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THE RECENT FAILURE OF  
U.S. MONETARY POLICY

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ABSTRACT

Since the spring of 1990, the rates of growth of real income, of nominal income, and of the broad monetary aggregate (M2) have been substantially less than the Federal Reserve had set as targets and than most observers regarded as appropriate.

The breakdown of the traditional economic relations has not been between M2 and subsequent nominal GDP but between the increase in reserves caused by open market operations and the subsequent level of M2. Changes in bank reserves brought about by open market operations have had much less effect on the money supply than the Federal Reserve had anticipated.

Because the Federal Reserve requirements apply to only about one-fifth of M2, the Federal Reserve lacks a reliable way of predicting the effect of open market operations on the subsequent change of M2. The Federal Reserve has therefore emphasized the statistical relation between changes in the federal funds rate and subsequent changes in the monetary aggregate and in economic activity. The federal funds rate has turned out once again to be a misleading indicator of monetary conditions and a poor way of guiding M2.

The new bank capital standards and associated regulatory supervision may be the primary reasons for the reduced sensitivity of commercial bank lending and of total nominal spending to changes in open market operations. Banks have responded to open market purchases by increasing the ratio of M1 (which is subject to reserve requirements) to M2.

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## The Recent Failure of U.S. Monetary Policy

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The poor performance of the American economy in 1991 and 1992 primarily reflected a failure of U.S. monetary policy. Since the spring of 1990, the rates of growth of real income, of nominal income, and of the broad monetary aggregate have been substantially less than the Federal Reserve had set as targets and than most observers have regarded as appropriate. The evidence indicates that ~~the~~ key link between the Federal Reserve's open market operations and these targets of economic policy did not behave as it had in the past. Moreover, the Federal Reserve did not respond by changing the extent of open market operations sufficiently to compensate for the decline in their apparent impact on the money stock and total GDP.

It is important to stress that the breakdown of the traditional economic relation has not been between the broad money supply (M2) and nominal GDP but between the increase in reserves caused by open market operations and the subsequent change in the broad money supply. The velocity link between the M2 money stock and the subsequent level of the nominal GDP has not declined; if anything, it has been slightly higher in the past two years than previous experience would have implied. But changes in bank reserves brought about by open market operations have had much less effect on the money supply than the Federal Reserve had anticipated.

Two fundamental conditions have caused a reduction in the impact of open market operations on the broad M2 money stock: the lack of reserve requirements on all but a small

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fraction of total M2 and the recent imposition of bank capital requirements that limit the banks' ability to lend. The Federal Reserve failed to appreciate the importance of these conditions and misjudged the strength of the monetary policy stimulus that it was providing.

This paper discusses these ideas in more detail, considers why the Fed did not react more aggressively when it became clear that the money supply and the economy were stagnating, and indicates how the link between open market operations and the broad monetary aggregate could be reestablished by a change in Federal Reserve rules.

My comments focus exclusively on the role of monetary policy in the management of aggregate demand, ignoring the potential use of fiscal policy. Although a fiscal stimulus may be useful if it is clear that monetary policy alone is not enough, experience has shown that fiscal policy is a very blunt tool to use for macroeconomic stabilization and that monetary policy should therefore bear primary responsibility, indeed generally sole responsibility, for guiding the level of aggregate demand. Particularly with the American Congressional form of government, changes in taxes and government spending take a long time to enact and are difficult to modify.

At the present time, the very high level of the U.S. government budget deficit relative to our private saving also hampers the use of stimulative fiscal policy. Because of the large projected future budget deficits, a fiscal policy that seeks to stimulate the economy by increased spending or lower taxes could actually be counterproductive. If financial markets interpret policies that increase the current deficit as evidence that there will be even larger deficits in the future, long-term interest rates might rise by so much that current aggregate demand is actually reduced. Only the politically elusive fiscal package that combines an increased short-run deficit

with a reliable decrease in future deficits would unambiguously raise near-term economic activity.

American economists therefore generally look to the Federal Reserve to manage short-run variations in nominal GDP. The Federal Reserve itself, like other central banks, does not literally announce a nominal GDP target but takes price stability as its medium-term goal while at least implicitly selecting a short-run target for nominal GDP that is designed to combine reduced inflation with acceptable changes in unemployment.

Unfortunately, in attempting to implement this goal, during the past 18 months the Federal Reserve has produced increases in nominal and real GDP that have been far smaller than the Fed anticipated and than would have been expected at this stage in the business cycle.

#### *1. Targets for Nominal GDP and the Money Stock*

Before looking at experience in 1991 and 1992, let me say a few words about the Fed's actions in the years immediately before 1991. A useful place to begin such an analysis is in 1987 when Alan Greenspan became chairman of the Federal Reserve. Greenspan made it clear that his goal would be to carry on the work begun by Paul Volcker by reducing the rate of consumer price inflation from the then prevailing level of about 4.5 percent to "virtual price stability." Such "price stability" was generally interpreted to be about two percent inflation (at least in part because of the overstatement of inflation in traditional price indices.)

The Fed's aim was to lower the rate of growth of nominal GDP slowly so that inflation would come down without causing an actual downturn in economic activity. The October 1987 collapse of the stock market caused a temporary shift in Fed policy to meet the increased short-

run demand for liquidity. But by early 1988 the Fed was withdrawing the excess liquidity that it had created in prior months and returning to its goal of gradually slowing the rate of increase of nominal GDP.

The growth of the broad monetary aggregate M2 — which includes currency, checkable deposits, bank savings accounts, time deposits of less than \$100,000, and the money market mutual funds issued by brokerage firms — was reduced from 5.5 percent in 1988 to 5.1 percent in 1989 and 3.5 percent in 1990. The rate of increase of nominal GDP fell from 7.7 percent in 1988 to 6.0 percent in 1989. As usual, the initial effect was to reduce real GDP growth (from 3.3 percent in 1988 to 1.6 percent in 1989) with no progress on inflation.

Although 1990 began with nominal GDP growth and inflation very similar to 1989, many observers at the time expected that the second half of 1990 or the beginning of 1991 would see the long-awaited decline in inflation.

The Fed's goal of reducing inflation without an economic downturn was however undermined by Saddam Hussein's invasion of Kuwait in August 1990. The resulting rise in oil prices caused a jump in consumer inflation and a decline in real economic activity. The Fed tightened monetary policy, slowing the growth of M2 to only 2 percent between August 1990 and the end of the mideast conflict in January 1991. Real GDP declined at an annual rate of nearly 3 percent in the second half of 1990 and the first quarter of 1991.

Fortunately, the Iraqi invasion was repulsed quickly and the price of oil fell sharply in early 1991. The Fed eased, short term interest rates fell, and M2 rose at a rate of nearly 4.5 percent from December 1990 to June 1991. Real GDP increased at a 1.7 percent annual rate between the first and second quarters of the year.

Most analysts expected that the second quarter of 1991 would be the beginning of a healthy recovery. That it was not, I blame on the Federal Reserve and, more specifically, on the Fed's failure to increase M2 sufficiently rapidly, at least as rapidly as the Fed itself had set as its target.

I emphasize the monetary aggregates because nominal GDP growth has paralleled M2 growth about two quarters earlier. Over the past 25 years, nominal GDP has grown at an annual rate of 8.3 percent while the stock of M2 has grown at 8.2 percent. And while there are significant year to year variations in velocity, the normal fluctuations of velocity are small enough that the change in nominal GDP does not differ very much from the change in M2 two quarters earlier. Thus, during the past quarter century, the annual changes lagged M2 velocity (measured as the ratio of nominal GDP to M2 two quarters earlier) were less than 1.5 percent in more than half of the years and less than 2.5 percent in three fourths of those observations. In only four of the 50 observations did the lagged M2 velocity rise or fall by more than 3 percent.

This point is worth emphasizing because, as already noted, the broad M2 money stock grew by much less in the past two years than the Federal Reserve had set as its target. The Fed lacks the ability to control M2 precisely and did not take strong steps to make M2 grow more quickly when it was seen to be increasing below the targeted rate. The reasons for this will be discussed below. But first a review of the experience with the money stock and nominal GDP in 1991 and 1992.

## 1.1 *Monetary Policy in 1991*

During 1990, the Federal Reserve announced that its 1991 target range for the rise of the broad M2 monetary aggregate would be centered at 4.5 percent from the fourth quarter of 1990 until the fourth quarter of 1991 (with a plus-or-minus two percent allowable margin above and below this target rate). Based on the lack of trend in M2 velocity over the past quarter century, a 4.5 percent growth of M2 implied as a first approximation that nominal GDP would grow at a rate of about 4.5 percent after a lag of about six months.

Such a slow growth of nominal GDP would prevent a full recovery from the downturn caused by the Iraqi invasion. Even if a fall in energy prices cut the rate of inflation (as measured by the GDP implicit price deflator) to only three percent, a nominal GDP-rise of only 4.5 percent would leave room for real GDP growth of only 1.5 percent. Since the rise in U.S. labor productivity implies that it takes nearly 2.5 percent real GDP growth just to absorb the normal increase in the labor force, the unemployment rate would continue to rise.

There was, however, reason to be more optimistic about the economic outlook implied by the Federal Reserve's monetary target. Although the historic experience showed no M2 velocity change over the long run, the evidence also implied that during the first four quarters of economic recoveries the "lagged-velocity" (relating nominal GDP to M2 two quarters earlier) rose by an average of about one percentage point. With this cyclical rise in velocity, a 4.5 percent increase in M2 would lead to a 5.5 percent rise in nominal GDP. If the rise in the GDP price deflator did decline to 3.0 percent, real GDP growth would be 2.5 percent and therefore enough to achieve a slow decline in the unemployment rate. Such a slow decline in unemployment would provide a favorable environment for continuing progress in lowering the



inflation rate. In other words, the Fed's money target for 1991 was a risky strategy but one that, on the basis of historic experience with cyclical changes in velocity, looked like a way to have declines in both unemployment and inflation in the year ahead.

Unfortunately, the actual increase in the M2 money stock in 1991 was substantially below the Fed's 4.5 percent target rate. From the fourth quarter of 1990 until the fourth quarter of 1991, the money stock rose only 2.8 percent. The corresponding increase in nominal GDP — from the second quarter of 1991 until the second quarter of 1992 — was 4.3 percent. Thus velocity did rise cyclically in line with historic experience but not enough to compensate for the shortfall of M2 growth below its target. Even though inflation fell to 2.7 percent, the real GDP growth rate was only 1.5 percent and the unemployment rate rose a full percentage point.

The very slow growth of the money stock was therefore a serious problem for the economy. Despite an above average rate of growth of velocity, nominal GDP grew too slowly to be consistent with a normal recovery. Before looking at the reasons why the Fed failed to provide the stimulus needed for the short-term growth of aggregate demand, it is useful to take a brief look at the evolution of monetary policy in 1992.

## *1.2 Monetary Policy in 1992*

Despite the substantial shortfall of M2 growth in 1991 and the weakness of the economy, the Federal Reserve decided to aim at an unchanged 4.5 percent growth of M2 from the fourth quarter of 1991 to the fourth quarter of 1992. It set that target tentatively in the summer of 1991 and then reconfirmed it in February 1992.

In the summer of 1991, setting such a target for 1992 money growth did not seem unreasonable. The money supply had grown at four percent from its fourth quarter 1990 base and looked like it could achieve the 4.5 percent target for the 1991 year. Nominal GDP rose at 5.2 percent in the second quarter of 1991 and the associated rise in real activity seemed to signal an end to the recession.

But reconfirming that target in February of 1992 looked much less appropriate. The M2 stock had increased at an annual rate of only 2.8 percent in 1991. Nominal GDP growth had slipped to 3.4 percent in the second half of 1991 and real GDP growth to less than one percent.

The primary reason that the Fed did not increase the M2 target growth for 1992 was a fear that any increase in M2 would cause market participants to conclude that the Fed was no longer interested in reducing inflation. If financial markets did reach that conclusion, long-term interest rates would rise, hurting housing and other components of demand and therefore reducing the prospects for a solid recovery. Moreover, businesses and workers might seek greater increases in prices and wages to protect themselves from the anticipated rise in inflation.

I argued at the time (in a February 3, 1992 article in the *Wall Street Journal*) that that fear of increased inflationary expectations was exaggerated, and that the Fed could raise its 1992 target for M2 without increasing fears of inflation by explaining that the faster M2 growth in 1992 would merely offset the shortfall of actual M2 growth in 1991.

Since the 1991 M2 growth had been only 2.8 percent instead of the originally sought 4.5 percent, the 1992 target could be raised by 1.7 percentage points (to 6.2 percent) and still have the originally targeted 9 percent two-year growth of the money stock. Alternatively, the

shortfall could be made up over a period of more than one year, implying a 1992 M2 target between 4.5 percent and 6.2 percent.

More generally, as I argued at the time, the most appropriate rate of growth of M2 for 1992 would not have been based on an arbitrary catch-up rule but on a calculation of what would be most likely to be consistent with the desired rate of growth of GDP during the period from mid-1992 through mid-1993. I thought a reasonable goal would be six percent nominal GDP growth, a level that would probably involve a 3 percent rate of increase of real GDP and a 3 percent rate of inflation. Achieving that 6 percent nominal GDP growth would most plausibly require a 6 percent rise in M2 in 1992.

The Federal Reserve's Open Market Committee voted to stay with the original 4.5 percent target for M2, but emphasized in discussions with outsiders that this was just the center of a range stretching up to 6.5 percent and let it be known that they expected actual M2 growth to be in the upper half of the range.

If they had achieved such money growth, the resulting rise in nominal GDP would probably have implied declining unemployment and an inflation rate of about three percent. But once again, as in 1991, the actual growth of M2 slipped well below the target. The most recently available data show that M2 has grown at an annual rate of only 1.4 percent from the fourth quarter of 1991 through August 1992. The level in August was no higher than in the first quarter of the year and was actually lower than in February, March, April and May.

Although an increase in velocity could in theory lead to an acceptable rate of nominal GDP growth, such a large increase would be extremely unlikely based on past experience. For the most recent four quarters, the two-quarter lagged velocity grew at only 1.4 percent. If that

rate of growth of velocity continues for the rest of 1992, nominal GDP will increase at a rate of only 3.6 percent from the second quarter of 1992 until the final quarter of the year. Since the implicit price deflator has been rising at 2.9 percent in the first half of the year (and 2.4 percent in the final half of last year), it is very unlikely that a 3.6 percent rise in nominal GDP will provide much scope for real economic growth. The most likely outlook is for a continued increase in unemployment.

While these figures may be too pessimistic, there is little reason to doubt that the Federal Reserve's policies have left actual M2 growth too low to support an expectation of substantial short term increases in employment and decline in unemployment. I turn therefore to the question of why this was allowed to happen.

## *2. Why the Federal Reserve Was Not Aggressive Enough: Managing Short-term Interest Rates*

Although the Fed sets M2 targets, the Fed's operational policy instrument is open market purchases and sales of Treasury securities. More specifically, the Fed decides on short run targets for the federal funds rate at which banks lend to each other and uses open market operations to achieve the desired level of this rate. Because the fed funds rate responds immediately to such open market operations, the Fed has de facto control over the fed funds rate and the fed funds rate can therefore be regarded as an instrument of Federal Reserve policy.

For some Federal Reserve officials, short-term interest rates are the essence of monetary policy. For others, changing the fed funds rate is seen as the best way of affecting the amount of M2 that the banks create. Whatever the reason, since short-term Fed policy is made in terms

of the fed funds rate and the discount rate, any attempt to understand Federal Reserve policy must begin with a review of the changes that it made in these two rates.

Although the Fed has set cautious targets for M2 since the end of 1990 and then allowed actual M2 growth to fall far short of these targets, the Fed was in fact driving short-term interest rates down very sharply by increasing bank reserves aggressively through open market operations. The fed funds rate fell from 7.3 percent at the end of 1990 to 4.4 percent at the end of 1991 and 3.2 percent in September 1992. The fall in the fed funds rate was paralleled in the Treasury bill market, with 3-month Treasury bill rates falling from 6.8 percent at the end of 1990 to 4.1 percent at the end of 1991 and 3.1 percent in September 1992. Thus short-term interest rates were reduced to their lowest level in about 30 years.

Judged by such interest rates, monetary policy during that period looked very expansionary. Moreover, there is no doubt that the lower interest rates did help to achieve stronger economic activity than would have prevailed without the interest rate reductions. The lower cost of funds raised residential construction and business investment. Lower interest rates raised share prices which increased the wealth and spending of shareowners and encouraged businesses to invest more. Lower monthly payments on existing adjustable rate mortgages increased the spendable funds of cash-constrained households. And the dollar decline that resulted from lower interest rates helped to stimulate exports and the substitution of U.S. goods for imports at home.

Nevertheless, the aggregate level of demand and of economic activity remained depressed. The Fed did not achieve its own M2 targets and, more generally, failed to provide enough stimulus to achieve its desired level of nominal GDP growth. What went wrong?

Looked at from the Federal Reserve's point of view, the economic slump at the end of 1990 and the conclusion of the Mideast hostilities caused the Fed to expand aggressively for several months. The Federal Reserve discount rate was cut from 7 percent to 6.5 percent in December 1990, to 6.00 percent in February 1991, and to 5.5 percent in April. The Fed funds rate came down from 7.3 percent to 5.9 percent during these same months.

But then the interest rate decline ended. The discount rate and the Fed funds rate remained essentially unchanged until September 1991 when they were reduced another half a point. The M2 stock remained frozen during this period, bringing the cumulative rise in M2 between the fourth quarter of 1990 and September 1991 to only 2.2 percent.

Although the Fed then moved more aggressively for a few months — cutting the discount rate three times in four months to only 3.5 percent — it was too late to rescue the growth of M2 for 1991 and the year ended with M2 growth of only 2.8 percent. The growth of nominal GDP declined to 2.8 percent in the final quarter of the year with real GDP growth of only 0.6 percent.

The interest rate reductions and associated increases in reserves at the end of 1991 appear to have given a temporary boost to M2 in early 1992 and to have raised the pace of activity in 1992 above the yearend 1991 low. Between October 1991 and February 1992, M2 rose at an annual rate above 5 percent. Nominal GDP rose at a 6.2 percent rate in the first quarter of the year and real GDP at 2.9 percent.

But the Fed then became complacent again. Short-term rates were kept unchanged between January and June. The stock of M2 actually declined from February until July (when another discount rate cut caused a small increase in M2 between July and August).

Why did the Federal Reserve's Open Market Committee (the FOMC) not move more aggressively throughout the period? Why did it stop lowering interest rates even though that would have led to faster growth of M2 during long periods when M2 was frozen? There were, I believe, three different reasons.

### *2.1 Money in the Pipeline*

During much of 1991, many Fed officials believed that M2 was about to increase more rapidly without the need for further stimulus. They were convinced by the Fed staff's statistical studies that the previous reductions in interest rates would soon lead to faster M2 growth. When key Fed officials were pressed on why they were not doing something to increase the money supply, they replied that the additional money was already "in the pipeline" and would soon be visible. When they began to have doubts in September 1991, they cut the discount rate and the fed funds rate. And when in December they abandoned all hope of seeing the money that they had thought was in the pipeline, they cut the discount rate by a full percentage point.

### *2.2 Misleading Indicators*

A much more fundamental reason for the FOMC's reluctance to be more aggressive is that they judged the ease of monetary policy by looking at the federal funds rate and other short-term nominal interest rates. This was misleading in several ways.

First, short rates fell much more than longer-term rates. For example, between December 1990 and December 1991, the rate on 6-month commercial paper fell 300 basis points (from 7.49 percent to 4.49 percent) but the corresponding rate on high grade corporate bonds only fell

75 basis points (from 9.05 percent to 8.31 percent). The yield curve became quite steep even at relatively short maturities. A business borrower might be able to borrow short-term funds much more cheaply than a year before but his decisions would have to take into account the likelihood, implied by the yield curve, that rolling over those loans in the future would be possible only at substantially higher rates.

Second, although nominal rates were down, real rates were down substantially less. For example, the interest rate on fixed-rate mortgages with an expected maturity of about 7 years fell from 9.8 percent in December 1990 to 8.4 percent in June of 1992, a fall of 1.4 percentage points. It is, of course, difficult to judge how much expected inflation rates fell during this same period. In December 1990, the GDP deflator was 4.4 percentage points higher than it had been a year earlier. By June 1992, this had dropped to 2.7 percent, a decline of 1.7 percentage points. The decline in the rate of CPI inflation was even greater. But even if expected inflation had fallen by only 1.2 percentage points, the implied decline in the real interest rate during the 18 month period was only 0.2 percentage points rather than the 1.4 percentage point decline of the nominal rate. Moreover, since the yield on long-term bonds fell only 75 basis points, the implied real interest rate on such bonds may actually have risen. Moreover, even the real interest rate is often not the relevant measure. In general, it is appropriate to look at real *net-of-tax* interest rates. Because our tax system taxes nominal interest income and allows deductions for nominal interest costs, real net-of-tax interest rates may actually move in a different direction from real pretax interest rates. Consider for example a prospective home buyer with a marginal tax rate of 28 percent who reduced his expected inflation rate by 1.2 percentage points between



December 1990 and June 1992 from 4.5 percent to 3.3 percent. If taxes are ignored, the expected real interest rate declined from 5.3 percent to 5.1 percent.

But the real after-tax interest rate perceived by such an individual actually rose. The original 9.8 percent pretax interest rate corresponded to a net borrowing cost of 7.1 percent and therefore a real net cost of 2.6 percent. Eighteen months later, the 8.4 percent interest rates corresponded to an aftertax rate of 6.0 percent and a real after tax rate of 2.7 percent. Thus, in this case, the real net-of-tax rate actually rose despite the fall in the real pretax rate.

As this analysis shows, by focusing on short-term nominal interest rates the FOMC members could convince themselves that they were being very aggressive in easing money even though the relevant real after-tax cost of funds to borrowers changed very little and may actually have increased.

Interest rates were not the only misleading indicator of monetary policy. Some analysts both inside the Federal Reserve and outside placed substantial weight on the rapid growth of the narrow M1 monetary aggregate that consists of only currency and checkable deposits. In contrast to the lethargic movement of M2, M1 rose rapidly, increasing 8.0 percent between the end of 1990 and the end of 1991 and then rising at a rate of over 10 percent in 1992. Those analysts who focused on M1 concluded that monetary policy was very easy.

Experience has shown, however, that M1 has a much less stable relation to nominal GDP than M2. This has been particularly true since the introduction of interest-bearing checkable deposits. Deposits now move easily between M1 and the other parts of M2, making it difficult to establish a relation between M1 and nominal GDP. Although the Federal Reserve continues to publish M1 statistics, it no longer has a target range for M1.

The same problem exists with respect to the monetary base, a measure that includes only currency and bank reserves and that is therefore favored as an analytic tool by those who want a measure of monetary policy that is directly controlled by the Federal Reserve. The monetary base also grew very rapidly during this period, rising at a rate of more than 8 percent in 1990 and again in the first half of 1991. However, although the monetary base may seem conceptually useful as a truly exogenous instrument of monetary policy, it has a very unstable relation to GDP. Moreover, more than 80 percent of the increase in the monetary base during this period was due to the rise in currency, much of it held abroad. Thus the monetary base was another misleading indicator of the state of monetary policy.

A further misleading indicator of monetary ease was the decline of the dollar. The dollar, which stood at 1.73 marks and 138 yen in the spring of 1991, fell approximately 10 percent during the following year. Although a falling dollar can be evidence of an easy monetary policy, in 1991-92 it was driven by more fundamental factors, including the persistent and indeed rising U.S. merchandise trade deficit and the return of the U.S. current account to deficit after the brief period in which international payments for U.S. expenses in Desert Storm created a current account surplus.

### 2.3 *FOMC Attitudes*

Although I have emphasized relatively technical reasons why the FOMC members did not pursue a more aggressive monetary policy, these technical factors only reinforced the more basic attitudes of some of the members.

For some members, the desire to crush inflation quickly was dominant. Despite declines in both nominal and real GDP from 1988 to 1990, there had been no progress in lowering inflation. The GDP price indices showed inflation rates of over 4 percent, as high or higher than they had been at any time since 1983. These FOMC members were ready to accept the risk, indeed the likelihood, of a continued recession as the price to be paid for making progress in breaking inflation. The argument that a gradual recovery after the downturn in late 1990 would be compatible with falling inflation was not persuasive to those who wanted to reduce inflation with greater speed and certainty.

The other relatively common attitude among FOMC members that caused complacency about the failure to meet the Fed's targeted growth of M2 was a sense that the monetary aggregates as such are not important. These Fed members emphasize the short-run volatility of velocity. They regard the setting of M2 targets as something imposed on them by Congress rather than as a useful guide to monetary policy. Although, all other things equal, they would have preferred to be closer to the targeted M2 levels, they were not willing to drive interest rates down faster during 1991 and early 1992 in order to achieve that.

### 3. *The Fed's Lack of Direct Control of M2*

An important reason why the Fed did not achieve its M2 targets is that it does not have the ability to control M2 directly. The link between Federal Reserve policy and the M2 money stock has thus become very different from the standard textbook picture.

In the textbook world, banks must keep reserves in proportion to the stock of money. The Federal Reserve's open market purchases of Treasury bills increases bank reserves and thus automatically raises the money stock in proportion to the increase in reserves.

In reality, however, banks are now only required to hold reserves against a portion of checkable deposits. No reserves are required for about 80 percent of M2. Open market purchases of securities by the Fed automatically leads to a rise in M1 but does not necessarily lead to an increase in M2.

In practice, the banks have responded to increases in reserves by substituting low cost M1 funds (checkable deposits) for the more expensive M2 funds (certificates of deposit and money market deposit accounts).

Since the Fed does not have an automatic or precise way of changing M2, it must rely on a statistically estimated relation between the short-term federal funds rate (which it can control directly and precisely by open market operations) and subsequent movements of M2. On the basis of this relation, the Fed selected the level of the fed funds rate that it thought would produce its desired levels of M2 in 1991 and 1992. But when the equation turned out to be wrong, the Fed acted only slowly to reduce the fed funds rate further.

Reserve requirements, which are set by the Federal Reserve, used to be applied to most types of deposits. Since the Fed pays no interest on the funds that the banks deposit as required reserves, the reserve requirements act as a tax on bank deposits. This tax was particularly heavy in the 1970s and early 1980s when inflation caused short-term rates to be very high. This "reserve requirement tax" made it more difficult for banks to attract deposits after the creation

of money market mutual funds. Since the Fed is precluded by law from paying interest on deposits, it has chosen to reduce and eliminate reserve requirements.

If Congress had responded to the increase in the competitive environment of banks by permitting the Fed to pay interest on required reserves, the Fed would have been able to maintain reserve requirements on all types of bank deposits that are in M2 and would therefore be able to control M2 directly. (This proposal to reassert the Fed's control over M2 is discussed more fully in my June 10, 1991 *Wall Street Journal* article.)

Without that mechanical link between open market operations and M2, the Fed can reduce interest rates but it cannot control the stock of M2. That apparently put too much of a burden on the Fed in trying to judge just how low interest rates had to go to give the stimulus equivalent to the targeted increase in M2.

#### 4. *The New Bank Capital Requirements*

The ability of the Federal Reserve to influence the growth of M2 and bank credit has also been impaired by the new capital standards. The Basel Accord of 1988 provided that banks engaged in international finance should, by the end of 1992, have capital equal to 8 percent of a risk-weighted measure of total assets. For this purpose, business and personal loans other than mortgages are fully weighted, individual household mortgages are weighted by 50 percent and government bonds are not counted at all. These new bank capital requirements that are now being phased in have significantly reduced the ability and willingness of banks to raise funds and make loans.

The regulatory authorities in the United States decided to apply the risk-weighted capital standards to all U.S. banks, not just those engaged in international finance. They also imposed a separate capital requirement (the "leverage capital ratio") that applied to all bank assets without any risk weighting. (On the importance of the leverage ratio, see my March 6, 1992 *Wall Street Journal* article and the article by Richard Syron, President of the Federal Reserve Bank of Boston in its *1992 Annual Report*.)

Many banks did not have enough capital to meet these standards, especially those banks which had suffered losses on real estate and developing country loans. Tough supervisory standards required substantial write-downs of bank capital and a narrow definition of bank assets that ignored the value of the bank as an operating business further depressed the measured value of bank capital (a point explained in my February 21, 1991 *Wall Street Journal* article.) Raising additional capital by issuing new shares was often either impossible or very expensive. Banks with inadequate or barely adequate capital therefore chose instead to reduce their total risk-weighted assets. They did this in part by substituting low-weight securities (government bonds and home mortgages) for commercial loans and in part by reducing their total assets. Between December 1990 and July 1992, commercial banks added \$160 billion of government securities to their portfolios while reducing other loans and investments by \$20 billion.

Since the total assets of a bank are equal to its liabilities plus its equity capital, banks that reduced total assets had to reduce their liabilities (i.e., deposits and other borrowing) as well. To shrink their liabilities, banks cut the interest rates that they paid for different types of deposits relative to the yields available on money market funds, bond funds and other substitutes. Since these bank deposits are the components of M2, the need to shrink assets to conform to the

capital standards led banks to reduce M2. The leverage capital requirement was particularly powerful in this regard since banks could not meet the leverage capital standard by substituting government bonds for commercial loans; total assets and liabilities had to be reduced.

For those banks whose total assets are constrained by their available capital, open market operations obviously cannot lead to an increase in M2. But even banks that are not literally capital constrained are reluctant to make loans and investments that will bring them close to their capital limits. They want a reservoir of additional capital as protection against losses that might drive them to or below the required capital level. They want extra capital to meet uncertain loan demands from good customers. And they are now being encouraged by the regulators to accumulate even higher capital ratios by new rules that permit "well capitalized" institutions to undertake new lines of business, to make acquisitions and to pay less for their deposit insurance. It is not surprising that banks are reluctant to bid for funds with which to increase their assets and prefer to purchase government bonds than to make loans. Because they are focusing on improving their capital ratios, they are less likely to respond to open market operations by increasing their total assets and liabilities and more likely to use the additional reserves to shift to lower cost M1 deposits while leaving M2 unchanged.

There is no doubt that increased capital requirements improve the soundness of the banking system and reduce the risk to the government as provider of deposit insurance and lender of last resort. But the timing of the introduction of the Basel Accord capital standards and the addition of domestic leverage capital standards have been a barrier to the current economic recovery. These capital requirements do not make monetary policy impotent but they do make it less powerful than it would be if open market operations could cause a general expansion of

bank lending. (See my discussion of the role of capital requirements in creating a credit crunch in the February 6, 1991 *Wall Street Journal* where a specific change of discount window policy is discussed.)

### 5.1 *Concluding Thoughts*

The weakness of the American economy in 1991 and 1992 is a serious problem not only for the United States but also for other countries around the world that are linked to the United States through trade. The failure of monetary policy to stimulate the American economy is therefore a problem of interest to us all.

In this paper I have explored the reasons why the Federal Reserve did not pursue a more expansionary policy in 1991 and most of 1992. Because reserve requirements apply to only about one-fifth of M2, the Fed lacks a reliable way of predicting the effect of open market operations on the subsequent change in M2. The Fed has therefore emphasized the statistical relation between changes in the fed funds rate and subsequent changes in M2 and economic activity. During the past two years, however, the change in the fed funds rate have failed to have the effects on M2 and nominal GDP that previous experience had suggested.

The new bank capital standards may be the primary reason for the reduced sensitivity of M2, of commercial bank lending and of total nominal spending to changes in open market operations and interest rates. In this uncertain environment, the FOMC acted in an overly cautious way, in part because of their reliance on a variety of misleading indicators of the stance of monetary policy.



Avoiding future failures of U.S. monetary policy, both in stimulating expansion and in preventing inflation, requires more accurate indicators of the condition of monetary policy and alternative reserve requirement rules that permit tighter links between open market operations and subsequent movements of the broad monetary aggregate.