, policymakers have the opportunity to achieve a permanent reduction in inflation. This opportunity should be seized, but we are fearful that it may be discarded. It should not be. The Federal Reserve should lower the annual growth rate of the monetary base to 5% to achieve a lasting reduction in the rate of inflation.

**Effects of the Decline in Oil Prices**

The substantial fall in crude oil prices in recent weeks reverses the largest part of the oil price increases of the 1970s and increases the real wealth of the U.S. and all other oil-importing countries. After adjusting for general inflation, a current oil price of \$14.00 per barrel is approximately the same as a price of \$6.00 in 1973. At this price the cost of oil imports falls by more than \$25 billion per year. At current interest rates, and assuming that the reduction in oil prices persists, the price decline is equivalent to an increase of more than \$250 billion in the wealth of U.S. citizens. This is a substantial benefit.

The oil price decline -- like the earlier rise -- has a one-time effect on prices, output and demands for assets. Since the U.S. (and other oil importers) are wealthier, people will spend more on goods and services and will increase their demand for assets. Some of the increased wealth will be invested in real capital, thereby raising the prices of capital assets, as the recent behavior of the stock market attests. Some will be invested in bonds, lowering real and market interest rates on financial assets, and some

will be held as money, lowering the price level. Costs of production will fall in most industries, and both profits and real incomes of employees will rise. Production and output will be higher.

All of these desirable changes are one-time changes. Some price and output changes occur immediately, some only gradually. Once the effects of the oil price decline pass through the economy, the growth rate of output and the rate of inflation will return to the path determined by the growth rates of productivity, labor force, capital stock and money. Interest rates will return to the levels implied by these underlying fundamentals.

It is important not to exaggerate the benefits of lower oil prices. The \$25 billion reduction in the annual cost of imported oil is not large compared to annual U.S. GNP of \$4,000 billion. Some U.S. industries in the energy producing sector are hurt by the declining oil prices, and the owners of firms in these industries have suffered a large capital loss. There are significant redistributions within the U.S. economy. The net gain from lower oil prices consists of reduced costs of imports less the cost of adjusting the mix of output.

The claim that inflation will remain low for years as a result of the oil price decline, though frequently repeated, is mistaken. The oil price decline in and of itself will lower the measured rate of inflation for a few quarters at most. Unless a disinflationary monetary policy is adopted, inflation will rise to higher levels in 1987 and after.

### Monetary Policy

We urge the Federal Reserve to announce -- and achieve -- a growth rate of the monetary base of 5% for the four quarters ending in the fourth quarter of 1986 and modest further reductions in subsequent years. This

growth rate would be two-and-a-half percentage points below the average rate of growth of the monetary base over the past five years.

A reduction of this magnitude might reduce temporarily real GNP growth in 1986. But in any event, growth would be higher than last year. In exchange, consumers and producers would benefit from a reduction in the rate of inflation and an environment conducive to sustained future economic expansion.

If monetary policy were now consistent with stable prices, it would be appropriate to maintain an unchanged rate of money growth. The fall in the price level, resulting from the oil price decline, would produce a few quarters of falling prices. These price declines would distribute the benefits of the increase in wealth to owners of assets, suppliers of labor and producers and consumers of goods and services. Over a longer period, the economy would return to price stability.

Monetary policy in recent years has been too expansive on average to restore price stability. Present policy runs the risk of accelerating inflation next year and a recession a year or two after that. The Federal Reserve has the opportunity to achieve price stability. It can seize that opportunity, if it is courageous and bold, by ignoring demands for more expansive policy and choosing, instead, a policy of disinflation.

Some urge that monetary policy should be more expansive. They argue that we can have more stimulus because the oil price decline reduces inflation. Many of the people who make this argument also urged faster money growth and more monetary stimulus in the 1970s, following the rise in oil prices. Apparently, they have one rule of thumb -- whatever happens, raise money growth.

In the past, we have often criticized the Federal Reserve's use of an interest rate target and urged the System to substitute the growth rate of

the monetary base. We emphasize that the Fed's borrowed reserves target is an interest-rate target, once removed. Reliance on interest rates causes the Federal Reserve to misinterpret the effects of its policy. This problem is severe now.

The oil price decline has relatively large short-term effects on output, the real rate of interest and the price level. There are no reliable estimates of the magnitude and timing of these effects, so there is no reliable way to use interest rates to interpret monetary policy. The prospect of a major error in monetary policy has been increased. The interpretation of money growth is affected much less than interest rates by recent changes in oil prices. Once again, we urge the Federal Reserve to implement monetary policy by controlling the growth rate of the monetary base.

### Fiscal Policy

The Gramm-Rudman-Hollings legislation is constructive in its principle of spreading spending cuts over a wide range of programs. However, the cuts in Federal outlays that are mandated were not arrived at by a process of sorting out and ranking national priorities. The nation has not yet faced up to the need to find a permanent mechanism for identifying and eliminating low-priority and wasteful spending programs. We are concerned that the budget deficit will be reduced through tax increases that will depress economic growth rather than spending reductions. Both the amount and composition of Government spending relative to the size of the economy should be arrived at by an explicit process of political decision.

Fiscal policy is extremely important, but it is not a substitute for monetary policy. Fiscal policy has major effects on the *composition* of

national output, but little effect on its level. That is what the crowding-out phenomenon is all about.

The combination of budget deficits and tax incentives for investment, with the relative importance of the two uncertain, has been responsible for the major crowding-out phenomenon of the 1980s, namely the deficit in the current account of the balance of payments. The strong dollar was the mechanism through which the crowding-out occurred. For the last year, the dollar has been depreciating in anticipation of a lower budget deficit and reduced incentives for business investment. There is, therefore, no need for monetary policy to offset the forthcoming change in fiscal policy -- assuming it actually occurs -- because the market is already doing so.

#### **Banks and International Debt**

The Administration and the Federal Reserve have had more than three years to adjust to the debt problem. They have been slow to adopt policies that reduce the risk to the economy arising from the decline in the real value of the assets and net worth of banks and other financial institutions. Their dilatory response has left the banking system in a weaker position and less able to absorb the losses that may follow loan defaults.

In 1982, we urged the banking authorities to encourage banks (1) to reduce or eliminate dividends; (2) to increase their capital; and (3) to increase their reserves for loan losses. Had these policies been followed, fewer banks would now be at risk. Many more banks would be able to write down the book value of their loans to reflect current market values.

In current circumstances, banks should be encouraged to build reserves at a much faster rate and increase capital. The recent rise in the prices of shares of major banks presents them with an opportunity to do so on favorable terms. Regulators should require them to take this step.



Banks should also be encouraged to reduce their exposure by selling more of their international loans on the market at market prices, and to exchange debt for equity even where this involves a cut in the book value of the debt exchanged. The tax bill approved by the House of Representatives discourages banks from building loan loss reserves and increasing capital. This is counterproductive in view of the current eroded capital structure of many banks. It would increase the risk of future bank insolvencies.

Secretary Baker's proposal to make lending conditional on economic reforms lacks an effective means of enforcing the reforms. The plan puts the U.S. government in a position of taking greater responsibility for loans and future loan losses without providing incentives for major improvements in efficiency or for reductions in capital flight.

### Exchange Rates

The G-5 agreement last September, and recent efforts by the Treasury to reduce interest rates, shift part of the responsibility for monetary policy from the Federal Reserve to the Treasury. The Federal Reserve is left to implement the policy required by interest rate or exchange rate judgments made in the Treasury or by the Treasury in agreements with foreign governments.

This policy was adopted to depreciate the external value of the dollar. It actually increases uncertainty about exchange rates and interest rates. Governments shift frequently from intervention to non-intervention. Rumors about the intentions and actions of central banks and governments cause wide swings in interest rates and exchange rates. Contrary to widely repeated explanations, there are few lasting benefits of exchange market intervention.

Efforts to push the dollar down by monetary policy will lower living standards by raising U.S. prices above what they otherwise would be. The rise in prices will lower real wages and other costs for a time. It will temporarily increase the market for U.S. exports and reduce the trade deficit. But the stimulus to exports will gradually be lost as prices, wages and costs of production rise in the U.S. relative to costs and prices abroad. Where prices and wages adjust most rapidly, as in Japan, the effect of dollar depreciation on the bilateral balance will be of short duration.

### Policy Coordination

Exchange rate changes are the result of differences in tax, spending and monetary policies, differences in productivity growth and in population growth. Unless countries adopt compatible policies, ministerial agreements to stabilize exchange rates are empty promises.

International policy coordination is always difficult, but the current period is a particularly bad time to attempt to fix, or set targets for, exchange rates. The fall in oil prices has very different effects on the U.S., European and Japanese economies. Fluctuating exchange rates help the world economy to adjust to these differences.

An additional problem arises as a result of the large interest and servicing costs of current international debt. To pay interest, debtor countries must earn about \$40 billion annually by exporting more than they import. The rest of the world, but mainly the creditor countries, must run a combined trade deficit that offsets the trade surplus of the debtor countries.

Given the policies of Germany and Japan, it is mainly the U.S. trade deficits that will permit the debtor countries to export enough to service their debts. To oversimplify, the debtor countries run trade surpluses to

pay their interest. Even if Germany and Japan were to run zero trade surpluses, the United States would have to run trade deficits of \$40 to \$50 billion to permit the transfer to be made. So the U.S. must borrow internationally to finance its trade deficit. Japan runs a trade surplus and lends to the United States to finance the U.S. deficit.

If this continues, the U.S. will have an ever-increasing international debt and Japan, Germany and other countries that have frequent trade surpluses will have increasing dollar credits. A world of this kind is not likely to be a world of stable, fixed exchange rates.

## ECONOMIC OUTLOOK

Jerry L. JORDAN  
First Interstate Bancorp

Growth of M1 in 1985 was a record 11.9%, exceeding the previous peak rate of 1983. The odds are that money growth will be rapid again in 1986.

Public disclosure of monetary targets by the Federal Reserve started in early 1975. In the eleven years from Q4/74 to Q4/85, M1 growth has averaged 7.6% while the St. Louis monetary base has grown at a 7.9% rate. The FOMC target range for M1 growth was never higher than 7.5% during that entire period. Now, for 1986, the FOMC has set a target range of 3-8%, the widest range and highest upper limit so far. It seems safe to assume M1 growth will continue to be about 8% or somewhat more. I choose to assume (but not advocate) M1 growth in the 8 to 9% range this year. For 1987, one might assume the Fed will further widen the range to 2 to 9%, then in 1988 go to 1 to 10% and so on.

The point is, the announced target ranges are not taken seriously by the Fed and should not be taken seriously by anyone else. The Fed suffers no consequences for failing to remain within the announced ranges, so no effort is made to try to do so.

Other central banks, such as those in Germany, Japan, and Switzerland, appear to take their targets seriously and want private decisionmakers to believe the targets will be adhered to. In those countries, the central banks' resolve to maintain a non-inflationary environment is influenced by their success at matching deeds to words. In the United States, central bank officials have been on a campaign to convince market participants to "watch what we say, not what we do". So far, it seems to be succeeding.

### Outlook for 1986

Table 1 shows alternative projections of economic growth and inflation for 1986. Most private forecasters have been raising their real GNP projections while lowering their inflation forecasts as a result of falling world oil prices. It is likely that the next survey of members by NABE and Blue Chip will result in a higher consensus forecast of real output in 1986.

The idea that lower oil prices will result in lower inflation should be tempered by the effects of the falling U.S. dollar on forex markets. Prices of both imported goods and domestically produced competing products are already showing the effects of the weaker dollar. After the transitory effects of falling oil prices have been reflected in the price indexes, the reported rate of inflation will accelerate.

In 1985, real consumer, investment, and government spending growth was strong even though real GNP did not show it. A surprisingly large decline in business inventory accumulation and a further large decline in net exports last year account for the discrepancy between last year's strong domestic final demand and anemic real GNP growth. Since neither further declines in business inventory accumulation nor further declines in net exports are anticipated, real GNP growth should be faster. If the falling dollar results in a steady or smaller trade deficit, real GNP growth will exceed growth of gross domestic sales.

### Income Velocity of Money

The most controversial issue regarding monetary policy during the past year has involved the behavior of the "velocity" of M1. Several charts are attached to show past relationships between money growth and income/output growth. For discussion purposes, the issue can be separated into questions

about the appropriate numerator and appropriate denominator in the velocity ratio.

In terms of the "quantity equation" --  $MV = PT$  -- the issue is which measure of the money supply to use, and which measure of economic activity to put on the right hand side of the identity. Some analysts have argued in favor of using broader measures of money, such as M2 or M3, while others favor using a narrow measure that excludes market interest-bearing balances from M1. Instead of using domestic output as the measure of economic activity, it may be appropriate to focus on some measure of domestic demand. The attached charts show the velocity ratio using final domestic sales as an alternative to GNP as a measure of economic activity.

**Table I**

	<u>1986</u>			
	<u>GNP</u>	<u>Output</u>	<u>Prices</u>	
			<u>Deflator</u>	<u>CPI</u>
FOMC:	5 - 8-1/2	3.0 - 3.5	3.0 - 4.0	----
FOMC Wide Range:	5.0 - 8.5	2.75 - 4.25	2.5 - 4.5	
Administration:	8.0	4.0	3.8	3.7
Congressional Budget Office:	7.6	3.6	3.9	3.5
NABE Consensus:	----	3.0	----	4.0
Blue Chip Consensus:	----	3.4	3.3	3.2
UCLA:	6.8	3.2	3.6	
Shadow Committee:	8 - 9	4 - 5	4 - 5	----

# GROWTH OF M1 & M1 NET OF OTHER CHECKABLES

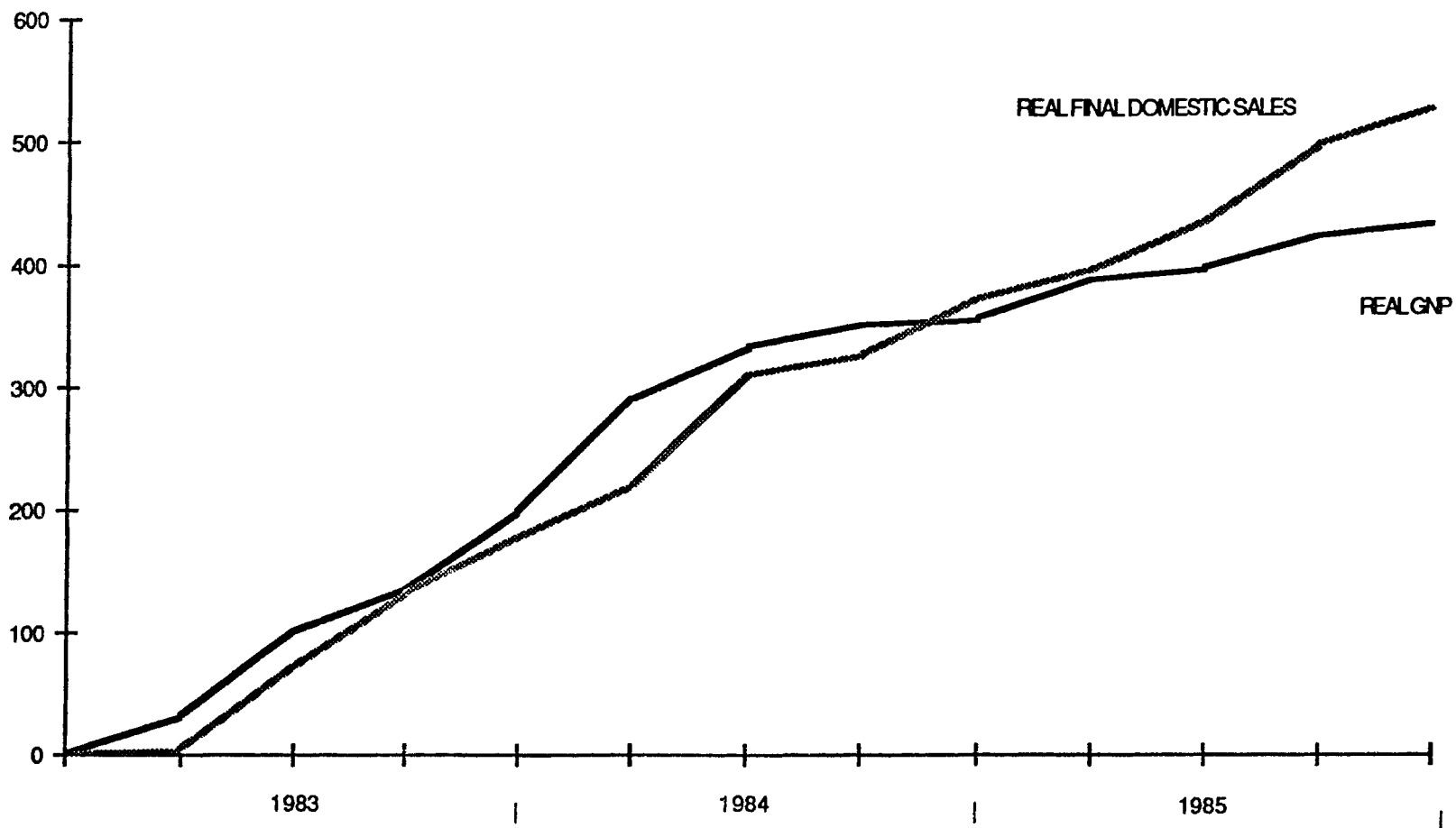
PERCENT CHANGE OVER PRIOR QUARTER, ANNUAL RATE



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# GAP BETWEEN DEMAND AND PRODUCTION

CUMULATIVE CHANGE SINCE 4TH QUARTER 1982



13

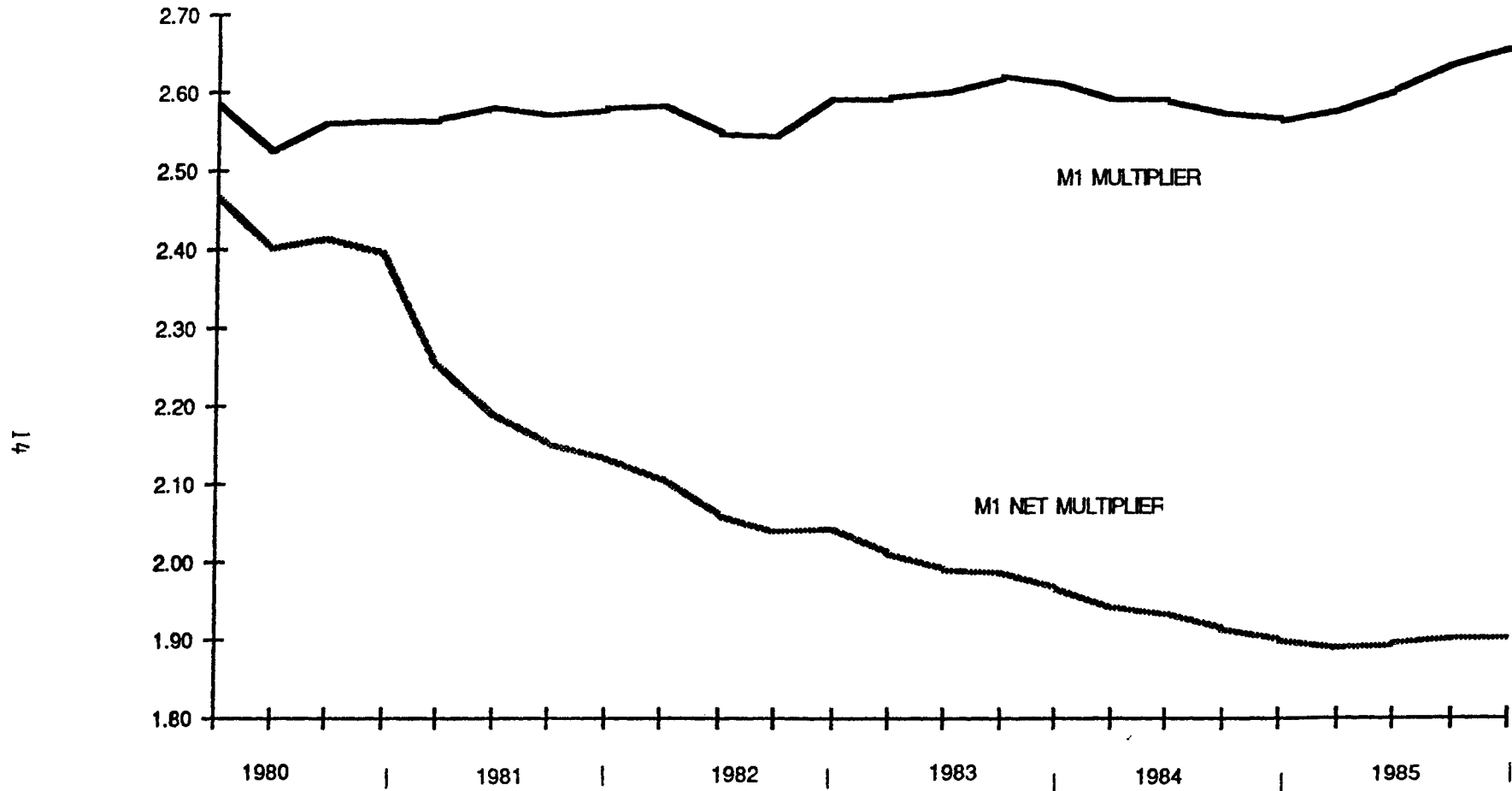
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# MONEY MULTIPLIER-M1 & M1 NET OF OTHER CHECKABLES

AS A RATIO TO THE ADJUSTED MONETARY BASE

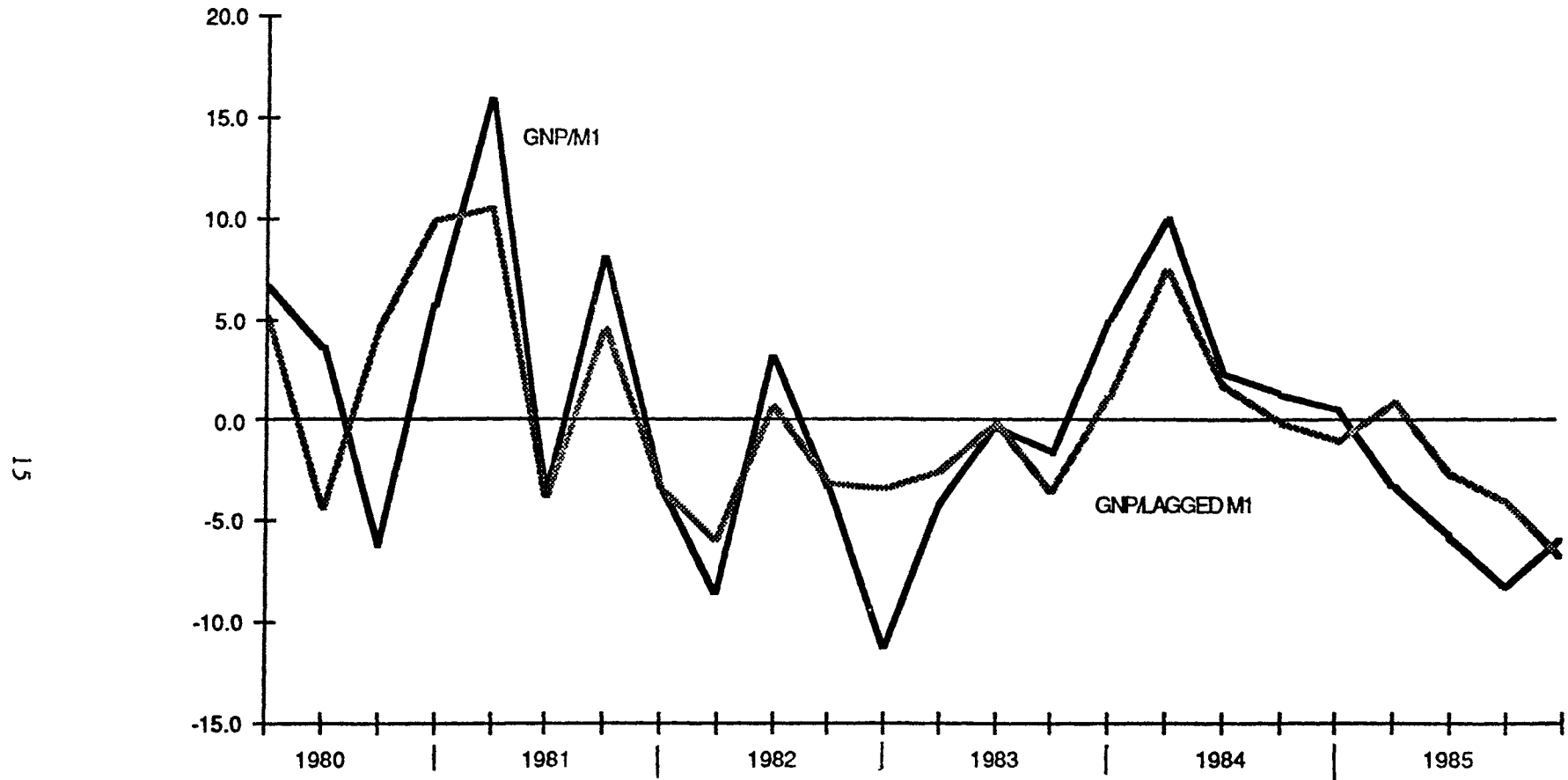


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# GNP VELOCITY--M1 & LAGGED M1

PERCENT CHANGE OVER PRIOR QUARTER, ANNUAL RATE

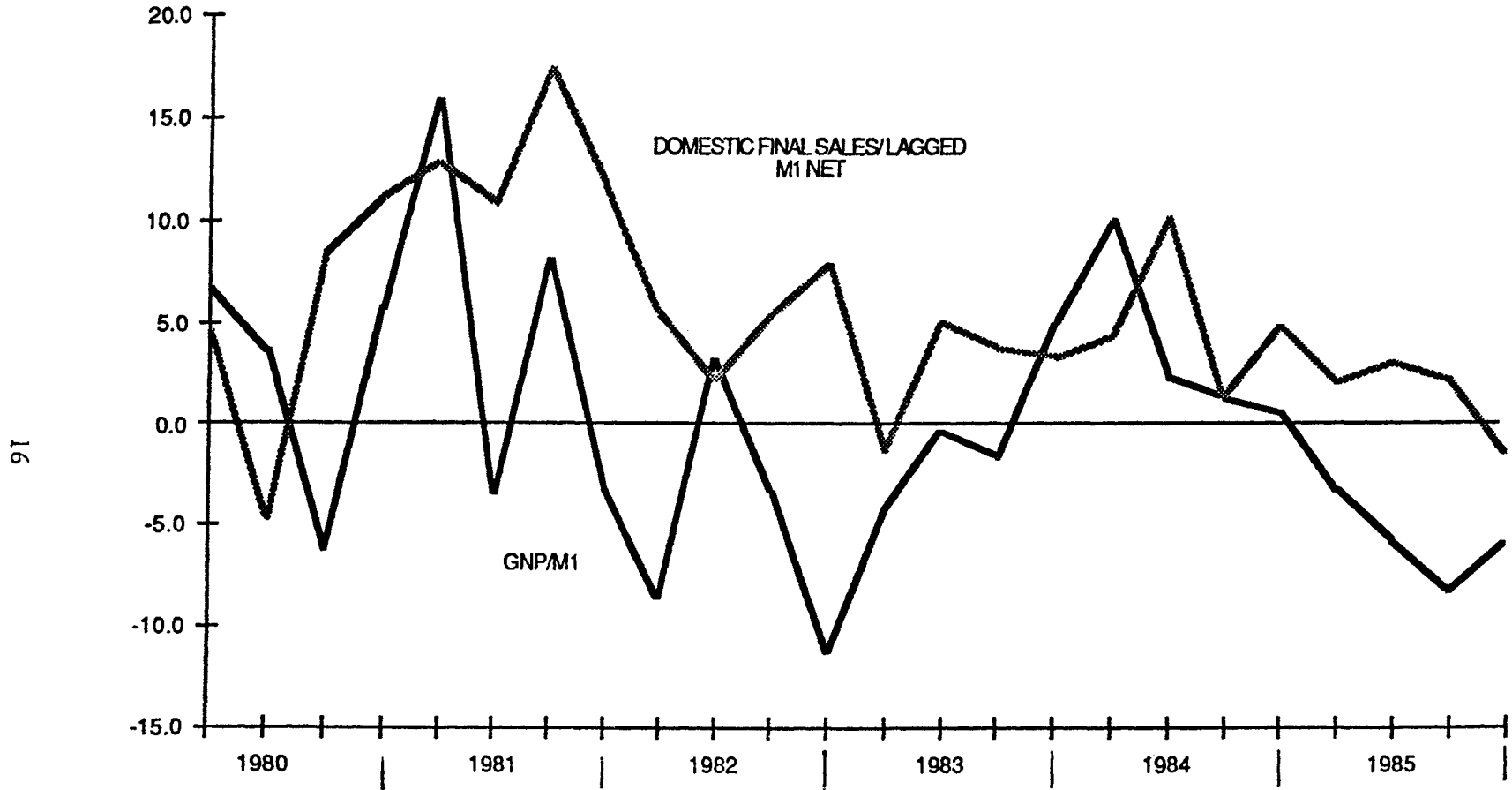


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# GNP & SALES VELOCITY--M1 & LAGGED M1 NET

PERCENT CHANGE OVER PRIOR QUARTER, ANNUAL RATE

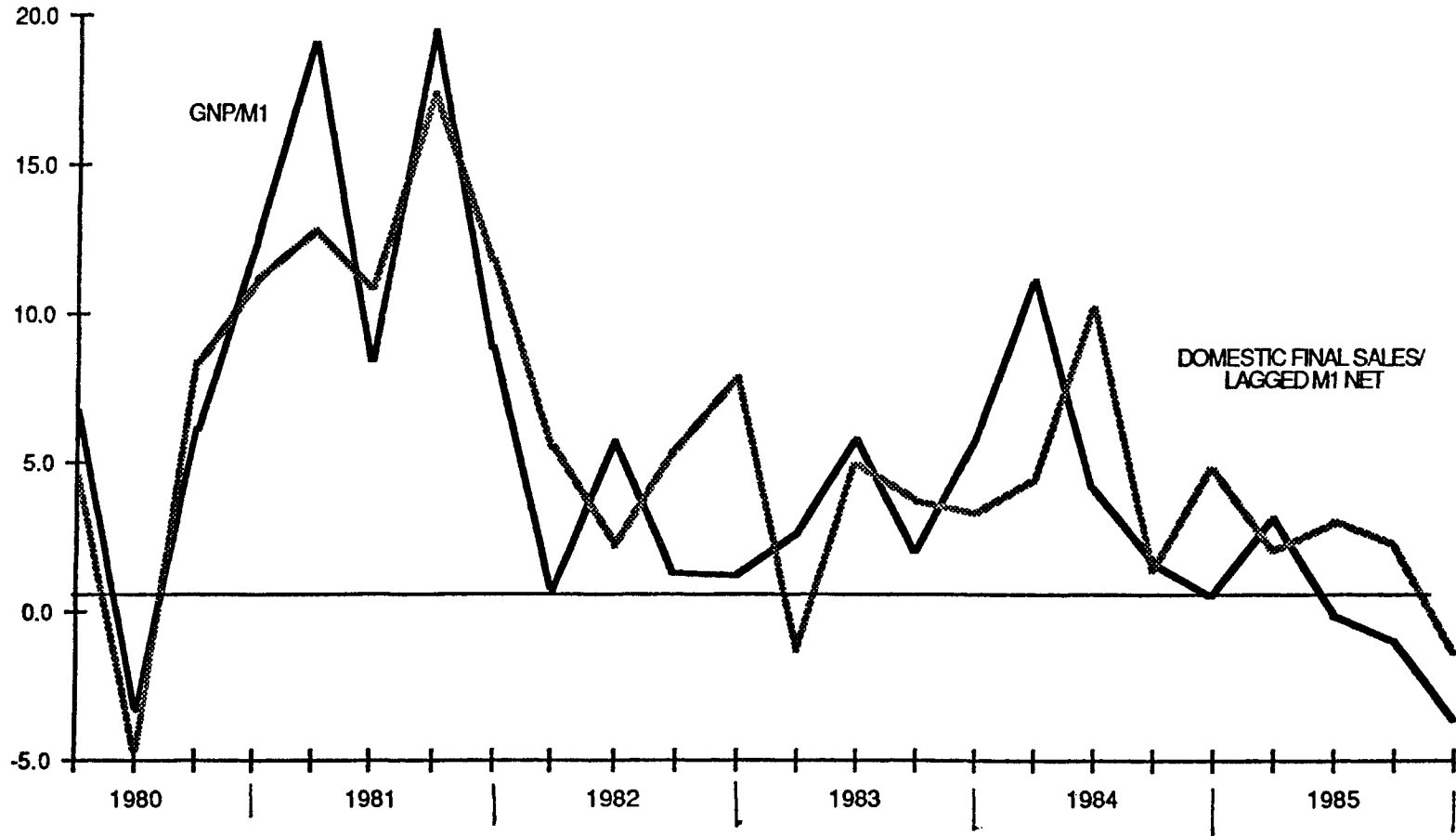


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MAR. 7, 1986

# GNP & SALES VELOCITY--LAGGED M1 NET

PERCENT CHANGE OVER PRIOR QUARTER, ANNUAL RATE



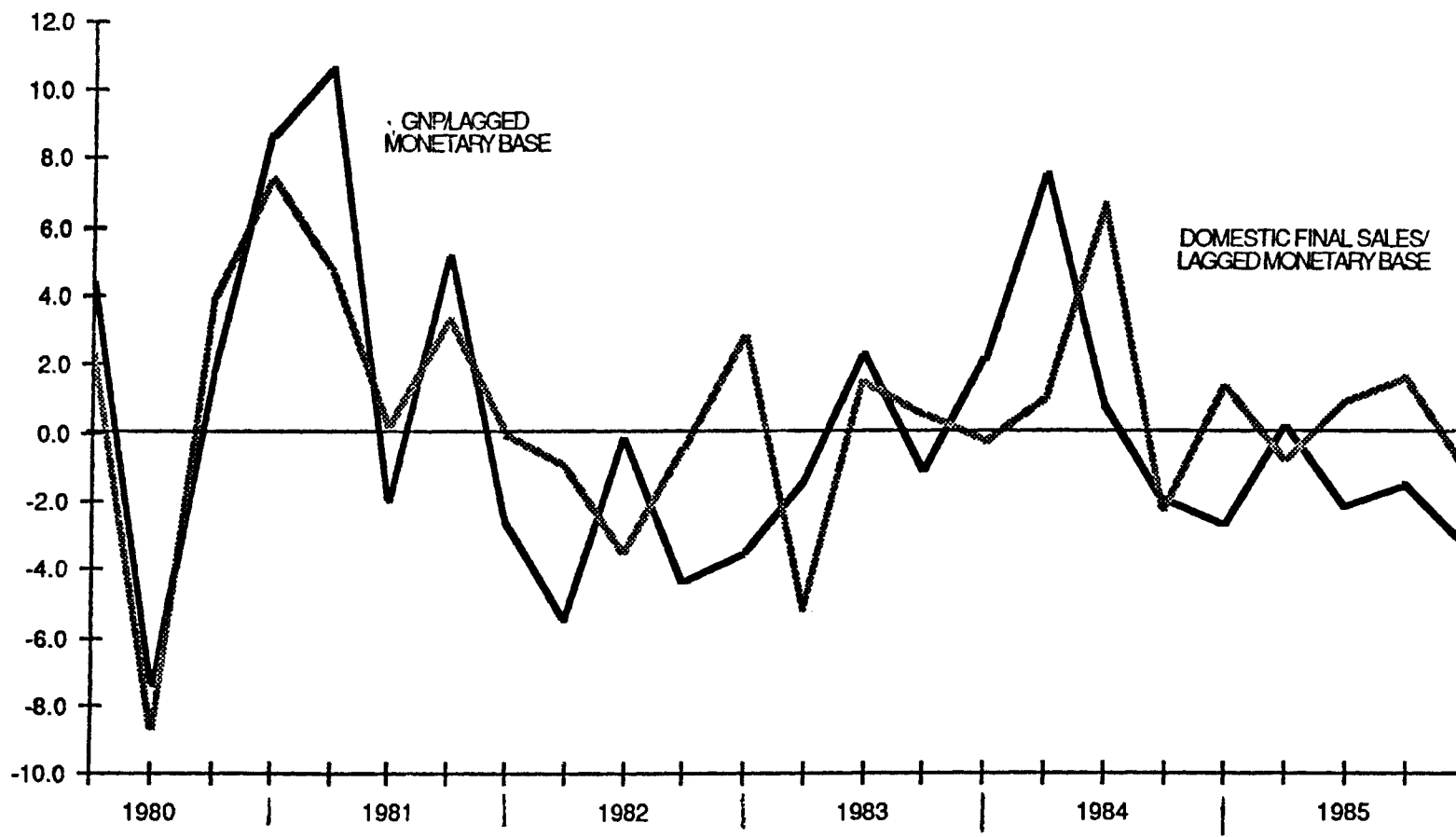
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# GNP & SALES VELOCITY--LAGGED MONETARY BASE

PERCENT CHANGE OVER PRIOR QUARTER, ANNUAL RATE



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## FISCAL AND MONETARY POLICY OVERKILLS

William POOLE  
Brown University

In studying economic policy we sometimes concentrate excessively on numerical data. Here instead are some verbal data to consider:

...With this measure I sign today, we will cut \$20 billion from the deficit in fiscal year 1969. This marks the largest shift of the budget toward restraint in the past two decades.... (President Lyndon Johnson upon signing the Revenue and Expenditure Control Act of 1968 on 28 June 1968.)

...The new fiscal restraint measures are expected to contribute to a considerable moderation of the rate of advance in aggregate demands.... System open market operations until the next meeting of the Committee shall be conducted with a view to accommodating the tendency toward somewhat less firm conditions in the money market that has developed since the preceding meeting of the Committee.... (Current economic policy directive issued to the Federal Reserve Bank of New York by the Federal Open Market Committee on 16 July 1968; *Federal Reserve Bulletin*, October 1968, p. 866.)

It is inconceivable that such a [fiscal policy] shift will not eventually contribute to the emergence of much less buoyant economic conditions than now prevail. (Quoted from a bank newsletter in an article by John H. Allen in the *New York Times*, 30 June 1968.)

...The recently enacted tax surcharge, which is expected to have a dampening influence on activity, apparently had little impact on consumer spending in July.... (*Survey of Current Business*, August 1968, p. 1.)

The economy continues to exhibit remarkable strength.... (*Survey of Current Business* March, 1969, p. 1.)

...It is now admitted that the Federal Reserve Board made a blunder last year after the surcharge was passed by easing monetary policy -- making more money available -- in the fear of an "overkill" of the boom and inflation.... (*New York Times*, 15 June 1969, Sec. 2, p. 4.)

The failure of fiscal policy restraint in 1968 to slow the economy is well known and thoroughly forgotten. By Keynesian standards the fiscal restraint did exist. Using Federal budget concepts, the total on-budget and off-budget surplus went from \$-25.2 billion in fiscal year 1968 to \$3.2 billion in fiscal year 1969, for a total swing toward surplus of \$28.4

billion. Using National Income and Product Accounts budget concepts, the Federal surplus went from \$-12.3 billion in fiscal year 1968 to \$5.2 billion in fiscal year 1969, for a swing of \$17.5 billion toward surplus.

The 1968-69 experience with fiscal restraint may be put in today's perspective by expressing the deficit reduction in 1985 dollars. In 1985 the GNP deflator was almost exactly three times its 1968 level. In 1985 dollars, then, the swing toward surplus in 1968-69 was about \$84 billion using official budget concepts and about \$52 billion using NIPA budget concepts. The difference between the FY 1968 and FY 1969 NIPA Federal surplus was 2.0% of 1968 GNP.

The maximum fiscal restraint promised for next year will be less than the restraint applied in 1968. According to recent estimates by the Congressional Budget Office, if the Gramm-Rudman-Hollings targets are met the deficit will decline from \$208 billion in FY 1968 to \$144 billion in FY 1987, a reduction of \$64 billion or 1.5% of the CBO forecast of GNP for calendar year 1986. Also, from past experience it is realistic rather than cynical to expect that reduction of the deficit will be less than promised.

The excessive weight assigned to the budget deficit as a determinant of economic activity was partly responsible for the monetary policy mistake of 1967 as well as that of 1968. By the middle of 1967 the Federal Reserve was well aware that the economy was under growing inflationary pressure. But the Fed was convinced that fiscal restraint was the key to solving the problem. The effect of monetary restraint, it was thought, would be relatively small except in the areas of housing finance and construction. The Fed wanted fiscal restraint in order to avoid battering the thrift industry as had occurred in the 1966 credit crunch. After recognizing the danger of rising inflation, the Fed permitted money growth to run at an accelerated

rate for a year before seeing fiscal restraint put in place. Almost another year passed before the Fed came to the conclusion that the fiscal restraint wasn't working.

During this two-year period in the late 1960s the monetary policy pendulum was pulled far to the go side. The pendulum swung toward stop in 1969-70, toward go in 1972-73, toward stop in 1973-74, toward go in 1977-78, toward a shaky stop in 1979-82, and toward an uneven go in 1983-85. Our sad experience has been that once this pendulum starts swinging it is very difficult and expensive to stop it.

Fiscal policy is extremely important, but it is not a substitute for monetary policy. Fiscal policy has major effects on the *composition* of national output, but little effect on its *level*. That is what the crowding-out phenomenon is all about.

The combination of budget deficits and tax incentives, with the relative importance of the two uncertain, has been responsible for the major crowding-out phenomenon of the 1980s -- the current account deficit in the balance of payments. The strong dollar was the mechanism through which the crowding out occurred. The stimulus to aggregate demand from the budget deficit and investment incentives was offset by the "drag" of the trade deficit. (This Keynesian terminology is unfortunate in its implication that the trade drag could have been offset to yield stronger growth of real output. Attempting to eliminate the trade drag would have displaced the crowding-out to a different sector.)

The dollar has been depreciating for a year now in anticipation of a lower budget deficit and reduced incentives for business investment. There is, therefore, no need for monetary policy to anticipate the forthcoming change in fiscal policy -- assuming that it actually occurs -- because the market is already doing so. Indeed, a Keynesian might even argue that the



stimulus already in the works from a weaker dollar now *requires* fiscal restraint to avoid excessive aggregate demand from a declining current account deficit.

Our experience with fiscal overkill in 1968 should put us on warning that inverting the last two digits of the year of fiscal restraint is unlikely to change the aggregate effect of the restraint. Also from experience, we know that we ought not to use the word "inconceivable" in this context, but "unlikely" ought to be enough for any policymaker. Fed officials might find it useful to read the FOMC Memorandum of Discussion for 1967-69 to gain deeper insight into the situation they face today.

### A Random Walk Down Velocity Lane<sup>1)</sup>

First economists, and later financial analysts and writers, came to accept the random walk hypothesis of stock price behavior. Most economists have now come to accept the random walk characterization of the income velocity of money, but the financial community has hardly even heard of the idea.

Velocity is a random walk, or at least close enough to being so that we can explore important conceptual and policy issues within the pure random walk framework. This idea seems, initially, so foreign to established monetary doctrines that we need to break some bad thought habits before we can fully come to grips with the implications of random walk velocity.

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1. The material in this section relies heavily on William S. Haraf, "The Recent Behavior of Velocity: Implications for Alternative Monetary Rules", presented at The Cato Institute Fourth Annual Monetary Conference, Washington, January 16, 1986. This paper reports statistical evidence supporting the random walk hypothesis for velocity, and a bibliography of other work with similar evidence.

The income velocity of money is the ratio of the flow of some measure of nominal national income or aggregate demand to the stock of some monetary measure. The basic finding of numerous studies is that velocity, no matter what income and monetary measures are used, is approximately a random walk. I will concentrate my discussion on the familiar M1 velocity defined as the ratio of nominal GNP to M1; a similar analysis applies to velocity concepts employing alternative measures of income and/or money.

What we mean by random walk velocity is this. Let  $V_t = Y_t/M_t$ , where  $Y$  is nominal GNP,  $M$  is M1 and  $t$  indicates the quarter or year. We may then write,

$$V_t - V_{t-1} = D + e_t$$

The mean, or average, change of velocity each period is  $D$ , which is called the "drift" of the process. Beyond the drift is the random change  $e_t$ .

Velocity is said to follow a random walk if the random change  $e_t$  in any given period is statistically independent of the random changes in all other periods. That is,  $e_t$  cannot be predicted from knowledge of prior changes in velocity.

It is best to begin the analysis by noting that the random walk character of velocity is a *statistical* feature of the velocity time series. In and of itself this feature says nothing about causation or monetary theory. But any theory of velocity must have implications that are consistent with the observed behavior of velocity, or the theory must be rejected. It is essential to understand that the random walk character of velocity does *not* imply that velocity is "uncaused" or that money and income have no connection to each other.

An analogy with random walk stock price behavior may make this point clear. Stock price changes are unpredictable, except for a small drift, from the past history of stock prices. But for a particular stock the price

changes are caused, at least in part, by changes in the profitability of the firm and the value of its assets. If an oil firm operating in the desert is lucky enough (these days) to strike water instead of oil the value of the firm will rise. Such an event is unpredictable from the past history of the firm's stock price. Changes in the stock price are caused but yet statistically random because information about the causal events arrives randomly over time.

*Implications of random walk velocity.* The causes of most individual velocity changes, as with most individual stock price changes, are not understood. But several conclusions can nevertheless be drawn from the known random walk character of velocity changes.

The data indicate that once velocity has changed there is no reason to believe from that fact alone that velocity will change in the opposite direction in the future. Nor is there any reason to believe that velocity will continue to change in the same direction in the future. In a random walk the changes in velocity provide no predictive power with respect to future changes.

These arguments may seem puzzling. Surely, it is argued, velocity changes will display negative serial correlation following a major burst of money growth. Nominal income growth will react to a burst of money growth with a lag. The initial effect of a burst of money will be to reduce velocity. In time, however, GNP will respond to money growth and velocity will return to normal. That is, the initial decline in velocity will be followed by an increase in velocity as the monetary impulse works its way through the economy.

This argument is correct, but incomplete. For convenience, call the above sequence of events a type I sequence. Now consider a type II

sequence. Suppose there is a disturbance to aggregate demand that increases nominal GNP without there being an abnormal increase in money growth. In this case velocity rises. Suppose also that the disturbance to aggregate demand is persistent, so that velocity rises several periods in a row. In a type II sequence, then, an increase in velocity is followed by additional increases in subsequent periods.

The data indicate that sequence I and sequence II disturbances are about equally frequent. Thus, when an increase in velocity is observed, the increase per se provides no predictive information as to whether velocity is likely to increase further or to decline. With additional information it may be possible to determine whether a particular velocity disturbance arises from sequence I or sequence II, but a conclusion cannot be drawn from the velocity change itself.

These observations have an important bearing on present monetary policy debates. Unless there has been a change in the random walk process for velocity -- an issue to be taken up shortly -- there is no reason to believe that the decline of velocity in 1985 will be offset by an increase in 1986 or some subsequent year. Nor is there reason to believe that the decline will be extended into 1986 and subsequent years. In the absence of evidence that sequence I or sequence II is involved, or that the random walk process itself has changed, the best guess is that velocity will change each period according to the historical drift, *D*.

*Has the velocity process changed?* There is in fact clear evidence that the drift in the random walk velocity process has declined in recent years. Given the change in Fed policy in October 1979, it is convenient to date the beginning of the new lower velocity drift at the first quarter of 1980, but the exact date doesn't matter much for this analysis. If velocity had continued to rise at the drift rate of about three percent per year prevail-

ing up to 1980, then by the end of 1985 velocity would have been about 20% above its level at the end of 1979. Again speaking roughly -- for that is all that is necessary -- if we take account of the variance of the random changes  $e_t$  between late 1979 and late 1985 velocity would have risen by 15 to 25% if we use a range of one standard deviation around 20%, or 10 to 30% if we use a range of two standard deviations. Over this period velocity increases in these ranges would have been consistent with the old drift process, but the actual change of about zero was not.

The change in the velocity process is evident from a casual glance at a velocity chart. Unfortunately, many have concluded from this experience that velocity now means nothing. To discuss this contention it is necessary to go beyond the statistical properties of velocity to discuss monetary theory.

*Causes of velocity changes.* Some observers discuss velocity as though the decline in the velocity drift after 1979 is conclusive evidence that money and GNP are no longer reliably linked at all. One way to formalize this view is to think of the random walk in velocity as reflecting unconnected random walks in GNP and money. Let lower case letters be the natural logarithms of velocity, GNP, and money. Then,

$$\text{Log } V_t = v_t = y_t - m_t.$$

If money and GNP are unconnected and each follow their own separate and independent random walks with their own drifts, then we have,

$$\Delta v_t = d_y - d_m + u_t - w_t$$

where  $u$  and  $w$  are, respectively, the random terms in the GNP and money random walks.

One of the first things to note here is that if the money and GNP random walks are indeed unconnected, then there is no reason not to have less

money growth rather than more. But those who argue that velocity has broken down always seem to be arguing for more money growth. In their hearts, apparently, they believe that money does matter for something.

There is ample evidence that money and GNP are intimately connected, and that they do not follow independent random walks. The relation of excessive money creation to hyperinflation is well known. But more can be said within the random walk setting being explored here.

In studying timing relations between money and nominal GNP some analysts have examined velocity defined as  $V_t = Y_t/M_s$ , where  $s$  may be either larger or smaller than  $t$ . In logarithmic terms, we have  $v_t = y_t - m_s$ . If the GNP and money random walks were independent the variance of velocity changes would not depend on whether  $s$  equalled  $t$  or were larger or smaller. In fact, with quarterly data the smallest variance occurs for  $s = t-2$ . Put another way, the highest correlation between money and GNP occurs for GNP against money two quarters earlier. The correlation becomes smaller and smaller for  $s = t-3, t-4, t-5$ , and so forth, and for  $s = t-1, t, t+1, t+2$ , and so forth.

This same relationship holds for money and GNP data for 1980-85. However, because there are relatively few observations in so short a period it is not possible to push this test very far. Indeed, the limited number of observations raises even more difficult issues than this one.

If the only data available to test the money-GNP relation were for the 1980-85 period then no economist would want to assert very much. If the two variables were relabeled  $X$  and  $Z$  and given to a graduate econometrics class for analysis I would hope that no student would be willing to make a very strong statement about the appropriate model to fit to the two series. Put another way, the only way to say anything sensible about the relation between money and GNP over the past six years is to rely heavily on established

historical regularities. Anyone so convinced that monetary relationships have completely broken down as to be unwilling to reason on the basis of past regularities is unreachable through the ordinary methods of economic analysis.

If we do not discard the past, what can, or should we say? If we retain the basic random walk model of velocity we have enough evidence to say that the drift has declined. One reasonable approach would be to say that the velocity process changed in late 1979 and that the best estimate of the velocity drift is now about zero. Under this view, for example, a target of about 8% nominal GNP growth implies that monetary policy should aim for about 8% money growth.

Some would argue that although zero velocity drift might be the best guess the uncertainty over the drift justifies a "flexible" approach toward setting and achieving the money growth target. That, unfortunately, will not do. The evidence continues to support the view that the effect of money on GNP occurs with a lag. We have no choice other than to develop some policy conviction over the appropriate rate of money growth.

Last year M1 growth ran at about 12%. This rate is well above the rate that can be justified by any reasonable statistical estimate of M1 velocity drift, no matter how open one's mind may be to the interpretation of the evidence. I call it "monetary overkill".

More, however, can be said. It has been known for a long time that velocity depends on the cost of holding money. Lower velocity drift after 1979 is fully consistent with lower interest rates. The decline in money growth after 1979 reduced inflation and interest rates with a lag. Once that process was fully under way velocity growth declined. Experience since 1979 is qualitatively consistent with established monetary regularities.

However, it is important to admit that the quantitative magnitudes were uncertain ex-ante and are not fully understood ex-post.

It is possible to argue that high money growth in 1985 was justified by, and helped to produce, lower interest rates. That position can be fit into the random walk model without difficulty. If velocity is a function of interest rates, and interest rates fluctuate randomly, as they do to a first approximation, then velocity changes will be random. Permitting velocity changes to occur through changes in the money stock rather than through unwanted changes in GNP is obviously desirable if it can be done reliably.

Advocates of expansionist monetary policy may be quite comfortable with this argument until they examine its opposite side. Should interest rates start to rise, money growth will have to fall to offset the expected increase in velocity. Money growth on this view should fluctuate so as to augment rather than dampen short-run fluctuations in interest rates. However desirable this policy might seem on the way down, few will support it on the way up. A policy that cannot be operated symmetrically will produce an asymmetrical outcome -- in this case, a bias toward inflation.

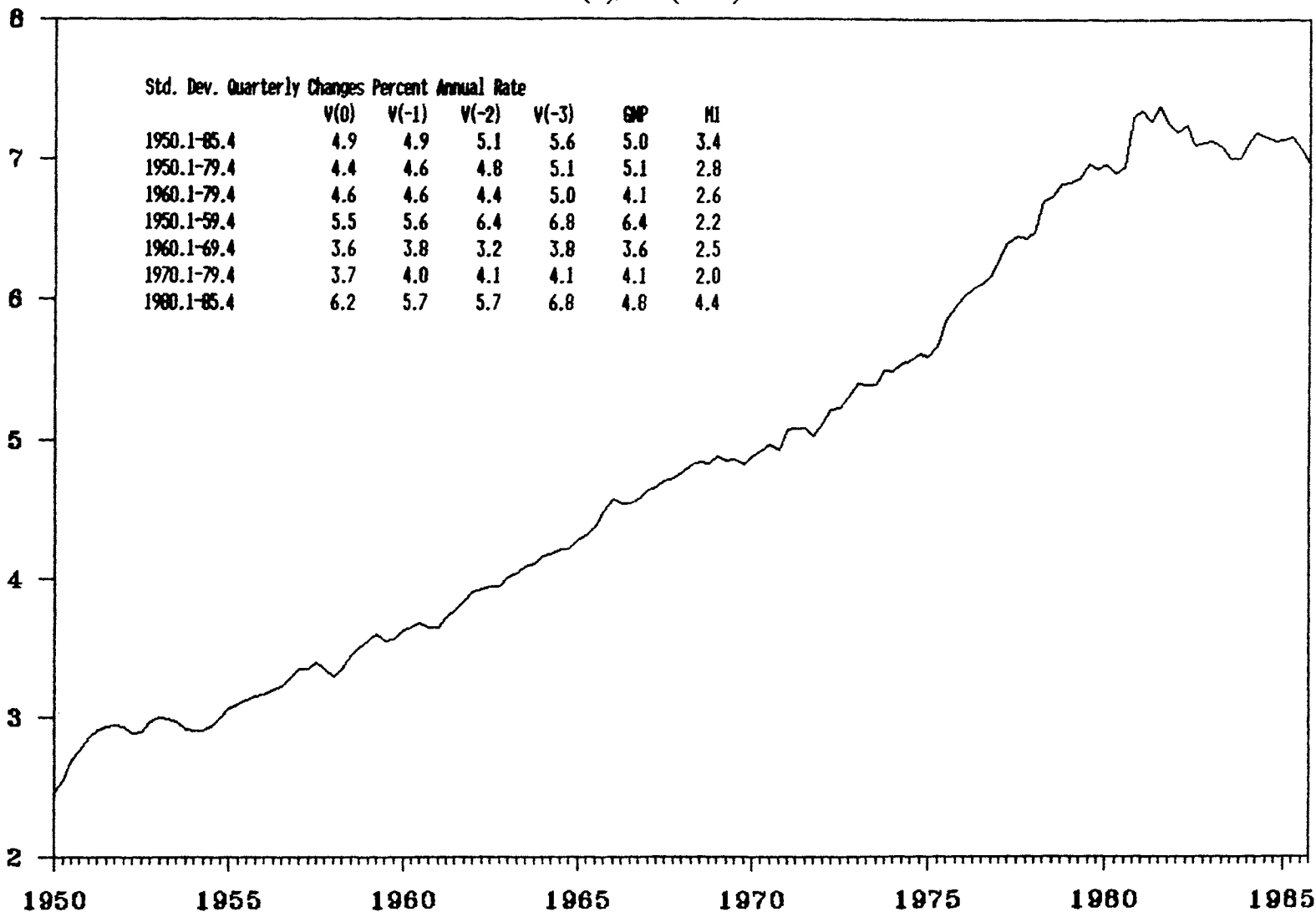
My reading of recent events is that the signs of monetary overkill are all around us. Not only has money growth itself been high, but also the extraordinary increase in bond and stock market values is consistent with a situation of excessive money supply. Because inflationary expectations are subdued the excessive money growth is bidding up the prices of financial assets, including foreign currencies, instead of the prices of goods. Goods prices will come next, although not necessarily immediately.

I will not conclude by saying that it is inevitable that the present monetary policy will cause a significant increase of inflation. I will say that it is damn likely to do so.



# M1 VELOCITY, QUARTERLY

$$\text{GNP}(t)/\text{M1}(t-2)$$



Prepared 16 March 1986

## A POSITIVE TREND IN THE FEDERAL BUDGET OUTLOOK

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According to new official current services estimates, the federal budget deficit will now recede through FY1991, reversing earlier projections of continually rising spending, persistent huge deficits, and a disturbing rise in the federal debt-to-GNP ratio. The Administration's current services budget projects deficits to decline to \$104 billion in FY1991, approximately one-half of FY1986 levels. Using different assumptions, the CBO's baseline projection issued in February 1986 estimates a similar deficit path. Both projections expect most of the budget savings to occur through reduced spending. As recently as August 1985, CBO's baseline forecast projected the deficit to rise to \$285 billion by FY1990. What has changed so dramatically in the current services projections since early 1985? Will the budget imbalance shrink according to these forecasts, or should we remain skeptical? In addition, the Administration, in its *FY1987 Budget*, constrained by the deficit targets of the Balanced Budget amendment of 1985 (Gramm-Rudman-Hollings, or GRH) proposes aggressive spending cuts and relies on sustained strong economic performance and declining interest rates to achieve sharply lower deficits and balanced budget in FY1991 (see Table 1). Does the Administration's proposed budget provide a realistic path for achieving the GRH deficit targets?

A turnaround in the current services budget outlook has been generated by sharp interest rate declines, the budget cuts in the First Concurrent Resolution on the Fiscal Year 1986 budget, and the GRH sequestering in FY1986. Certainly, the first steps toward reducing spending, lowering the deficit, and stabilizing the federal debt-to-GNP ratio have been taken.

However, substantial uncertainty surrounds the current services projections. While the Administration and CBO forecast very similar current services deficit paths, the CBO assumes budget authority for defense to remain constant in real dollars, but the Administration assumes a 3% annual rise. Therefore, the Administration's current services non-defense outlays are significantly lower than the CBO's baseline projections. This dispute creates a confusing and shaky base for reaching a budget compromise. Also, the longer-run economic assumptions, especially the Administration's sharply lower interest rates and sustained strong economic growth, presume everything will go right, and add an extra degree of uncertainty to the long-term budget projections.

Achieving the ambitious GRH deficit targets set by law seems improbable. Based on the same budget authority for defense, the CBO estimates \$14 billion higher defense outlays than the Administration in FY1987, and that gap widens in later years. To the extent that the Administration has underestimated defense outlays based on its proposed budget authority for defense, its FY1987 budget proposals to cut non-defense programs and increase some revenues are not sufficient to meet the GRH deficit targets. And the Congressional budget committees already have rejected the Administration's proposals in principle. The fall-back GRH automatic sequestering process could become unglued by the sheer magnitude of the cuts needed to reach the targets and the fact that over half of total federal spending is excluded from the sequestering process. Yet GRH is law, and given the widespread recognition of the need to cut deficits, current legislative efforts should focus on that goal.

### Current Services Forecasts

On the surface, the similarity of receding deficits in the Administration's current services budget and the CBO's baseline forecast may provide comfort that the struggle with high deficits has been won. To the contrary, the forecasts are based on two different sets of assumptions that generate different paths of revenues and spending and, perhaps most importantly, strikingly different paths of defense and non-defense spending. Consequently, these projections actually heighten uncertainty about the budget outcome, and are a major source of skepticism about the lower deficit projections.

Both the Administration's current services projection assumed 3% annual real growth in budget authority for defense and the CBO's assumed no change in real defense budget authority involve lower defense spending paths compared to February 1985 projections (the CBO baseline in February 1985 included 5% annual growth in real defense authority). The Administration's current services defense spending projection is similar to the CBO August 1985 baseline and the First Concurrent Resolution on the FY1986 budget (S. Con. Res. 32). The CBO assumes that the intent of that concurrent resolution has been superceded by GRH. The dispute between zero and 3% annual growth in budget authority generates mounting differences in current services defense outlays.

Also, the Administration's budget projections are based on more optimistic economic assumptions than the CBO uses: the Administration assumes stronger real GNP growth, particularly its 4% annual growth in 1987 and 1988; inflation that drops from 4.2% in 1987 to 2.1% in 1991 (the CBO's long-run GNP deflator rises by 4.1% annually); and sharply lower interest rates. It also projects nominal GNP growth to exceed the CBO's up until 1988, and grow slower thereafter (see Table 2).

Table 1

DEFICIT FORECASTS  
(in billions of dollars)

Projection	Fiscal Year					
	1986	1987	1988	1989	1990	1991
(1) Administration Current Services	206.6	181.8	150.0	138.9	126.3	103.9
(2) CBO Baseline	208.3	181.3	164.9	143.6	120.1	104.3
(3) Administration's FY1987 Budget	202.8	143.6	93.6	67.5	35.8	-1.3 <sup>(5)</sup>
(4) CBO Estimate of Administration's Proposal	204.7	159.7	132.3	91.4	66.6	40.1

- Notes:
- (1) Assumes 3% annual growth in real defense outlays
  - (2) Assumes 0% annual growth in real defense outlays after FY1986 sequestration
  - (3) Incorporates FY1987 Budget proposals, and meets Gramm-Rudman targets
  - (4) Based on CBO's economic assumptions and technical re-estimates of the Administration's budget proposal
  - (5) Surplus of \$1.3 billion

Consequently, the Administration's current services forecast involves considerably faster defense spending growth than the CBO baseline forecast, but a significantly lower path of net interest outlays, and modestly lower total outlays (see Table 3). These differences between the two forecasts are not large in FY1987-FY1988, but they mount -- by FY1991, the Administration's defense outlays are \$35.4 billion higher than in the CBO's baseline projection, while its net interest outlays are \$31.7 billion less. An additional concern is the Administration's method of projecting defense outlays from its budget authority requests. The CBO asserts that based on historical relationships, the Administration's defense outlays are too low relative to its projected path for budget authority.

Table 2

## ECONOMIC PROJECTIONS AND ASSUMPTIONS

	Calendar Years						
	Actual 1985	1986	1987	1988	1989	1990	1991
Real GNP (% Chg.)							
Administration	2.3	3.4	4.0	4.0	3.9	3.6	3.5
CBO	2.3	3.2	3.1	3.3	3.5	3.5	3.2
Nominal GNP (% Chg.)							
Administration	5.8	7.0	8.3	7.9	7.3	6.5	5.7
CBO	5.8	6.9	7.3	7.6	7.8	7.8	7.5
GNP deflator (% Chg.)							
Administration	3.3	3.5	4.2	3.7	3.3	2.8	2.1
CBO	3.3	3.6	4.1	4.1	4.1	4.1	4.1
CPI (% Chg.)							
Administration	3.5	3.5	4.1	3.7	3.3	2.8	2.1
CBO	3.5	3.4	4.2	4.4	4.4	4.3	4.3
Interest Rate, 91-day T-Bill (%)							
Administration	7.5	7.3	6.5	5.6	4.8	4.3	4.0
CBO	7.5	6.8	6.7	6.4	6.1	5.8	5.4
Interest Rate, 10-year T-Note (%)							
Administration	10.6	8.9	8.5	7.3	5.5	4.8	4.5
CBO	10.6	9.0	8.9	8.2	7.5	6.6	6.1

Sources: Executive Office of the President, Budget of the United States Government, Fiscal Year 1987, and CBO, The Economic and Budget Outlook: Fiscal Years 1987-1991.

This major disagreement on the current services or baseline path of outlays is a point of argument about the basis for evaluating policy alternatives. With a disputed starting point for measuring spending cuts, the basis for achieving a desirable budget outcome is very weak. In fact, the Senate Budget Committee's recent rejection of the Administration's FY1987 budget reflected the heated dispute over the current services spending paths as well as a rejection of the Administration's budget proposals.

Table 3

COMPARISON OF ADMINISTRATION'S CURRENT SERVICES AND THE  
CBO'S BASELINE BUDGET ESTIMATES  
(in billions of dollars)

	1986 Base	Calendar Years				
		1987	1988	1989	1990	1991
<b>Outlays</b>						
Administration	982	1026	1077	1128	1179	1224
CBO	986	1025	1086	1135	1188	1248
Difference	-4	1	-9	-7	-9	-24
<b>Defense Outlays</b>						
Administration	266	285	304	329	354	379
CBO	269	284	296	311	327	344
Difference	-3	1	8	18	27	35
<b>Net Interest Outlays</b>						
Administration	142	149	149	143	135	129
CBO	139	145	154	158	159	160
Difference	3	4	-5	-15	-24	-31
<b>Other Nondefense Outlays<sup>a</sup></b>						
Administration	575	592	625	657	690	716
CBO	578	596	635	666	702	744
Difference	-3	-4	-10	-9	-12	-28
<b>Deficit</b>						
Administration	206	182	150	139	126	104
CBO	208	181	164	144	120	104
Difference	-2	1	-14	-5	6	0

Sources: Executive Office of the President, Budget of the United States Government, Fiscal Year 1987, and CBO, The Economic and Budget Outlook: Fiscal Years 1987-1991.

Note: <sup>a/</sup> Includes social security benefits, low income support benefits, other non-defense programs, and undistributed offsetting receipts.

Nevertheless, FY1986 and FY1987 deficits may be lower than the current services projections. The FY1986 deficit is projected to remain near \$200 billion, not substantially lower than the \$212.3 billion deficit in FY1985. Recent interest rate declines will reduce net interest costs of servicing the nation's \$1.8 trillion outstanding debt. Approximately \$10.6 billion will be saved from the reduced appropriation's passed in the First Concurrent Resolution on the FY1986 budget, and over \$11 billion will be sequestered under GRH. These positive factors will be offset by a legislated jump in farm price support outlays and a shortfall in tax revenues due to lower-than-expected nominal GNP growth. Reflecting these factors, the CBO baseline projection estimates that spending outlays rise 4.2% and 4.0% in FY1986 and FY1987, significantly slower than the projected 6.5% and 7.4% growth in nominal GNP. This would allow the ratio of federal spending-to-GNP recede from 24.0% in FY1985 to 22.8% in FY1986 and 22.4% in FY1987. From FY1985 to FY1987, the ratio of tax revenues-to-GNP would rise modestly from 18.6% to 18.7%, so the deficit-to-GNP ratio would decline from 5.4% to approximately 4.8%.

The full impact of the sharp oil price declines, which occurred after these publications were released, were not incorporated into the projections. Besides stimulating economic growth, the sharp drop in oil prices will temporarily reduce inflation. It is probable that the Consumer Price Index (CPI-W) will rise by less than 3% from the third quarter 1985 to the third quarter 1986, eliminating the automatic COLA for social security and several transfer payment programs effective January 1987. If this occurs, budget savings would exceed over \$4 billion in FY1987 and over \$7 billion in FY1988, unless Congress votes to reinstate the COLA. However, that vote may be very difficult in the current deficit-cutting environment.



The longer-run current services projections allow little room for error. If something goes wrong, staying within the GRH law may require additional deficit-cutting legislation. For example, if defense outlays rise along the Administration's current services path, but net interest and other non-defense outlays follow the course projected by the CBO, spending and deficits would remain well above CBO or Administration forecasts, corrective legislation would be required. Accordingly, room for skepticism remains.

The economic projections underlying the budget forecasts also may be sources of disappointment in efforts to reduce deficits. The Administration's economic growth forecast is above average. Also, neither forecast assumes enactment of tax reform. The House tax package (H.R. 3838, the Tax Reform Act of 1985) would reduce economic growth and depress tax revenues relative to spending, thwarting efforts to reduce the budget imbalance.<sup>1)</sup>

Also, the Administration's long-run interest rate assumptions -- 91-day Treasury Bill rates drop to 4% and 10-year Treasury notes to 4.5% -- seem wildly optimistic, even in the context of recent rate declines. Everything has gone right in financial markets lately; a prudent approach to budget forecasting should not assume perpetual good fortune. In particular, recent monetary policy has been inconsistent with declining inflation in the long-run; without permanently lower inflation, the Administration's long-run lower interest rates associated with strong economic growth are seemingly inconsistent.

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1. Interestingly, the Administration and CBO project sustained healthy economic expansion while assuming full implementation of GRH that would eliminate cyclically-adjusted deficits. The Administration also assumes gradually slower money supply growth.

### Legislative Proposals to Cut the Deficit

Frustration and impatience with the ability of the existing Congressional budget process to deal with the deficit problem led to passage of the GRH Balanced Budget Amendment. An alternative set of procedures with the same deficit target could go into effect if the Supreme Court upholds the District Court view that GRH is unconstitutional. Yet full implementation of GRH may be a long-shot. The deficit reduction targets seem very severe. In FY1985, the primary deficit (the \$212.3 billion deficit minus \$129.4 net interest outlays) was \$82.9 billion. To meet the GRH deficit targets in FY1987, the primary deficit must be eliminated; to meet the GRH targets in every following fiscal year and achieve a balanced budget in FY1991 will require that the budget, excluding net interest costs, must be in surplus by approximately \$115 billion. This task will be all-the-more difficult since over one-half of all outlays are excluded from the GRH sequestering process, including social security and numerous low income programs. Special rules apply to several other programs. Achieving the deficit targets through the automatic GRH sequestering process would dramatically shift the composition of outlays in a questionable manner. And the automatic across-the-board cuts would be neither fair nor painless. Another concern is that if the Administration's budget proposal fails to achieve the ambitious GRH deficit targets, an ill-conceived tax increase may become part of a political compromise.

The Administration's *FY1987 Budget* proposes a budget that based on assumed sustained, strong economic growth and declining interest rates achieves the GRH deficit targets. The Administration requests \$38.2 billion cut from current services deficits in FY1987, with \$31.9 billion in spending cuts and \$6.3 billion in higher revenues from various fees, excise taxes, and

minor tax code changes. It proposes cuts of \$2.7 billion from defense, \$0.7 billion from low income support benefits, and \$24.9 billion from non-defense outlays other than social security and low income support programs. Proposed cuts in this latter cluster of programs rises to \$68.1 billion in FY1991. The Administration proposes no cuts in social security benefits. As a consequence of these proposals, defense outlays would rise from 27.1% of total outlays in FY1986 to 32.6% in FY1991, and social security benefits (excluding Medicare) would rise from 20.1% to 23.3%. In contrast, proposed outlays for non-defense outlays other than social security and income support programs would recede from 37.7% of total proposed spending to 34.4 percent, and net interest costs would fall from 14.6% to 10.3%.

Although the proposed cuts involve structural reform of many non-defense programs, Congress will not approve these cuts, in part because most of the proposed spending cuts are from non-defense programs. Included in the Administration's agenda are cuts in Medicare and Medicaid, housing assistance, higher education, agriculture, and other politically sensitive programs. Also, the Administration's requested defense cuts are from a disputed current services base, and the CBO's assessment that the Administration's proposed defense outlays are high with respect to its proposed budget authority carries substantial weight in Congress. Congress has not developed an agreed-upon set of proposals to stay within the deficit targets of the GRH law, nor has there arisen any movement to repeal GRH. Thus, the budget outcome of GRH remains highly uncertain.

The economic impact of achieving the GRH targets would depend on how the deficits were reduced. Spending cuts in general would have a positive long-run impact on investment and economic growth. In the short-run, cuts in non-defense outlays would have a negligible impact on the rate of economic growth but would change the composition of economic activity --

toward investment and away from consumption. Reductions in some federal programs may be replaced by private sector substitution of activities, or by state or local provision of the goods and services. In contrast, cuts in defense outlays and the lower federal provision of defense programs would lower government purchases. This would reduce the level of economic activity in the short-run if the cuts in government defense purchases were not offset by an increase in private sector jobs and economic activity.

The timing of the economic impact of GRH may also be affected by changes in Federal Reserve policy. Several FOMC members have suggested that the Fed would alter monetary policy if it perceives that GRH would adversely affect the economy. In light of the lack of knowledge about the magnitude, timing or even direction of the short-run economic impact shifts in government spending, it would be a mistake for the Fed to manage the economy through explicit attempts to alter the "policy mix".

The economic impact of a tax increase -- which could become part of a political compromise to achieve the deficit targets -- also would depend on how taxes are raised. In general, a consumption-oriented tax would be less damaging to the economy than higher marginal rates on personal income or higher taxes on capital.

In contrast to the positive impact of sharply lower federal spending, a tax policy change similar to H.R. 3838 would be very damaging to short- and long-run investment and economic growth. While the tax proposal was designed as revenue neutral, it would not be economically neutral. The bill proposes \$138.9 billion increase in corporate taxes from 1986 to 1990. Approximately \$97.8 billion, or 70% of the total estimated rise in corporate tax burdens would accrue from eliminating the Investment Tax Credit. Individual taxes would be raised as additional \$22.5 billion by dropping the

ITC. Investment incentives would be severely reduced, even with lower proposed corporate and individual marginal tax rates. Businesses that are less capital intensive or have lower debt burdens would benefit from the tax package; many businesses in service-producing industries such as wholesale and retail trade would have lower taxes. In contrast, capital intensive firms would bear the brunt of the proposed tax changes, and the international competitiveness of the traditional manufacturing industries would suffer an untimely setback. If enacted, H.R. 3838 would slow economic growth and thereby push the deficit further away from the GRH targets. The ultimate irony of GRH would arise if enactment of a tax policy change generated sufficient weakness in the economy to temporarily suspend implementation of the GRH sequestering process (under law, this would occur if real GNP growth for any two consecutive quarters is less than one percent, or if either the CBO or OMB forecasts negative growth within six quarters).

Creating a fiscal environment conducive to long-run economic growth requires that the deficit be reduced substantially, and this should be accomplished through spending cuts, as the Administration proposes. But to be successful and fair, all programs, including social security, should be subject to spending reductions. Efforts to cut spending and deficits should take priority over tax reform, particularly the types of tax policy changes being discussed currently. And any tax revenue increase considered as part of a large deficit-cutting compromise should be consumption-oriented, and should not create disincentives to invest or involve measures that would weaken international competitiveness.

## MULTIPLIER FORECASTS AND THE VELOCITIES OF VARIOUS M'S

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The past year can only be characterized as great vintage for our Adjusted Monetary Base - M1 multiplier forecasting models. This is illustrated in Table 1, where the one month ahead ex-ante forecasts for the period March, 1985 through December, 1985 are presented and compared with the "actual data" on the same series prior to the annual revisions that have just been announced. The sample presented here is chosen to squeeze between the 1985 and 1986 revisions of the monetary aggregates.

The third column of the table presents the month by month percentage forecast errors in the multiplier. The mean error over the ten months is .10 percent and the root-mean squared error is .23 percent. Since these numbers speak for themselves, I have decided not to dwell on them. Rather I will try to use the results of our forecasting model to address, at least indirectly, another issue that has received a lot of attention recently, namely is the behavior of M1 velocity beyond explanation, particularly compared with the velocities of broader monetary aggregates?

### **The Relationship Between Multiplier Forecasts and Velocity Forecasts**

In the past deliberations of this Committee we have focused on the behavior of the monetary base and M1. In that context, we have recognized that forecasts of the M1-monetary base multiplier give an independent check on the *relative* behavior of the velocity of the monetary base (usually denoted  $V_0$ ) and the velocity of M1 (denoted  $V_1$ ). This arises since:

$$1) \ln B + \ln V_0 = \ln Y$$

and

$$2) \ln M1 + \ln V1 = \ln Y$$

so by subtraction and a bit of rearranging we get:

$$3) \ln m1 = \ln M1 - \ln B = \ln V0 - \ln V1$$

where  $m1$  is the M1-monetary base multiplier. Thus forecasts of the (log of) the multiplier give a forecast of the behavior of  $V1$  relative to  $V0$ .

Our procedure of constructing forecasts for the multiplier from its component ratios gives additional information which we typically have not considered, but which may be of interest in the present situation. We can define the velocity of the M2 ( $V2$ ) and M3 ( $V3$ ) broad monetary aggregates by:

$$4) \ln M2 + \ln V2 = \ln Y$$

and

$$5) \ln M3 + \ln V3 = \ln Y$$

By subtracting equation 1 from equations 4 and 5 we obtain:

$$6) \ln m2 = \ln M2 - \ln B = \ln V0 - \ln V2$$

$$7) \ln m3 = \ln M3 - \ln B = \ln V0 - \ln V3,$$

where  $m2$  and  $m3$  are the adjusted monetary base multipliers for M2 and M3, respectively. Finally, subtract equation 3 from equation 6 and 7 respectively, to obtain:

$$8) \ln m2 - \ln m1 = \ln V1 - \ln V2$$

$$9) \ln m3 - \ln m1 = \ln V1 - \ln V3$$

The conclusion of all this is that the percentage difference between the monetary base multipliers for the broader aggregates and the monetary base multiplier for M1 provides a measure of the relative behavior of the velocities of these aggregates.

It is important to remember that the base multipliers for all of the monetary aggregates, expressed in terms of their common component ratios, differ only in the numerator. They all have the same denominator. Thus in forecasting the components of the M1 multiplier, we are also implicitly

forecasting the relative behavior of the velocities of M1, M2 and M3. This relative behavior is measured by:

$$10) \ln V_1 - \ln V_2 = \ln[1 + k(1+tc) + t_1] - \ln[1 + k(1+tc)]$$

and:

$$11) \ln V_1 - \ln V_3 = \ln[1 + k(1+tc) + t_1 + t_2] - \ln[1 + k(1+tc)]$$

The forecast errors of equations 10 and 11 are tabulated in Tables 2 and 3 for the second half of 1985. These are presented on a not seasonally adjusted basis, in part because the numbers were conveniently available in that form, in part because the forecasting models for the components are specified in not seasonally adjusted form. The forecasts are presented for one month ahead, two months ahead, three months ahead, and on a three month moving average basis. The motivation for the three month horizon is to provide a common frame of reference with other models that are constructed on quarterly average data. It could be argued that it is no great accomplishment to be able to forecast the relative behavior of the various velocities on a one month horizon if the forecasting errors get very large on a three month horizon.

One possible interpretation of the results presented in Table 1 is that by luck we have been able to do a good job of forecasting the behavior of M1 relative to the monetary base, through offsetting forecast errors of the component ratios. A skeptic might conclude that since M1 velocity is behaving in such an atypical manner, all that the forecasts in Table 1 do is prove the uselessness of the base as a monetary indicator and/or target. The results in Table 2 and 3 suggest that such a conclusion is inappropriate. In both cases, the mean error in the forecast of the velocity of either M2 and M3 on a one month ahead basis for the second half of 1985 is about .4 percent. More importantly, this bias does not become larger as the



forecasting horizon increases up to three months. Indeed, the forecast error for the velocity of M1 relative to the velocity of the broader aggregates on a three month moving average basis is no larger than on a one month forecast horizon. The percentage root-mean-squared error on a three month moving average basis is about .4 percent; slightly smaller than the same statistic for the one month ahead forecasts. It seems appropriate to conclude from this that if we can explain what is happening to the velocity of one of the monetary aggregates (from the monetary base to M3) during this period, then we can understand what is going on with all of the aggregates.

#### **Forecasts of the M1-Adjusted Monetary Base Multiplier for 1986**

Our present forecast for the M1-Adjusted Monetary Base Multiplier on a seasonally adjusted basis is presented in Table 4. This forecast is based on the available data through January, and covers the period for February through July. The data employed include the recently released annual revision of the monetary aggregates and the newly announced seasonal factors for both the monetary aggregates and the adjusted monetary base.

The annual revision of the monetary aggregates seems to have produced very little change in the data on a not seasonally adjusted basis. We do not yet have the full set of historical data, but the revisions to not seasonally adjusted M1 for the first half of 1985 are .1 billion dollars. More substantial revisions were introduced in the second half of 1985, but we are quite comfortable with splicing the revised data for 1985 to the unrevised data through the end of 1984 for purposes of this forecasting exercise. The seasonal factor changes are more substantial, especially for the adjusted monetary base.

For reference we have included the currently available "actual" value for the multiplier for January, 1986 compared with the forecast that we made

using the unrevised data available early in January, but seasonally adjusted with the newly published seasonal factors. This forecast was virtually without error. With the exception of the forecast value for February, the prediction is that the multiplier will remain basically stable on a seasonally adjusted basis through the middle of the second quarter, and then start drifting upward again. February seems rather peculiar, in that the forecast suggests a sharp drop from the January value, and then a rapid jump back to the January level by April. We have looked at the not seasonally adjusted component forecasts and compared them with data from past years. There doesn't seem to be anything in these numbers to account for the February pattern. We are presently inclined to believe that there may be something peculiar with the new February seasonal factor for the adjusted monetary base, but we have not yet confirmed this suspicion (recall that the switch from lagged to contemporaneous reserve requirements occurred in February, 1984).

TABLE 1  
 SEASONALLY ADJUSTED M1-ADJUSTED MONETARY BASE  
 MULTIPLIER FORECASTS  
 1985 (ONE MONTH AHEAD)

FORECAST FOR:	FORECAST	INITIAL ACTUAL	PERCENT ERROR
March	2.5811	2.5766	-.17
April	2.5891	2.5908	.06
May	2.5931	2.5946	.06
June	2.5877	2.5971	.36
July	2.6171	2.6150	-.08
August	2.6305	2.6423	.45
September	2.6465	2.6417	.18
October	2.6427	2.6426	.00
November	2.6454	2.6532	.30
December	2.6559	2.6518	-.15
Mean error			.10
Root-Mean-Squared Error			.23

TABLE 2

## PERCENTAGE FORECAST ERRORS FOR Ln V1 - Ln V2 (NSA)

Forecast Base	Forecast for:						
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	3Mo. Ave.
July	-.55	.53	-.73				-.25
August		-1.16	-.05	-.17			-.46
September			.11	.01	-.36		-.08
October				-.13	-.50	-1.05	-.56
November					-.31	-.86	
December						-.31	

## FORECAST ERROR STATISTICS

	1 month ahead	2 months ahead	3 months ahead	3 month moving ave.
mean error (%)	-.39	-.17	-.58	-.34
RMSE (%)	.56	.50	.45	.39

TABLE 3

## PERCENTAGE FORECAST ERRORS FOR Ln V1 - Ln V3 (NSA)

Forecast Base	Forecast for:						
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	3Mo. Ave.
July	-.60	.20	-.48				-.29
August		-.63	.37	.10			-.05
September			.07	-.25	-.69		-.29
October				-.34	-.78	-1.33	-.82
November					-.21	-.66	
December						-.46	

## FORECAST ERROR STATISTICS

	1 month ahead	2 months ahead	3 months ahead	3 month moving ave.
mean error (%)	-.36	-.22	.60	-.36
RMSE (%)	.43	.51	.79	.46

TABLE 4  
 CURRENT FORECASTS FOR SEASONALLY ADJUSTED  
 M1-ADJUSTED MONETARY BASE MULTIPLIER  
 1986

January	2.6608 (actual)	2.6609 (predicted on
February	2.6355	December, 1985 base)
March	2.6504	
April	2.6614	
May	2.6588	
June	2.6694	
July	2.6765	

## EXTERNAL DEBT AND THE BANKING SYSTEM

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I first report on the recurrence of Mexico's debt repayment problems and the renewal of fears for the safety of U.S. creditor banks. I then suggest that resort to the short-term palliatives that have been relied on to solve the Mexican difficulties do not address the fundamental roadblocks to debt repayment. Only appropriate redirection of the Mexican economy will provide a lasting solution, but such a recommendation, even if it is now on the drawing board of players in the game of rescuing Mexico in order to safeguard U.S. banks, will not easily be accomplished. I conclude by asking what regulatory or legislative measures could be taken to uncouple the U.S. bank solvency aspect from the debt repayment problem.

### Mexico's External Debt Problems

Three and a half years after Mexico announced in August 1982 that it could not pay the interest on its then \$82 billion external debt -- an interval during which what were regarded as corrective actions were taken -- its ability to pay the interest on its debt that has since grown to \$97 billion is again in question.

Mexico's current financial difficulties are reflected in its external balance of trade in billions of U.S. dollars, shown since 1981:

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Exports	19.9	21.2	22.3	24.1	21.8
Imports	24.0	14.4	8.5	11.3	14.0
Trade balance	-4.1	6.8	13.8	12.8	7.8

Conventional wisdom related Mexico's problem in 1982 to world recession, disinflation, and high real interest rates. The prescription to solve the problem hinged on recovery in the industrialized countries to ensure growth in demand for Mexico's exports, a reduction in interest rates payable on its loans, improvement in its balance of trade, and continued lending by international agencies and creditor banks, pending the country's return to economic health. In the interim, Mexico would have the means to pay contractual interest instead of defaulting and endangering the solvency of the creditor banks.

The improvement in Mexico's trade balance in 1983 was hailed as proof of the success of the prescription. Skeptics noted that the improvement was unsustainable, since it was mainly attributable to a decline in imports rather than an increase in exports. The cut in imports not only reduced the country's standard of living, but by limiting inventories of raw materials and spare parts also curtailed the output of firms producing for export. Imports have since increased, but the 14% growth in exports between 1982 and 1984 was reversed in 1985. The trade balance in 1985 was only slightly improved over the 1982 position.

In 1982 the U.S. shouldered the responsibility for fashioning a financial rescue plan for Mexico. It arranged for a program of adjustment for the Mexican economy, the purchase of \$1 billion of Mexican oil, rescheduling of debt, and lending by the IMF, the World Bank, industrialized country governments, and creditor banks. In 1983 small amounts of sovereign debt due within the year were rescheduled. In September about \$50 billion of Mexico's outstanding public debt maturing over the following six years was rescheduled, stretching out the debt repayment period, reducing both the interest spread and loan fees charged by the banks.

This year the earthquakes visited on Mexico in the fall of 1985 and the decline in world crude oil prices since then are cited as the reasons for supplementing financial aid to the country and for another round of renegotiating the terms of its multiyear rescheduling agreement. Failure to respond to Mexico's plight (and that of other LDC oil exporters) on this view would again raise the specter of insolvency for the creditor banks.

At this juncture no formal rescue plan for Mexico has as yet evolved. What is new in the current discussion as compared with earlier optimistic forecasts for the resolution of the debt repayment problem is the focus on misguided economic policies in Mexico (and other LDC countries) in contributing to difficulties in servicing debt. An issue that is not raised is whether outstanding debts were invested in income-earning assets that can provide means of repayment. A large part of the borrowed funds apparently was applied to consumption use. Moreover, it has been estimated that 50% of the net amount borrowed by Mexico is accounted for by capital flight. That part of the net amount borrowed was not therefore squandered but presumably might be repatriated if conditions in Mexico changed to provide a favorable investment climate.

The plan announced by Secretary Baker in October 1985 at the IMF-World Bank annual meeting in Seoul linked continued financial aid to the troubled debtors to their adoption of macroeconomic and microeconomic policies to promote growth, reduce inflation, and adjust their balance of payments. The aid package seems inadequate to induce reform of the debtors' misguided domestic economic policies. In any event, the strength of their commitment to change is doubtful. But even if that were not the case, for the Mexican economy the needed reform is a tall order. Consider the policy changes that would be required there.



The Mexican Government dominates the economy as owner of hundreds of enterprises -- oil, electrical, communications, railroads, banks, hotels, steel mills, motion picture companies. Subsidies to state-owned mismanaged companies are said to account for 50% of the Mexican Government budget deficit, which was 10% of GNP in 1985. Divestment initiatives if they were seriously pursued are hindered by the Government's role in fixing prices for many inputs the companies buy as well as output prices. Why would investors who are denied control over outlays and revenues seek to acquire state-owned enterprises?

The Government manages the exchange rate system. Foreign exchange can be bought at a lower rate for preferential imports and exports and a free rate for other imports. Even at the free rate, import licenses are required for about one-third of all items. For other items, high tariffs act as barriers. Although Mexico has begun discussions with GATT about joining later this year, there is reason for skepticism that that outcome is assured. Membership will require lowering tariffs and eliminating license requirements. Moreover, domestic investors are wary of the credibility of the Government's professions to liberalize trade. Such professions were also made in the mid-1970s and came to nothing. In addition, unifying exchange rates at real levels that are not overvalued will be essential.

Long-standing Mexican rules that bar foreign majority ownership of operations in Mexico inhibit foreign ventures. A history of expropriation also chills the climate for foreigners. Some change, however, may be in prospect. After an initial rejection IBM was recently given permission to build a plant retaining 100% ownership to manufacture personal computers. Conditions the Government imposed nevertheless might deter others: an increase in the amount that IBM originally intended to invest, some market-

ing restrictions, and obligating IBM to teach microchip design technology to Mexican companies.

Political opposition to a change in direction from interventionist and wealth distribution policies to emphasis on market mechanisms that increase productivity and output should not be minimized. Even if reform were undertaken, only in the long term would greater and improved allocation of resources result. How soon export earnings over and above what the existing system provides could be counted on is an unknown. And who can say whether change will proceed without backsliding. Mexican debt repayment difficulties are likely to persist far longer than is currently envisaged.

What does this assessment portend for U.S. banks that are the largest lenders to Mexico? It is desirable to search for ways that would lift the cloud under which they operate from the international debt repayment problem.

### Succor for the Banks

The external debts of the Latin American countries will not be repaid at face value. In the case of troubled domestic loans, banks arrange to take some of their loan repayment in the form of equity shares in the borrowing companies, to reduce interest rates, and to take partial write-offs that reduce reported profits.

The first best solution for the banks would have been, on the revelation of the problem loans, for them to pay no dividends in order to build up reserves against losses that would eventually have to be charged against the profits. In addition, they should have increased their additions to reserves for bad debts. The rules permit them to deduct from corporate income tax liabilities additions to loss reserves equal to a proportion of loans outstanding. Had the banks been farsighted, they would have increased

the additions to bad debt reserves even above the amounts eligible under IRS rules as a tax deduction. Changes also could have been made in IRS rules to increase the proportion of loans outstanding that could be added to bad debt reserves. Ultimately, this might not have turned out to be a bailout at taxpayers' expense. As the debtors resumed payment, bank income would have become taxable. In any case, the proportion has varied since 1967, so raising it would not have been out of line with past limits. Had this been the course the banks and regulators followed, losses from imprudent foreign lending could have been written off over a period of years from bank profits. Instead they have preferred to preserve book values and have not advocated market value accounting.

The stock market is not fooled by the banks' phony balance sheets, and the rates banks pay for CD's also reflect the market's evaluation of the true condition of the banks.

If market value accounting had been in place, the number of bank failures recorded in 1985 -- more than 100 -- and the number of problem banks -- over 1100 -- would have been greater. The threat of even more insolvencies if the true condition of the banks were revealed has deterred facing up to the general problem and instead focused attention on each specific insolvency that had to be dealt with.

What is the second-best solution in today's circumstances? Encouraging writedowns risks impairment of capital when capital requirements exist. One possibility would be to authorize the FDIC to purchase capital issues of banks with non-performing loans on the understanding that the investment would be retired out of some fraction of the net earnings of the banks after payment of interest or dividends on the capital issues. The investment would permit the banks to write down loans to market values. Without a shift from book value to market value accounting, the proposal the Fed has

issued for public comment on "adjusted capital-asset ratios" contributes nothing to remove the threat posed by bad debts to the banks' viability.

It will be objected that an infusion of bank capital by the FDIC is equivalent to nationalization. My response is that extraordinary action is justified given the alternative of a wave of bank failures under market value accounting. In any event, the provision of capital to the banks does not preclude the continuation of operations under private control of bank managers.

Currently a move is afoot to reregulate the banks. Strains in the U.S. banking system manifested themselves when disinflation followed the surge of high and variable inflation rates. That surge produced a rise in nominal interest rates that forced a relaxation of Reg Q ceilings and their near abandonment as well as of other regulations that restricted bank activities. U.S. bank regulators now seem to associate with deregulation the loans that were extended when inflation was expected to continue and subsequently proved to be troubled, including loans for agriculture, energy, real estate, and LDC countries.

In present circumstances, with their liabilities underwritten by federal insurance, banks are rewarded for aggressive lending policies to obtain high returns. But imposing new regulations will serve only to encourage innovators to discover unregulated forms of risk bearing. What is needed is a redesign of the existing deposit insurance system so that banks will be confronted with a tradeoff of risk against reduced coverage and increased insurance fees.

To deal with the problem loans extended in the past, my recommendation is regulatory and legislative changes, including a program to provide banks with additions to capital, that would result in the buildup of loss reserves

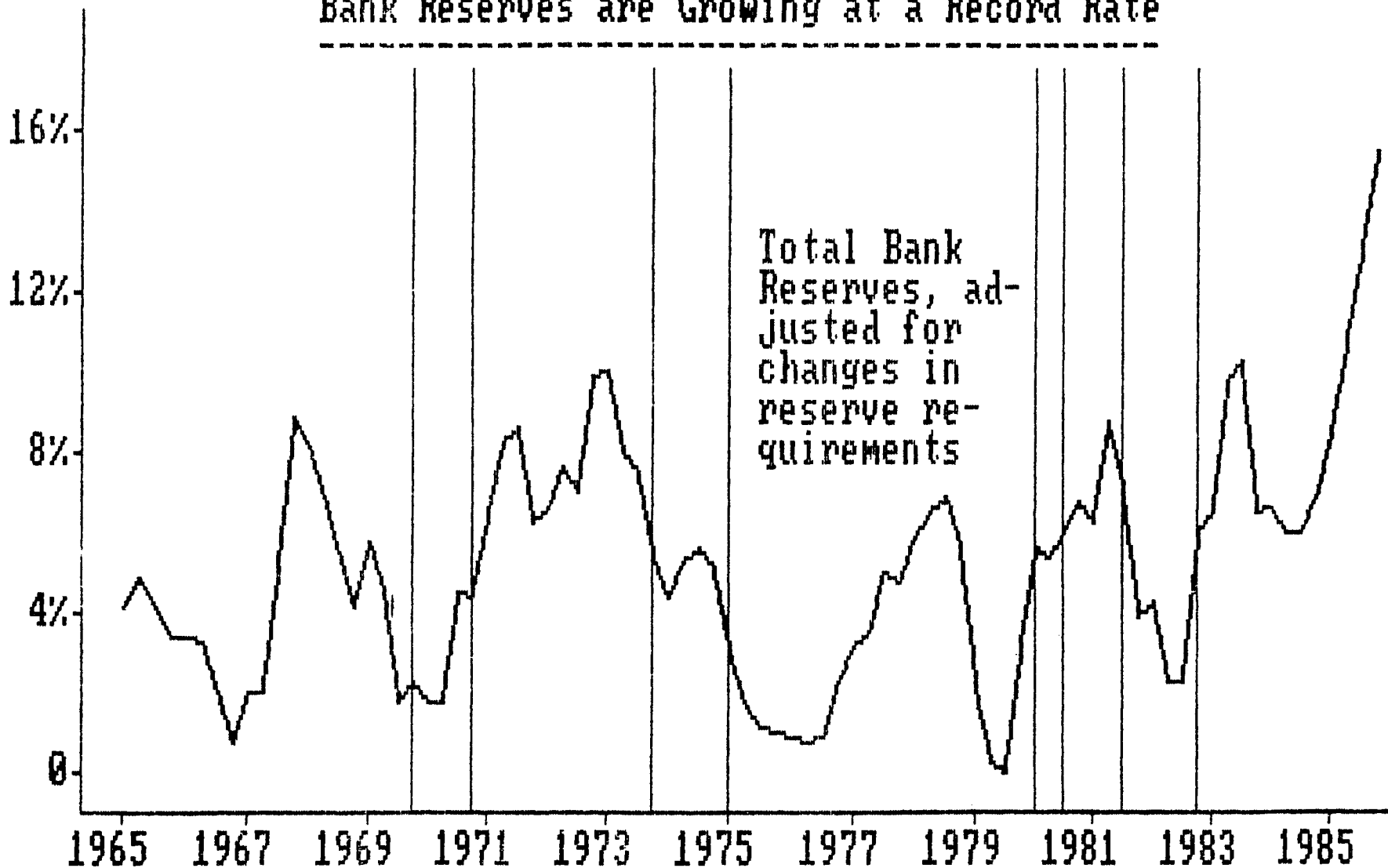
and write down of loans to market values. To deal with the role of risk in present and future bank portfolios, reform of the deposit insurance system is urgent.

TABLES SUBMITTED BY  
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## EASY MONEY

### Bank Reserves are Growing at a Record Rate

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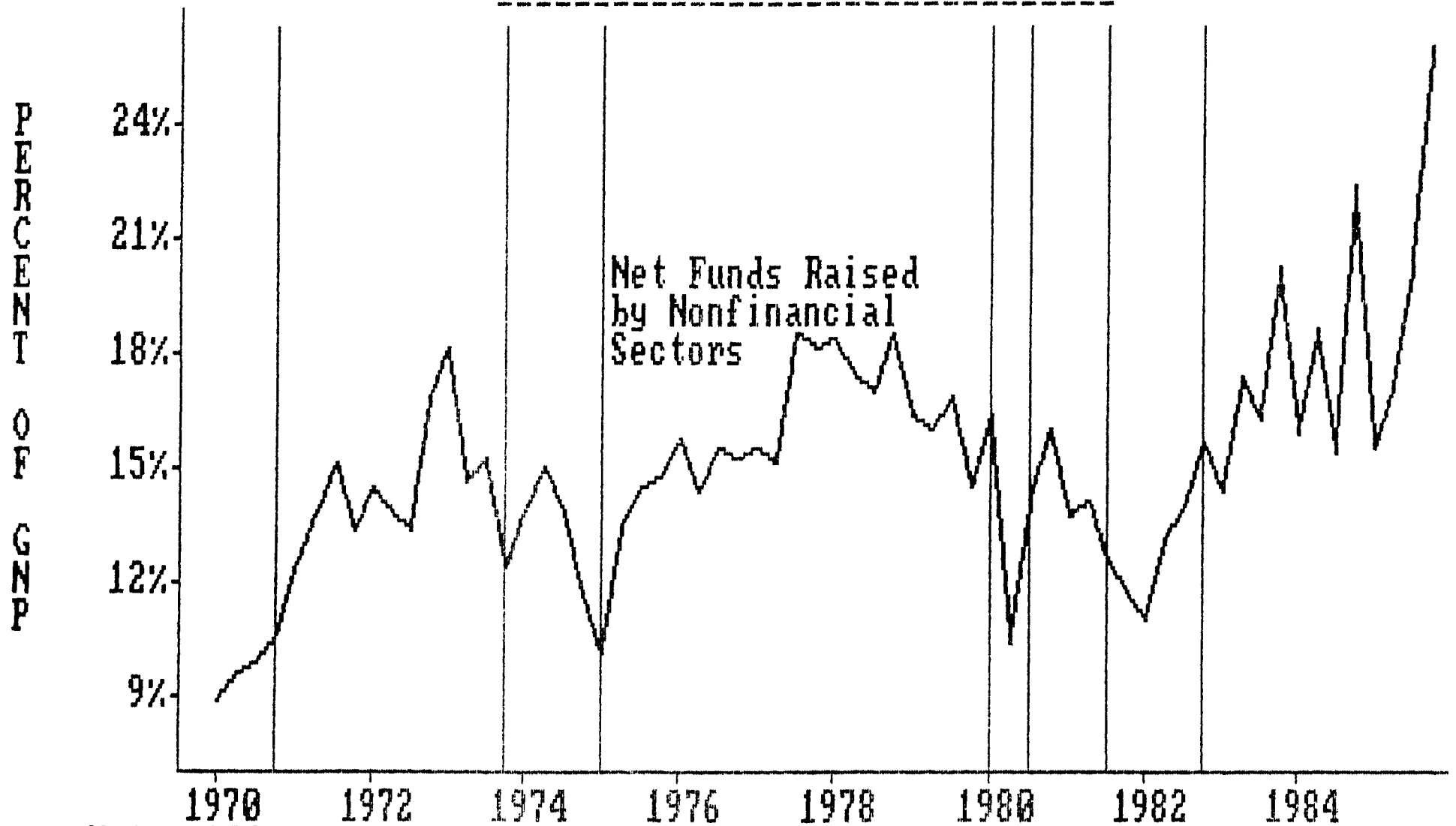


Total Bank  
Reserves, ad-  
justed for  
changes in  
reserve re-  
quirements

Note: Vertical lines indicate periods of recession.  
Sources: Wharton Econometrics; Heinemann Economic Research

# THE DEMAND FOR CREDIT HAS SOARED

19



Note: Adjusted for changes in Treasury cash and equity redemption by non-financial corporations. Source: Heinemann Economic Research



14-Mar-86

Table 1 - Part 1

## Federal Reserve Action and Monetary Growth

(\$ Billions)

Date	(1) Monetary Base	(2) Currency	(3) Total Adjusted Bank Reserves	(4) Demand Deposits	(5) Savings & Small Time Deposits*	(6) Large Time Deposits	(7) Non- deposit Liabil.	(8) Foreign Deposits	(9) Treasury Deposits	(10) Total Deposits**
Jun 1983	178.8	141.4	37.4	363.8	681.2	225.8	172.8	10.5	13.2	1467.3
Jul	179.8	142.4	37.4	367.7	686.1	223.6	170.0	10.8	21.9	1480.1
Aug	180.6	143.2	37.4	370.6	689.8	225.6	171.1	10.4	16.4	1483.9
Sep	182.3	144.6	37.7	371.1	694.5	227.0	171.0	10.4	18.0	1492.0
Oct	183.4	146.1	37.3	373.1	701.7	225.2	168.5	10.3	24.7	1503.5
Nov	184.5	147.3	37.2	374.1	709.2	227.9	174.9	10.7	7.5	1504.3
Dec	185.5	148.4	37.1	374.8	714.6	228.9	178.2	10.7	10.8	1518.0
Jan 1984	187.5	149.4	38.1	377.0	719.3	229.4	176.0	10.7	19.6	1532.0
Feb	189.0	150.2	38.8	379.0	724.4	231.1	178.9	10.9	22.3	1546.6
Mar	189.9	151.2	38.7	381.1	730.0	233.9	181.7	10.4	17.5	1554.6
Apr	190.6	152.1	38.5	382.0	736.8	237.6	180.9	10.2	16.5	1564.0
May	191.7	152.8	38.9	384.6	740.3	245.2	183.3	10.8	12.7	1576.9
Jun	193.7	154.3	39.4	387.9	745.6	249.4	174.4	10.6	12.4	1580.3
Jul	194.5	155.0	39.5	386.7	747.7	254.6	172.7	10.7	11.8	1584.2
Aug	195.6	155.9	39.7	387.8	749.4	255.0	175.7	10.3	10.4	1588.6
Sep	196.2	156.8	39.4	389.7	752.6	258.0	173.6	10.4	17.5	1601.8
Oct	196.4	157.1	39.3	386.3	756.2	263.2	170.5	10.3	11.1	1597.6
Nov	197.7	157.9	39.8	390.7	765.4	263.6	175.3	10.9	10.3	1616.2
Dec	199.0	158.7	40.3	394.6	776.7	264.4	173.3	10.6	12.5	1632.1
Jan 1985	200.3	159.6	40.7	398.0	788.6	263.1	171.1	10.9	18.6	1650.3
Feb	202.1	160.7	41.4	403.4	796.0	263.8	175.7	10.8	15.8	1665.5
Mar	203.0	161.3	41.7	405.5	800.4	268.2	178.7	9.7	12.8	1675.3
Apr	203.7	161.9	41.8	408.3	803.3	272.3	171.3	9.6	15.4	1680.2
May	205.5	163.2	42.3	413.8	807.3	269.3	174.2	10.1	20.9	1695.6
Jun	207.6	164.4	43.2	420.8	817.2	267.3	172.0	10.0	14.8	1702.1
Jul	208.7	165.3	43.4	425.2	822.8	264.0	169.9	10.0	23.1	1715.0
Aug	210.8	166.9	43.9	432.1	825.0	268.0	174.0	9.8	13.4	1722.3
Sep	212.1	167.7	44.4	437.9	828.0	272.4	174.5	10.2	16.8	1739.8
Oct	213.1	168.7	44.4	439.5	830.8	274.3	173.0	10.1	5.4	1733.1
Nov	214.9	169.8	45.1	444.4	836.3	276.7	175.8	10.2	7.8	1751.2
Dec	216.4	170.6	45.8	450.0	841.0	279.1	176.9	10.4	14.5	1771.9
Jan 1986	218.0	171.9	46.1	449.3	848.0	289.8	175.9	10.8	24.1	1797.9
Feb P	219.4	172.9	46.5	452.1	849.7	291.0	181.9	10.2	24.2	1806.9

\* Includes Money Market Deposit Accounts

\*\* (4+5+6+7+8+9)

Table 1 - Part 2

## Federal Reserve Action and Monetary Growth

Date	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Adjusted Reserve Ratio	Currency Ratio	Savings & Small Time Deposit Ratio	Large Time Deposit Ratio	Non- deposit Liabil. Ratio	Foreign Deposit Ratio	Treasury Deposit Ratio	Money Multi- plier
	(3/10)	(2/4)	(5/4)	(6/4)	(7/4)	(8/4)	(9/4)	(2+4/1)
Jun 1983	0.0255	0.3887	1.8725	0.6207	0.4750	0.0289	0.0363	2.8254
Jul	0.0253	0.3873	1.8659	0.6081	0.4623	0.0294	0.0596	2.8372
Aug	0.0252	0.3864	1.8613	0.6087	0.4617	0.0281	0.0443	2.8447
Sep	0.0252	0.3897	1.8715	0.6117	0.4608	0.0280	0.0485	2.8293
Oct	0.0248	0.3916	1.8807	0.6036	0.4516	0.0276	0.0662	2.8316
Nov	0.0247	0.3937	1.8957	0.6092	0.4675	0.0286	0.0200	2.8264
Dec	0.0244	0.3959	1.9066	0.6107	0.4755	0.0285	0.0288	2.8207
Jan 1984	0.0249	0.3963	1.9080	0.6085	0.4668	0.0284	0.0520	2.8077
Feb	0.0251	0.3963	1.9113	0.6098	0.4720	0.0288	0.0588	2.7996
Mar	0.0249	0.3967	1.9155	0.6137	0.4768	0.0273	0.0459	2.8030
Apr	0.0246	0.3982	1.9288	0.6220	0.4736	0.0267	0.0432	2.8024
May	0.0247	0.3973	1.9249	0.6375	0.4766	0.0281	0.0330	2.8031
Jun	0.0249	0.3978	1.9221	0.6429	0.4496	0.0273	0.0320	2.7998
Jul	0.0249	0.4008	1.9335	0.6584	0.4466	0.0277	0.0305	2.7857
Aug	0.0250	0.4020	1.9324	0.6576	0.4531	0.0266	0.0268	2.7801
Sep	0.0246	0.4024	1.9312	0.6620	0.4455	0.0267	0.0449	2.7853
Oct	0.0246	0.4067	1.9575	0.6813	0.4414	0.0267	0.0287	2.7668
Nov	0.0246	0.4041	1.9590	0.6747	0.4487	0.0279	0.0264	2.7753
Dec	0.0247	0.4022	1.9683	0.6700	0.4392	0.0269	0.0317	2.7800
Jan 1985	0.0247	0.4010	1.9814	0.6611	0.4299	0.0274	0.0467	2.7832
Feb	0.0249	0.3984	1.9732	0.6539	0.4355	0.0268	0.0392	2.7910
Mar	0.0249	0.3978	1.9739	0.6614	0.4407	0.0239	0.0316	2.7927
Apr	0.0249	0.3965	1.9674	0.6669	0.4195	0.0235	0.0377	2.7996
May	0.0249	0.3944	1.9509	0.6508	0.4210	0.0244	0.0505	2.8083
Jun	0.0254	0.3907	1.9420	0.6352	0.4087	0.0238	0.0352	2.8193
Jul	0.0253	0.3888	1.9351	0.6209	0.3996	0.0235	0.0543	2.8290
Aug	0.0255	0.3863	1.9093	0.6202	0.4027	0.0227	0.0310	2.8409
Sep	0.0255	0.3830	1.8908	0.6221	0.3985	0.0233	0.0384	2.8556
Oct	0.0256	0.3838	1.8903	0.6241	0.3936	0.0230	0.0123	2.8538
Nov	0.0258	0.3821	1.8819	0.6226	0.3956	0.0230	0.0176	2.8576
Dec	0.0259	0.3791	1.8689	0.6202	0.3931	0.0231	0.0322	2.8673
Jan 1986	0.0257	0.3826	1.8874	0.6450	0.3915	0.0240	0.0536	2.8491
Feb P	0.0258	0.3829	1.8815	0.6515	0.3930	0.0224	0.0549	2.8456

Source: Federal Reserve Board; Heinemann Economic Research

Table 1 - Part 3

## Federal Reserve Action and Monetary Growth

Date	Monetary Growth (M-1)	Federal Reserve Actions (Monetary Base Growth)	Contribution of the Money Multiplier	This is accounted for by changes in the:						
				Adjusted Reserve Ratio	Currency Ratio	Savings & Small Time Deposit Ratio	Large Time Deposit Ratio	Non-Deposit Liability Ratio	Foreign Deposit Ratio	Treasury Deposit Ratio
Jun 1983	10.3	11.7	-1.4	-2.5	1.0	-0.4	-0.1	0.6	-0.1	-0.1
Jul	12.3	6.8	5.5	2.5	2.4	0.4	0.8	0.9	.0	-1.6
Aug	9.1	5.7	3.4	0.5	1.5	0.3	.0	.0	0.1	1.0
Sep	4.5	11.6	-7.0	-0.4	-5.5	-0.7	-0.2	0.1	.0	-0.3
Oct	8.5	7.4	1.1	4.4	-2.8	-0.5	0.5	0.5	.0	-1.0
Nov	5.2	7.5	-2.3	0.8	-3.7	-1.0	-0.4	-1.1	-0.1	3.2
Dec	4.2	6.8	-2.6	3.1	-3.7	-0.7	-0.1	-0.5	.0	-0.6
Jan 1984	7.6	13.7	-6.1	-4.6	-0.6	-0.1	0.1	0.6	.0	-1.5
Feb	6.6	10.3	-3.8	-2.6	.0	-0.2	-0.1	-0.3	.0	-0.4
Mar	7.3	5.7	1.6	2.2	-0.7	-0.3	-0.3	-0.3	0.1	0.8
Apr	4.1	4.4	-0.3	4.0	-3.0	-1.1	-0.7	0.3	.0	0.2
May	7.7	7.3	0.3	-0.7	1.4	0.2	-0.9	-0.2	-0.1	0.6
Jun	11.3	12.9	-1.6	-2.5	-0.9	0.2	-0.4	1.9	0.1	0.1
Jul	-1.1	5.1	-6.2	.0	-4.7	-0.7	-1.0	0.2	.0	0.1
Aug	4.5	7.1	-2.5	-0.6	-1.9	0.1	0.1	-0.4	0.1	0.2
Sep	6.4	4.0	2.4	3.7	-0.5	0.1	-0.3	0.5	.0	-1.1
Oct	-6.6	1.2	-7.8	.0	-6.3	-1.5	-1.1	0.2	.0	1.0
Nov	12.1	8.1	4.0	-0.1	4.2	-0.1	0.4	-0.5	-0.1	0.1
Dec	10.8	8.6	2.2	-1.1	3.2	-0.6	0.3	0.6	0.1	-0.3
Jan 1985	9.7	8.2	1.5	0.2	1.9	-0.8	0.6	0.6	.0	-0.9
Feb	14.9	11.1	3.8	-1.9	4.5	0.5	0.5	-0.4	.0	0.5
Mar	5.9	5.1	0.8	.0	0.9	.0	-0.5	-0.3	0.2	0.5
Apr	7.4	4.3	3.1	.0	2.1	0.4	-0.3	1.3	.0	-0.4
May	15.3	11.1	4.2	-0.7	3.7	1.1	1.1	-0.1	-0.1	-0.8
Jun	18.5	13.0	5.4	-4.6	6.6	0.6	1.0	0.8	.0	1.0
Jul	11.4	6.9	4.5	0.4	3.3	0.5	1.0	0.6	.0	-1.3
Aug	18.7	12.9	5.8	-2.1	4.6	1.8	.0	-0.2	0.1	1.6
Sep	14.1	7.2	6.8	0.1	5.8	1.3	-0.1	0.3	.0	-0.5
Oct	5.3	6.1	-0.8	-1.3	-1.6	.0	-0.1	0.3	.0	1.8
Nov	12.5	10.7	1.8	-1.5	3.1	0.6	0.1	-0.1	.0	-0.4
Dec	13.2	8.7	4.5	-1.0	5.3	0.9	0.2	0.2	.0	-1.0
Jan 1986	1.2	9.2	-8.1	2.2	-5.9	-1.3	-1.7	0.1	-0.1	-1.5
Feb P	5.8	7.4	-1.6	-1.0	-0.4	0.4	-0.4	-0.1	0.1	-0.1
	1984	1984	1984	1984	1984	1984	1984	1984	1984	1984
	5.88	7.36	-1.48	-0.20	-0.83	-0.34	-0.31	0.21	0.01	-0.02
	1985	1985	1985	1985	1985	1985	1985	1985	1985	1985
	12.25	8.78	3.46	-1.03	3.36	0.57	0.28	0.25	0.02	0.01

Source: Federal Reserve Board; Heinemann Economic Research

Table 1 - Part 3

## Federal Reserve Action and Monetary Growth

## THREE-MONTH MOVING AVERAGES

This is accounted for by changes in the:

Date	Monetary Growth (M-1)	Federal Reserve Actions (Monetary Base Growth)	Contri- bution of the Money Multi- plier	-----						
				Adjusted Reserve Ratio	Currency Ratio	Savings & Small Time Deposit Ratio	Large Time Deposit Ratio	Non- Deposit Liability Ratio	Foreign Deposit Ratio	Treasury Deposit Ratio
Jun 1983	11.87	9.83	2.03	1.03	1.25	-0.37	0.54	-0.41	.00	.00
Jul	13.17	9.20	3.97	0.52	2.83	0.16	0.65	0.27	-0.03	-0.43
Aug	10.54	8.06	2.48	0.17	1.65	0.13	0.24	0.51	-0.01	-0.22
Sep	8.62	8.01	0.62	0.88	-0.54	0.02	0.20	0.32	0.02	-0.27
Oct	7.35	8.21	-0.86	1.49	-2.28	-0.30	0.07	0.21	0.04	-0.09
Nov	6.06	8.83	-2.76	1.59	-4.02	-0.74	-0.04	-0.16	-0.01	0.63
Dec	5.96	7.24	-1.28	2.73	-3.41	-0.75	-0.01	-0.36	-0.01	0.53
Jan 1984	5.67	9.36	-3.68	-0.27	-2.69	-0.61	-0.11	-0.34	-0.02	0.35
Feb	6.13	10.28	-4.15	-1.39	-1.45	-0.34	-0.01	-0.10	.00	-0.85
Mar	7.14	9.92	-2.78	-1.69	-0.45	-0.19	-0.06	-0.02	0.03	-0.39
Apr	5.99	6.82	-0.83	1.19	-1.26	-0.53	-0.34	-0.12	0.04	0.20
May	6.36	5.82	0.54	1.82	-0.79	-0.38	-0.62	-0.07	0.02	0.55
Jun	7.69	8.21	-0.52	0.25	-0.84	-0.23	-0.66	0.65	0.01	0.31
Jul	5.94	8.43	-2.48	-1.09	-1.41	-0.09	-0.75	0.62	-0.02	0.26
Aug	4.89	8.33	-5.44	-1.07	-2.51	-0.15	-0.42	0.55	0.03	0.13
Sep	3.26	5.37	-2.11	1.03	-2.40	-0.19	-0.39	0.08	0.01	-0.25
Oct	1.43	4.07	-2.64	1.05	-2.93	-0.46	-0.45	0.10	0.02	0.03
Nov	3.96	4.41	-0.46	1.22	-0.89	-0.52	-0.33	0.08	-0.03	0.01
Dec	5.43	5.94	-0.51	-0.39	0.37	-0.73	-0.14	0.13	.00	0.26
Jan 1985	10.87	8.29	2.58	-0.33	3.13	-0.50	0.42	0.24	-0.02	-0.37
Feb	11.81	9.30	2.51	-0.91	3.24	-0.29	0.44	0.27	0.02	-0.26
Mar	10.18	8.15	2.03	-0.55	2.47	-0.11	0.19	-0.03	0.06	0.01
Apr	9.42	6.85	2.57	-0.61	2.51	0.30	-0.12	0.22	0.08	0.19
May	9.54	6.83	2.71	-0.21	2.24	0.49	0.09	0.31	0.05	-0.25
Jun	13.73	9.46	4.26	-1.75	4.11	0.70	0.59	0.68	.00	-0.07
Jul	15.06	10.34	4.72	-1.63	4.53	0.72	1.02	0.44	.00	-0.37
Aug	16.20	10.94	5.25	-2.11	4.82	0.96	0.68	0.40	0.04	0.47
Sep	14.73	9.01	5.72	-0.54	4.59	1.18	0.29	0.23	0.01	-0.04
Oct	12.68	8.72	3.96	-1.11	2.96	1.04	-0.07	0.14	0.01	0.99
Nov	10.61	8.00	2.61	-0.91	2.46	0.62	-0.06	0.16	-0.01	0.33
Dec	10.34	8.50	1.84	-1.28	2.29	0.50	0.04	0.13	.00	0.16
Jan 1986	8.97	9.56	-0.59	-0.10	0.84	0.07	-0.48	0.05	-0.02	-0.95
Feb P	6.75	8.46	-1.70	0.08	-0.34	0.01	-0.66	0.06	0.01	-0.86

Source: Federal Reserve Board; Heinemann Economic Research

Federal Reserve Action and Monetary Growth

(Memo)

	Reserve Growth Rate Month to Month	Reserve Growth Three-month Moving Average
Jun 1983	23.09	9.92
Jul	-0.61	9.56
Aug	0.97	7.82
Sep	8.42	2.93
Oct	-12.45	-1.02
Nov	-2.70	-2.24
Dec	-2.74	-5.96
Jan 1984	37.53	10.69
Feb	26.06	20.28
Mar	-3.77	19.94
Apr	-6.47	5.27
May	14.19	1.32
Jun	14.58	7.44
Jul	3.12	10.63
Aug	6.51	8.07
Sep	-7.64	0.66
Oct	-3.27	-1.47
Nov	15.51	1.53
Dec	18.27	10.17
Jan 1985	13.10	15.63
Feb	21.44	17.60
Mar	7.33	13.96
Apr	3.33	10.70
May	14.92	8.53
Jun	29.06	15.77
Jul	7.56	17.18
Aug	15.23	17.28
Sep	12.39	11.73
Oct	1.11	9.58
Nov	21.19	11.57
Dec	20.38	14.23
Jan 1986	8.14	16.57
Feb P	10.99	13.17
	1984	
	9.55	
	1985	
	13.92	

Source: Federal Reserve Board; Heinemann Economic Research