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MONETARIST CRITICISM AND THE CONDUCT OF  
FLEXIBLE MONETARY POLICY IN THE UNITED STATES

Lecture

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I. Introduction

The debate over the best way to conduct monetary policy in the United States has been in full flower for a generation. Yet, the controversy seems to produce as much heat today as it did a decade ago. The reasons why this is so are easily understood: the leading critics of monetary policy (who in varying degrees can be grouped under the banner of the monetarist school of thought) have attracted numerous supporters not only in the economics profession but also in the financial community as well as in some Government circles. Assigning considerable weight to the role of money in economic activity, the monetarists have become increasingly vocal participants in the argument over the best way to conduct national economic policy.

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I am grateful to several members of the Board's staff for assistance in the preparation of this paper. Mr. James L. Pierce was particularly helpful in tracing the differences in the monetarist and Keynesian approaches to monetary management. Assisted by Mr. Jared Enzler, he performed the computer-based simulations of the national economy to estimate the effects on GNP of a reduction in inflationary expectations. I was able to draw on work done by Mr. Peter M. Keir to assess the performance of the Federal Reserve in its conduct of a flexible monetary policy in the last two decades.

Having expressed my appreciation for the staff's assistance, I must also stress that the views expressed here are my own and should not be attributed to the Board's staff--nor to my colleagues on the Board.

The nature of the monetarist criticism of monetary management by the Federal Reserve is widely understood: monetarists generally argue that we know very little about the linkages between monetary variables and the real economy and that we are quite ignorant of the time lags between monetary actions and their impact on economic activity. Given these limitations, they assert that the best way to conduct economic stabilization policy is through relatively small variations in the rate of growth of the money stock. Their leader, Professor Milton Friedman, goes so far as to argue that attempts to conduct monetary policy on a contra-cyclical basis are likely to increase instability in the economy and produce distortions that are long-lasting. Consequently, he suggests that the Federal Reserve should aim for a steady and moderate rate of growth in the quantity of money.<sup>1/</sup> Monetarists downgrade the efficacy of fiscal policy as a stabilization device.

On the opposite side of the debate are the Keynesian and post-Keynesian economists. For the most part, they emphasize Government tax and spending policies as useful instruments of economic stabilization.<sup>2/</sup> While accepting the importance of monetary policy, these economists stress the role of interest rates as the proper focus for that policy. For most of the last twenty five years, the Keynesians have been

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<sup>1/</sup> See Milton Friedman and David Meiselman, "The Relative Stability of Monetary Velocity and the Investment Multiplier in the United States, 1897-1958," in Stabilization Policies, Commission on Money and Credit, Englewood Cliffs, 1963.

<sup>2/</sup> See Albert Ando and Franco Modigliani, "Econometric Analysis of Stabilization Policy," American Economic Review, Vol. 59, No. 2, May, 1968, pp. 296-314.

trend-setters in contemporary economic thought, and they have also occupied most of the economic advisory positions in Government. To a considerable extent, they have dominated thinking in the Federal Reserve for several decades.

In recent years, however, the monetarists have also had some influence on the way in which the Federal Reserve System conceives its role. Partly in response to monetarist criticism, the System has modified both its conception of the monetary process and the operating techniques used to implement its policy decisions. But for a variety of reasons, the System has stopped far short of focusing simply on the money stock as prescribed by the monetarists.<sup>3/</sup>

In my judgment, the Federal Reserve has displayed much wisdom in refusing to pursue the course advocated by the monetarists. To do so would mean that the nation would be denied whatever contribution that a more eclectic monetary policy can make toward achieving a better record of economic performance.

There are a number of reasons why I believe it is preferable for the Federal Reserve to maintain a flexible posture in the conduct of monetary policy rather than focusing on a single economic variable:

- The monetarists have not shown convincingly that the relationship between the money supply and economic activity is particularly close. Moreover, their perception of the monetary process in the United States offers little insight into the ways in which changes in money affect real output.

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<sup>3/</sup> In another paper, I have discussed these developments in considerable detail. See "The Political Economy of Money: Evolution and Impact of Monetarism in the Federal Reserve System," presented at the Eighty-fourth Annual Meeting of the American Economic Association, New Orleans, Louisiana, December 27, 1971.

--The monetarists take little or no account of the impact of unpredictable changes in the demand for money on the behavior of financial markets. Since such shifts obviously occur, the monetary authorities must attempt to cope with them--if the pace of real economic activity is not to be distorted.

--The monetarists ignore the information that interest rate movements can provide. They also refuse to recognize the possibility that the relationships between money, income, and prices also depend upon such factors as the degree of capacity utilization, the extent of unemployment, and the stance of fiscal policy.

These deficiencies (among others) in the monetarist approach to monetary management suggest to me that it would be unwise for the Federal Reserve to recast the conduct of monetary policy along the lines urged by Professor Milton Friedman and his followers.

Moreover, while the monetarists accuse the Federal Reserve of being a major source of economic instability, it appears that in recent years the System has greatly improved its ability to use monetary policy to help stabilize economic activity. The nature of this performance can be appraised fully on the basis of the statistical record.

The rest of these remarks is organized as follows: several analytical limitations of the monetarists' arguments are discussed in Section II. The varying performance of the Federal Reserve System in the conduct of a flexible monetary policy since the early 1950's is

assessed in Section III. Finally, in Section IV, I conclude with a statement of why I believe personally the Federal Reserve should continue to maintain a flexible posture rather than adopt a fixed rule for monetary management.

## II. Analytical Limitations of the Monetarist Arguments

As I mentioned above, the sharpest criticism of monetary management in the United States originates with those economists who classify themselves (or are classified by others) as monetarists. To a considerable extent, the monetarist criticism has been countered by economists who approach the issues from a Keynesian perspective. The general content of monetary theory espoused by the two schools is widely understood and need not be discussed here in any detail. However, several arguments advanced in the debate carry crucial implications for the conduct of monetary policy, and these should be explored carefully. These arguments concern (1) differences in the perception of the monetary process, (2) the stability and predictability of the demand for money, (3) the speed at which the economy responds to monetary actions, and (4) the role of expectations in the determination of output and prices. Each of these arguments is examined below. First, however, it might be helpful to sketch the main outlines of the general positions occupied by the monetarists and the Keynesians.

A. Monetarist vs. Keynesian Doctrine

While one can identify numerous differences in detail between the monetarist and Keynesian positions, several fairly uniform elements can also be traced. Expressed most simply, Keynesians argue that monetary policy influences the real sector of the economy through interest rates, among which a few strategic rates are of major importance. The process works as follows: the central bank changes the quantity of money, and interest rates respond in the opposite direction. This change in interest rates influences investment which in turn has an impact on consumption and other forms of spending. Strict Keynesians also argue that changes in the quantity of money are often offset by shifts in the demand for money (implicitly arguing that the demand for money is highly unstable). Furthermore, they argue that the demand for money is highly interest elastic so that a given change in the quantity of money produces small changes in the rate of interest.

On the other hand, the monetarists argue that the demand for money is highly stable and not very interest elastic. They also argue that there is no single rate of interest in the economy--but rather a large number of rates which have differing effects on aggregate demand. Thus, they hold that there is no single interest rate to follow or which should be a target for control, and any attempt to set a single interest rate will not have any predictable impact on aggregate demand. Monetarists also assert that the central bank cannot even set a single interest rate for very long because all interest rates are essentially



endogenous to the economy--that is, they depend on the behavior of the economy itself. The reason for this is that a change in the growth of the money stock influences not only short-term rates of interest but also the actual and expected rate of inflation. So in the monetarist view, attempts to reduce interest rates through expanding the money stock can be frustrated by a rise in prices which, in turn, lead to expectations of further increases in prices and to a rise in the nominal rate of interest. They argue that it is perfectly possible (and they believe quite likely) that increases in the quantity of money will lead to increases in the nominal rate of interests.

In recent years, economists of both the Keynesian and monetarist persuasions have developed their theories to the point that it is very difficult to tell them apart. Both groups of economists actually cast their arguments in terms of the same general equilibrium theory, but they come to their theoretical framework from different ends of the political spectrum. While divergencies in the political orientation of many of these different economists lead them to recommend different monetary policies from time to time, actually there is nothing in their theories which requires this. In fact, when the best expositions of the general monetarist theory are viewed apart from their specific policy prescriptions, it is virtually impossible to distinguish their theory from that presented by the Keynesians.<sup>4/</sup>

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<sup>4/</sup> For example, see Milton Friedman, "The Role of Monetary Policy," American Economic Review, Vol. LVIII, No. 1, March, 1968, pp. 1-17, and James Tobin, "A General Equilibrium Approach to Monetary Theory," Journal of Money, Credit, and Banking, February, 1969, pp. 15-29.

The reason for the similarity of theory is readily understood: nearly all economists are convinced that neo-classical general equilibrium theory holds in the long-run. For this reason, there really is no difference between modern monetarists and modern Keynesians with respect to the long-run implications of their theory. The main implications are: (1) Real output is determined by available capital and labor, and output growth is determined by growth in these two sectors along with technological progress. (2) In the long-run, the supply of labor is determined primarily by real wages in the economy; as a result there is little effective trade-off between employment and inflation in the long-run. Put another way, the labor market is cleared in the long-run, and there is a natural unemployment rate determined essentially by frictional factors. (3) Changes in the money stock produce proportionate changes in the price level in the long-run and have no permanent impact on the real sectors of the economy. (4) However, in the long run, an increase in the rate of growth of money can lead to an increase in interest rates because of the impact of the money stock on prices.

Given this similarity of theoretical approach, one might ask, why is the argument continuing to generate so much heat? It appears that the debate between the monetarists and the Keynesians hinges on the several central issues outlined above. We can now proceed to an assessment of those arguments.

B. Differences in the Perception of the Monetary Process

The significant differences in the way in which the monetarists and the Keynesians perceive the monetary process arise mainly from philosophical rather than from analytical considerations. There is nothing in the theoretical approaches per se that lead them to describe the monetary process as they do. Monetarists argue that the money stock influences the economy through changes in relative interest rates and in wealth. However, they argue further that the process is simply too complicated to specify in detail. They emphasize the point that changes in the money stock influence not only interest rates on financial instruments but also implicit rates of return on all commodities. Because there is no way to observe all of the relevant rates of return, they believe that any attempt to specify explicitly the mechanism by which the effects of changes in money are transmitted and translated into changes in income is doomed to failure.

While monetarists lament intellectually the inability to specify the monetary process, they argue on a practical level that it is not necessary to specify it at all. Instead, they assert that it is possible to relate the money stock directly to aggregate demand. They believe that a stable relationship between money and a number of key economic variables (such as GNP and prices) does exist. This analytical technique of proceeding directly from money to, say, GNP has been compared to a "black box" in which money is poured into one end and GNP flows out of the other. This rather uncomplimentary analogy

apparently does not trouble the monetarists very much. Rather, they believe that they can predict the impact of monetary policy on the economy more accurately using this technique than can be done with the elaborate models used by the Keynesians.

In contrast, the Keynesians believe that it is possible to specify the transmission mechanism for monetary policy. Working on this belief, in their research they insist upon using empirical models in which this mechanism is imbedded in a large number of simultaneous equations.<sup>5/</sup> Using these large-scale structural models, Keynesians have sought to identify and analyze the channels through which monetary variables, fiscal variables, interest rates, etc., affect economic behavior. In their view, one of the main weaknesses in the monetarists' approach is their failure to explore fully the structure and performance of financial markets and to examine the links between those markets and the markets for goods and services.

#### C. Stability of Demand for Money

Another basic issue dividing the monetarists and the Keynesians concerns the stability of the demand for money, on the one hand, and the stability of spending relationships, on the other. The reason that stability is at issue is that in a deterministic world

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<sup>5/</sup> For a good discussion of whether large-scale econometric models have an inherently Keynesian bias, see James L. Pierce, "Do Large-Scale Macro-Econometric Models Have a Keynesian Bias," paper presented at the Second World Congress of the Econometric Society, Cambridge, England, September, 1970.

(that is, a world without shocks or unexpected autonomous changes), it makes absolutely no difference, theoretically, whether one focuses on interest rates in Keynesian fashion or on the money stock in monetarist fashion. In such a world, the amount of money demanded at different interest rates is known. Hence any statement about the interest rate can be easily translated into a statement about the money stock--and conversely. Given the demand for money, it makes no difference whether one describes responses to monetary actions in terms of the interest rate (price) or the money stock (quantity).

As soon as one drops the assumption of a deterministic world, the question of the stability of the various demand relationships in the economy becomes central to the debate between the monetarists and the Keynesians.<sup>6/</sup> As observed above, many Keynesians assert that the demand for money is highly unstable. If this demand is both unstable and unpredictable, attempts to run monetary policy by setting the quantity of money would lead to instability and unpredictability of interest rates--and hence make the relationship between the money stock and aggregate demand a very loose one. In this sort of world, it would be preferable simply to set the interest rate and to accommodate the shifts in the demand for money. Monetarists willingly concede the intellectual issue that such instability in money demand would make the money stock an unappealing candidate for policy control. They argue, however, that this instability simply does not exist.

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<sup>6/</sup> For an interesting discussion of the issues involved see William Poole, "Optimal Choice of Monetary Policy Instruments in a Simple Stochastic Macro-Model," Quarterly Journal of Economics, May, 1970, pp. 197-216.

Instead, they point to a welter of empirical studies that purport to indicate that money demand is highly predictable.

Monetarists also argue that the basic source of economic instability lies in the economy's demand for real output. In this situation, attempts to conduct monetary policy through interest rates would lead to wide variations in aggregate demand. The reason can be seen readily: if there should be an unexpected increase in aggregate demand, the maintenance of an interest rate would essentially accommodate this demand and push the economy off of its desired path. If the money stock rather than interest rates were set by the central bank, the increase in aggregate demand would tend to bid up interest rates which, in turn, would retard the expansion in aggregate demand itself. Thus, the issue of the primacy of the money stock depends upon the stability of the demand for money relative to the stability of the relationships between income and consumer spending or between income and business investment.

In passing, it might be worthwhile to mention a related issue. Monetarists believe that focusing on the money stock provides a fail-safe system: in the long run, errors in setting the money stock will not affect real variables in the economy. On the other hand, an interest rate policy, they say, lacks this fail-safe quality. If the central bank picks an interest rate and it proves to be the wrong one, there will ensue changes in the money stock and in the price level which will force the economy even farther from its desired path. Thus, if the monetary authorities must pick a policy and if

they must stick with it for some overriding reason, it is better to stick with the money stock than it is to stick with interest rates.

D. Nature and Speed of Response to Monetary Action

The speed with which the real economy responds to monetary action is also a matter of considerable importance--as well as controversy. Monetarists appear to argue that the reactions expected in the long-run can also be expected to hold even in the short-run. Thus, they argue that changes in Government expenditures have only a transitory impact on GNP--with virtually all of the effects being exhausted in two or three calendar quarters. They also seem not to be greatly concerned over unemployment. Instead, they argue that attempts to eliminate unemployment through changes in the money stock will lead to changes in prices with little impact on the unemployment rate itself.

Monetarists also assert that the lags between changes in the money stock and changes in GNP are quite short. As evidence of this, they point to results reported by the Federal Reserve Bank of St. Louis which indicate that the total impact of changes in money on GNP are realized within a year. In addition, they seem to argue that the lags between money and prices are also quite short--although their own empirical results do not bear this out. An examination of the price equation estimated by the Federal Reserve Bank of St. Louis indicates that the lag between changes in money and the response of prices is quite long--in the neighborhood of 10 quarters. In fact, the lag is quite similar in length to the lag estimated by Keynesian economists.

Working with large-scale econometric models, Keynesians have also obtained evidence of much longer lags between changes in money and changes in GNP. These models indicate that the impact is spread over at least 8 calendar quarters, and several models indicate that the lag is very long indeed.

The Keynesians also obtain evidence of a trade-off between unemployment and inflation in the short-run. Thus, there are times when unemployment can be reduced by expansionary monetary and fiscal policies and, furthermore, at a very low cost in terms of accelerating the rate of inflation. The Keynesian approach also leads to the conclusion that the impact of monetary policy on the economy depends crucially upon the current status of the economy--i.e., upon factors such as the degree of capacity utilization and the extent of existing inflationary pressures. This, in turn, leads to the conclusion that there is no simple relationship between changes in the money stock and changes in the real economy. Thus, they assert that the monetarists have seriously underestimated the complexity of the economy by concentrating on a simple linear relationship between money and GNP.

#### E. Role of Price Expectations

It might be useful to end this section with a discussion of the role of price expectations. Again, there is little difference in theory between the monetarists and the Keynesians. Both groups assert that spending decisions in the economy are influenced by real interest rates and not by their nominal counterparts. Nominal interest rates are influenced by the expected rate of inflation. Thus, a rise



in the nominal rates that is caused by an acceleration in the expected rate of inflation will not retard spending because the real interest rate has been left unaffected.

Again, there are significant empirical differences that appear in the two approaches. To illustrate this point, with the assistance of several members of the Board's staff and using the large-scale econometric model available to us (the SSRC-MIT-PENN model),<sup>7/</sup> several simulation experiments were conducted in which the expected rate of inflation was reduced. The task was to estimate the differential effects on the economy of achieving a significant reduction in the rate of inflation. The issue studied provides an interesting example of how the structural equations specified by the Keynesians can be used to study an important problem. The "black box" approach used by the monetarists provides us with no insights into the same problem.

In the SSRC-MIT-PENN model, spending decisions are based, in large part, upon the behavior of the real rate of interest--i.e., the nominal rate less the expected rate of inflation. If the nominal rate of interest remains unchanged while inflation is expected to be reduced, the real rate of interest has risen. Other things equal, a rise in the real interest rate will retard spending since it is now more expensive in real terms to invest.

Whereas the nominal interest rate is an observed value, the value assigned to expected price changes has to be constructed. In the model used, the value of price expectations is constructed from a relatively long series of observed past changes in prices. In this

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<sup>7/</sup> The simulations were performed with a modified version of the Social Science Research Council-MIT-PENN quarterly econometric model.

specification, the changes in prices in periods in the immediate past have little effect on current price expectations; it takes an extended history of price changes before there is an appreciable alternation in price expectations. Therefore, it ordinarily takes a long time before a given change in prices (such as a sudden fall) is perceived as permanent--thus changing price expectations--which causes a change in the real interest rate--which in turn, causes spending to change.

In the simulation experiments, consideration was focused on the differential impact of two sharply varying changes in price expectation. In Case I, an abrupt fall in prices is only gradually perceived as permanent. In Case II, a reduction in inflation is immediately perceived as permanent. In carrying out the simulations, in Case I an adjustment is made to the model which causes the rate of change in prices to be reduced suddenly, but spending units adapt only gradually to the new circumstances. In Case II, the price anticipation terms are altered so that spending units immediately incorporate the changed inflation situation into their behavior.

To isolate the differences between the two situations, an initial simulation, Case I, was run by applying the GNP and related assumptions contained in the Council of Economic Advisers (CEA) Report for 1972. These projections incorporate a decline in the inflation rate of 1.0 percentage point attributed to the New Economic Policy. This yielded a Base Projection which could be taken as an indication of the course the economy might follow in the absence of major changes in price anticipations. The next step was to conduct the experiments for Case II. It was assumed that the anticipated rate of inflation was reduced by 1.0 percentage point, and the process of adjustment was traced over two years, beginning in the first quarter of 1972.

The differences in the two sets of results for key economic variables can be summarized here.

Case II less Case I

(\$ Billions)

	<u>\$ GNP</u>	<u>Real GNP</u>	<u>Unemployment</u>
1972 I	- 2.9	-2.3	.1
II	- 6.4	-4.8	.2
III	- 9.0	-6.4	.3
IV	-10.8	-7.2	.3
1973 I	-11.3	-7.0	.4
II	-10.9	-6.1	.3
III	- 9.8	-4.7	.3
IV	- 8.4	-3.2	.2

These results suggest that it does make a great deal of difference whether the public reacts slowly or rapidly to changes in the actual rate of inflation. Under circumstances where spending units do react quickly to a decline in the rate of inflation (Case II), the effect would be to depress nominal GNP by approximately \$11 billion more after four calendar quarters than would occur if the reaction takes place gradually (Case I). Over the same period, real GNP would be about \$7 billion lower, and the unemployment rate would be about .3 per cent higher under Case II than under Case I. As the adjustment proceeds over time, the gap between the two sets of results narrows steadily. The reason for this is related to the effects of reduced expectations of inflation in Case I. The actual inflation rate gradually has an impact on anticipated inflation--which,

in turn, tends to depress aggregate demand in that simulation. Eventually the anticipated inflation rate will equal the actual rate, and the two simulations will give the same results.

It was not possible to perform a comparable experiment with monetarist econometric models--for example, with the model developed by the Federal Reserve Bank of St. Louis. The structure of the economy represented by that model is not spelled out in structural equations. Instead, a set of reduced-form expressions is used which prevents the effects of price expectations from being separated out from other effects. The change in nominal GNP is determined by changes in the money stock coupled with a transitory effect of changes in Federal expenditures. The change in the price level is determined by a demand pressure variable (nominal GNP relative to full employment GNP) and by the anticipated rate of inflation--which, in turn, depends solely upon previous changes in prices. The expressions for changes in nominal GNP and changes in the price level imply an expression for changes in real GNP.

Given this set of expressions, there simply is no way to perform an experiment comparable to that conducted with the quarterly structural model. It would be possible to revise downward the expression for the actual change in the price level, but this would only yield a simulation comparable to the Case I simulation discussed above. With the St. Louis Bank's model, nominal output would remain unchanged and real output would rise in proportion to the constructed decline in prices. Once

this were done, however, there would be no role for the price anticipations variable because this variable only influences the actual change in prices which has already been modified. Thus, there is no simulation possible for Case II.

One might take the view that monetarists regard price anticipation effects as unimportant. Apparently, they believe that in most circumstances the structure of the economy does not change enough to upset the reduced-form description. If this is true, then a sudden reduction in inflation can lead only to a corresponding increase in real output leaving nominal output unchanged. More likely the monetarists do feel the structure is changed enough to upset the relationships implied by their equations. Presumably the implied rise in real interest rates would lower nominal GNP--given the money stock. However, we do not know the magnitudes of the effect because they have not specified the structure from which their reduced form stems.

From the foregoing discussion, I conclude that the analytical framework developed by the monetarists is not capable of yielding much insight into some of the most pressing issues faced by the monetary authorities. A number of inherent deficiencies (relating to matters such as the nature of the monetary process, time lags, the demand for money, and price expectations) must be remedied before central bankers can expect to find much guidance in the monetarist prescription for monetary management. While the Keynesians have not provided all the solutions to these important problems, they have supplied us with a structure which provides important insights into the workings of monetary policy. One important insight is that the world is too complicated to allow us the luxury of focusing only on the money stock in setting policy.

### III. Assessment of Federal Reserve Performance

To gain a summary impression of the performance of the Federal Reserve in its conduct of a flexible monetary policy, an analysis was made (with assistance from the Board's staff) of the behavior of interest rates, net reserves, and monetary and credit aggregates in the face of changing economic conditions in the last two decades. The analysis proceeded on the assumption that a flexible monetary policy would require the monetary managers to anticipate prospective changes in economic activity with sufficient lead time to allow changes in policy to counter emerging inflationary or deflationary tendencies. As evidence of excess aggregate demand began to materialize, the authorities would be expected to adopt a policy to restrict the growth of money and credit. The authorities would also be expected to anticipate the end of the expansion phase of the business cycle and to move in a timely fashion to offset tendencies toward recession.

For purpose of analysis, seven episodes were identified. Five of these centered on business cycle peaks, and two were points at which the economy was judged to have reached full employment. Using as reference the month in which the cyclical peak or full employment point occurred, six-month periods before and after the reference point were delineated. The monetary policy appropriate under the prevailing circumstances was indicated. Changes in interest rates, net reserves,

and monetary and credit aggregates were then calculated. Finally, the actual changes in the monetary variables were compared with the objectives required by a flexible, contra-cyclical monetary policy.

The details of the analysis are shown in the Appendix Table (attached). The general conclusions can be summarized briefly:

1. July, 1953: Cyclical Peak

Most of the indicators suggest strongly that the performance of monetary policy fell short of what was required in the context of a developing recession. The discount rate was not reduced during the first six months following the peak in economic activity. While both short- and long-term interest rates dropped appreciably after the peak, this was mainly a reflection of reduced credit demands. Each of the monetary and credit aggregates ( $M_1$ ,  $M_2$ , and bank credit) increased less in the six months after the cyclical peak than in the like period prior to the downturn. (The very rapid rate of growth in free reserves prior to the cyclical peak reflected in part a large drop in the level of member bank borrowing coincident with the subsequent expiration of the Korean War excess profits tax.)

2. June, 1955: Period of Excess Demand

Given the principal national goal of curbing excess aggregate demand, the record of monetary policy was reasonably good. The Federal Reserve discount rate was advanced by 1/4 percentage point as the economy approached full employment and by 3/4 percentage point in the six months after aggregate demand had begun to press against capacity. On balance, market interest rates climbed higher both before and after June, 1955. An especially sharp spurt in short-term rates occurred over the half year following that date. The level of free reserves shrank significantly. Bank credit,  $M_1$  and  $M_2$  increased after June at rates below those registered in the preceding half year.

3. July, 1957: Upper Turning Point

At this juncture, when the mainsprings of economic expansion were weakening progressively, the performance of monetary policy was probably the worst in the period under review. Nearly all of the indicators of monetary policy behaved oppositely--or responded sluggishly--to what was required. The discount rate was raised after the turning point--although it was reduced subsequently. Free reserves expanded substantially in the six months following the downturn--which gave the impression to some that monetary policy had shifted from a posture of restraint to considerable ease. While interest rates declined, the drop in yields on long-term U.S. Government securities was not much greater than the rise which had occurred in the preceding half year. The narrow money stock ( $M_1$ ) actually contracted at a sizable rate in the period following the cyclical peak--after registering no increase in the six months before. Bank credit and  $M_2$  also expanded at slower rates after the crest in economic activity had passed.

4. May, 1960: Upper Turning Point

The monetary authorities were fairly successful in pursuit of a flexible policy designed to cushion the impact of the emerging recession. The discount rate was reduced twice (by a total of 1.0 percentage point) in the six months following the cyclical peak. Free reserves expanded substantially both before and after the turn. Interest rates declined throughout the period. The two measures of the money stock ( $M_1$  and  $M_2$ ) had recorded declines prior to the turning point, and the subsequent swing to net expansion was noticeable. Bank credit had grown only moderately in the six months leading up to the peak, but a large rise occurred in the following period.

5. January, 1966: Period of Excess Demand

The task in this episode was to use monetary policy to dampen excess demand pressures generated in substantial part by the military buildup associated with the Vietnam War. Although the Federal Reserve waited too long in moving to restraint in the face of this buildup, once the move had been initiated, the performance was quite good. The discount rate was increased by 1/2 percentage point in December, 1965--over the opposition of the



Administration. Net free reserves declined appreciably in the January-July months of 1966. Long-term interest rates rose throughout the period--although some short-term yields dropped slightly from January to July--following a sharp increase in the last half of the preceding year. All of the monetary and credit aggregates expanded at a greatly reduced pace in the six months after January, 1966, compared with that recorded six months earlier.

6. January, 1967: Informal Cyclical Peak

The record of monetary policy during this episode was particularly encouraging. As signals of slackening economic activity began to appear, the Federal Reserve shifted promptly and substantially toward ease. The strong response of the financial system was probably traceable in part to the severity of the monetary restraint imposed in the preceding year. In early 1967, the discount rate was reduced by 1/2 percentage point. Net free reserves were expanded both before and after the turning point. Short-term interest rates decreased substantially after January, but long-term yields rose following an earlier drop. All of the monetary and credit aggregates ( $M_1$ ,  $M_2$ , and bank credit) rose much more rapidly in the half year following January, 1967, than they did in the preceding period. In fact, all of them expanded at historically high rates. Some observers may feel that monetary policy became too easy in early 1967--given the mildness and short duration of the recession. This criticism does not appear to be justified, although it is true that monetary ease was carried too far into the year--resulting in sizable increases in the monetary aggregates ( $M_1$ , 6.7 per cent, and  $M_2$ , 10 per cent) for the year as a whole. Whatever weight one might want to assign to this reservation about the responsiveness of monetary policy at the lower turning point of the cycle, the timeliness and speed of reaction to the earlier recession cannot be overlooked and undoubtedly helped account for the relative mildness of that downturn.

7. November, 1969: Upper Turning Point

Here also the performance of the Federal Reserve was fairly good--although in retrospect it could be argued that restraint was pursued a bit too far in 1969 and the liquidity of the economy was not rebuilt rapidly enough in the early stage of the recession. As excess demand faded, monetary policy shifted from considerable restraint to a posture designed to foster lower interest rates and greater availability of money and credit. Although the discount rate was not reduced, net free reserves increased both before and after the cyclical peak. Short-term yields declined appreciably, but long-term interest rates--again reflecting the strain on liquidity--continued to rise following the beginning of the downturn. The major drop in long-term rates did not begin until the summer of 1970. Expansion in the monetary and credit aggregates quickened significantly in the six months following the cyclical peak. Yet, the growth rates remained relatively moderate--perhaps below normal for  $M_2$  and bank credit.

On the basis of this survey, several conclusions stand out: judged on the basis of timeliness in modifying the posture of monetary policy, the Federal Reserve performed best during the two most recent periods of inflation (following June, 1955, and January, 1966) and during the two most recent periods of recession (following January, 1967, and November, 1969). In the early stages of the 1960 recession, the performance was also fair. However, in earlier episodes, monetary management by the Federal Reserve was not so good. In the case of the 1967 recession, the magnitude of the shift to monetary ease was somewhat in excess of what was required, and policy remained easy longer than was appropriate.

Furthermore, while the rate of expansion in the monetary aggregates ( $M_1$  and  $M_2$ ) slowed in the closing months of 1967 and in early 1968, a sharp acceleration occurred subsequently. The results were two consecutive years of relatively rapid monetary growth. The record of these two years is frequently cited by critics of the Federal Reserve as illustrations of the alleged dangers inherent in the pursuit of a flexible monetary policy.

IV. Concluding Observations: Need to Maintain Flexibility in Monetary Management

I want to conclude these remarks with a summary of the principal reasons why I believe the Federal Reserve System should maintain a posture of flexibility in monetary management rather than confine its actions to small changes in the growth rate of the money stock.

In the first place, adoption of such a policy strategy would force the Federal Reserve to ignore the behavior of all other factors affecting credit markets. In my judgment, the Federal Reserve has a number of responsibilities beyond concern for the money supply which must be met. It must encourage credit conditions appropriate for the economy as a whole, and it also has responsibilities for Treasury finance, the viability of financial institutions, and conditions influencing international capital flows. These considerations suggest that the central bank cannot ignore interest rate and credit developments. Indeed, at times such developments will impose severe constraints on the ability of the monetary authorities to follow a strict course with respect to monetary growth.

Moreover, it seems self-evident that the central bank should be capable of providing more assistance in the attainment of national economic objectives than is implied by the neutralist policy of an unchanging monetary stance. In contra-cyclical terms, particularly, monetary policy should be prepared to give more support to the economy in recession and less in boom. Furthermore, the Federal Reserve should be able to anticipate these developments with sufficient accuracy to alter policy in advance of the needs of the economy. The evidence presented here indicates that the System's ability to do this has improved over the years. There will also be circumstances under which national priorities with respect to the allocation of credit might well require the monetary authorities to depart for a time for what they would consider to be the appropriate rate of overall monetary growth. While neither the monetarists nor the Keynesians understand the monetary process well enough, the behavior of interest rates and credit conditions do provide information which the Federal Reserve should not throw out in slavish pursuit of a policy with respect to  $M_1$ .

Use of the money stock as the sole target of policy assumes that there is a fairly constant relationship between monetary growth and its influence on economic activity. This may be generally correct in the long-run, but it cannot be true in the short-run. The public's demand for liquidity obviously shifts from time to time, depending on the confidence with which they view the future, changes in inflationary expectations, and similar influences. If the

Federal Reserve does not provide the additional liquidity associated with an upward shift in preferences (or absorb the liquidity released by downward shifts), a constant rate of growth in money is likely to result in variable rates of growth in the real economy. In other words, a constant rate of growth in money--if precautionary demands for liquidity are shifting--would be a source of economic instability. Furthermore, the relationships between spending, interest rates, and money shift significantly--depending upon the state of the economy.

A money stock target requires that the monetary variable, or the weighted combination of variables, to be controlled be specified in advance. The monetarists do not always specify which variable is to be controlled by the central bank. However, they have sometimes focused on  $M_1$  and sometimes on  $M_2$ . Yet,  $M_3$  would be an equally good candidate, since depositors in thrift institutions surely regard these deposits as the equivalent of bank time deposits in all respects. And  $M_4$  (total liquid assets) would also be a likely candidate, since only by including CD's and other money market instruments does one incorporate a measure of corporate liquidity. Of course, all of these quantities do not move up and down at anything like the same rates in the short-run, so it is not enough to use one measure of the money stock as a proxy for all of the others. Nor is expansion in all of the different measures closely related to the provision of bank reserves.

The relationships between rates of change in the various measures--and between these definitions of money and economic activity--are clearly subject to a number of influences, including structural, competitive and technological change. Thus, the emergence of the savings and loan associations in the post-World War II years clearly impinged on the growth of bank time deposits. Similarly, the increasing sophistication with which money is managed (partly a function of the upward trend in interest rates) has served to reduce idle non-interest bearing cash balances ( $M_1$ ) relative to total liquid assets ( $M_4$ ). Technological improvements (such as jet aircraft and bank automation) must have reduced the float of checks in transit on which depositors formerly counted,<sup>8/</sup> and future advances (such as wire transfer) clearly will reduce such float dramatically further. All of this makes it extremely difficult to measure the real impact of monetary policy over time. It also strongly suggests that targeted growth rates in money--however defined--need to be modified in order to produce an unchanged secular stimulus to economic activity. This need appears to be most pronounced in the case of  $M_1$ , since cash balances are most subject to technological obsolescence.

For these reasons, I believe it is preferable that the Federal Reserve continue to exercise discretion and judgment in monetary management and not be misled by those who advocate the pursuit of a few simple strategies for monetary policy.

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<sup>8/</sup> In Federal Reserve statistics, money is measured in terms of balances on the bank's books--not in customer records.

Appendix Table: Behavior of Interest Rates and Monetary Aggregates  
Before and After Cyclical Peaks and Full Employment Points Since Mid-1950's

<u>Objectives and Indicators of Monetary Policy</u>	<u>Change from 6 months before</u>	<u>Reference Point</u>	<u>Change to 6 months after</u>
1. <u>Economic Situation</u>		<u>Cyclical Peak</u> <sup>1/</sup>	
<u>Date</u>	(January, 1953)	July, 1953	(January, 1954)
<u>Federal Reserve Policy</u>			
Desirable Objective <sup>2/</sup>	Restraint		Expansion
Policy Results <sup>3/</sup>	Adequate		Inadequate
<u>Money Market Conditions</u>		<u>Level During Month</u>	
<u>Interest Rates</u> (per cent)			
F.R. Discount Rate	--	2.00	--
3 month Treasury Bill	+.08	2.04	-.86
U.S. Gov't. (Long-term)	+.24	3.04	-.35
Corp. Aaa (New Issue)	+.42	3.58	-.45
<u>Free Reserves</u> (\$ millions)	+1,006	366	+469

## Appendix Table (continued)

<u>Objectives and Indicators of Monetary Policy</u>	<u>Change from 6 months before</u>	<u>Reference Point</u>	<u>Change to 6 months after</u>
<u>Money and Credit Aggregates</u>			
(Annual Rates of Change: Per cent)			
M <sub>1</sub> <sup>4/</sup>	2.0		0.6
M <sub>2</sub> <sup>5/</sup>	3.3		2.7
Bank Credit <sup>6/</sup>	6.0		0.4
2. <u>Economic Situation</u>		<u>Full Employment Point</u> <sup>7/</sup>	
<u>Date</u>	(December, 1954)	June, 1955	(December, 1955)
<u>Federal Reserve Policy</u>			
Desirable Objective	Restraint		Restraint
Policy Results	Adequate		Adequate
<u>Money Market Conditions</u>		<u>Level During Month</u>	
<u>Interest Rates (Per cent)</u>			
F.R. Discount Rate	+ .25	1.75	+ .75
3 month Treasury Bill	+ .27	1.41	+1.13
U.S. Gov't. (Long-term)	+ .23	2.82	+ .09
Corp. Aaa (New Issue)	+ .21	3.13	+ .11
<u>Free Reserves</u> (\$ millions)	-290	168	- 413
<u>Money and Credit Aggregates</u>			
(Annual Rates of Change: Per cent)			
M <sub>1</sub>	3.2		1.2
M <sub>2</sub>	3.3		1.7
Bank Credit	3.3		2.6



## Appendix Table (continued)

<u>Objectives and Indicators of Monetary Policy</u>	<u>Change from 6 months before</u>	<u>Reference Point</u>	<u>Change to 6 months after</u>
3. <u>Economic Situation</u>		<u>Cyclical Peak</u>	
<u>Date</u>	(January, 1957)	July, 1957	(January, 1958)
<u>Federal Reserve Policy</u>			
Desirable Objective	Restraint		Expansion
Policy Results	Adequate		Inadequate
<u>Money Market Conditions</u>		<u>Level During Month</u>	
<u>Interest Rates (per cent)</u>			
F.R. Discount Rate	--	3.00 <u>8/</u>	--
3 month Treasury Bill	+.05		-.72
U.S. Gov't. (Long-term)	+.26	3.60	-.36
Corp. Aaa (New Issue)	+.31	4.62	-.97
<u>Free Reserves (\$ millions)</u>	-500	-383	+505
<u>Money and Credit Aggregates</u>			
(Annual Rates of Change: Per cent)			
M1	0.1		-2.2
M2	3.0		0.8
Bank Credit	3.8		1.9
4. <u>Economic Situation</u>		<u>Cyclical Peak</u>	
<u>Date</u>	(November, 1959)	May, 1960	(November, 1960)
<u>Federal Reserve Policy</u>			
Desirable Objective	Restraint		Expansion
Policy Results	Adequate		Barely Adequate
<u>Money Market Conditions</u>		<u>Level During Month</u>	
<u>Interest Rates (per cent)</u>			
F.R. Discount Rate	--	4.00	-1.00
3 month Treasury Bill	-.86	3.29	-.92
U.S. Gov't. (Long-term)	-.35	4.74	.11
Corp. Aaa (New Issue)	-.35	4.74	.11

## Appendix Table (continued)

<u>Objectives and Indicators of Monetary Policy</u>	<u>Change from 6 months before</u>	<u>Reference Point</u>	<u>Change to 6 months after</u>
<u>Free Reserves</u> (\$ millions)	+400	-33	+647
<u>Money and Credit Aggregates</u> (Annual Rates of Change: Per cent)			
M <sub>1</sub>	-3.2		0.9
M <sub>2</sub>	-2.1		5.1
Bank Credit	1.7		6.4
5. <u>Economic Situation</u>		<u>Full Employment Point</u>	
<u>Date</u>	(July, 1965)	January, 1966	(July, 1966)
<u>Federal Reserve Policy</u>			
Desirable Objective	Restraint		Restraint
Policy Results	Barely Adequate		Quite Adequate
<u>Money Market Conditions</u>			
		<u>Level During Month</u>	
<u>Interest Rates</u> (per cent)			
F.R. Discount Rate	+50	4.50	--
3 month Treasury Bill	+75	4.59	-.09
U.S. Gov't. (Long-term)	+31	4.52	+.32
Corp. Aaa (New Issue)	+19	4.81	+.67
<u>Free Reserves</u> (\$ millions)	+130	-44	-318
<u>Money and Credit Aggregates</u> (Annual Rates of Change: Per cent)			
M <sub>1</sub>	6.7		2.1
M <sub>2</sub>	10.1		5.6
Bank Credit	9.9		6.9

## Appendix Table (continued)

<u>Objectives and Indicators of Monetary Policy</u>	<u>Change from 6 months before</u>	<u>Reference Point</u>	<u>Change from 6 months after</u>
6. <u>Economic Situation</u>		<u>Cyclical Peak</u> 9/	
<u>Date</u>	(July, 1966)	January, 1967	(July, 1967)
<u>Federal Reserve Policy</u>			
Desirable Objective	Restraint		Expansion
Policy Results	Adequate		Especially Adequate
<u>Money Market Conditions</u>		<u>Level During Month</u>	
<u>Interest Rates</u> (Per cent)			
F.R. Discount Rate	--	4.50	-.50
3 month Treasury Bill	-.08	4.72	-.51
U.S. Gov't. (Long-term)	-.34	4.50	+.51
Corp. Aaa (New Issue)	-.05	5.43	+.35
<u>Free Reserves</u> (\$ millions)	346	-16	288
<u>Money and Credit Aggregates</u>			
(Annual Rates of Change: Per cent)			
M <sub>1</sub>	0.5		8.5
M <sub>2</sub>	4.3		12.0
Bank Credit	4.4		11.0
7. <u>Economic Situation</u>		<u>Cyclical Peak</u>	
<u>Date</u>	(May, 1969)	November, 1969	(May, 1970)
<u>Federal Reserve Policy</u>			
Desirable Objective	Restraint		Expansion
Policy Results	Adequate		Adequate
<u>Money Market Conditions</u>		<u>Level During Month</u>	

## Appendix Table (continued)

<u>Objectives and Indicators of Monetary Policy</u>	<u>Change from 6 months before</u>	<u>Reference Point</u>	<u>Change from 6 months after</u>
<u>Interest Rates (Per cent)</u>			
F.R. Discount Rate	--	6.00	--
3 month Treasury Bill	+1.21	7.24	-.40
U.S. Gov't. (Long-term)	+ .63	6.74	+.50
Corp. Aaa (New Issue)	1.10	8.32	+.78
<u>Free Reserves (\$ millions)</u>	+114	-988	+223
<u>Money and Credit Aggregates</u> (Annual Rates of Change: Per cent)			
M <sub>1</sub>	2.1		5.4
M <sub>2</sub>	0.4		5.0
Bank Credit	2.9		4.3

1/ Cyclical turning points identified by the National Bureau of Economic Research.

2/ Objectives required by a flexible, contra-cyclical monetary policy.

3/ Assessment of results is based on actual behavior of interest rates, reserves, and monetary aggregates during period indicated.

4/ Consists of currency plus demand deposits.

5/ Consists of M<sub>1</sub> plus time deposits at commercial banks other than certificates of deposit in excess of \$100,000.

6/ Loans and investments at commercial banks (end of month series).

7/ Point at which excess aggregate demand threatened generalized inflation. Periods (arbitrarily chosen) and related unemployment rates were: May, 1951, 3 per cent; June, 1955, 4 per cent; January, 1966, 4 per cent.

8/ The Federal Reserve Discount rate was raised to 3-1/2 per cent in August, 1957, and subsequently reduced to 3 per cent in mid-November of the same year.

9/ Cyclical peak used by the U.S. Bureau of the Census in establishing the turning point for the 1966-67 mini-recession.