Predicting the Effects Of Monetary Policy

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Predicting the Effects Of Monetary Policy

Despite the long history of the dispute, choices do not have to be made between rules and discretion but between rules that are less rather than more complicated, and more rather than less open to scrutiny and evaluation. Steady increases in the quantity of money will produce more desirable economic consequences than will variable increases, and changes in the stock of money are more reliable indicators of monetary policy than are changes in interest rates. Indeed, major errors in monetary policy stem from using interest rates as an indicator of monetary policy.

During most periods of economic expansion in this century, the stock of money, currency and demand deposits, and its growth rate have generally risen; in periods of recession or depression, the growth rate of money and, at times, the stock of money have fallen. These facts are puzzling and difficult to reconcile with repeated statements about the usefulness of monetary policy as a tool of countercyclical policy. If the stock of money grows more rapidly during periods of expansion and less rapidly during periods of contraction or recession, doesn’t monetary policy reinforce—rather than offset—fluctuations in output? How can we explain this apparent (or is it a real) contradiction between policy statements and policy actions?

Recent experience makes clear that the problem does not arise because of some peculiar events in the distant past. In 1967, with the budget in deficit, with output expanding, prices rising and with inflation expected to continue, the stock of money is growing at one of the highest rates in our history. In early 1966, under similar circumstances, monetary policy was highly expansive. It is no accident, of course, that inflation not only threatens but occurs when the growth rate of the stock of money is maintained at a high rate. The problem is to explain the inconsistency between policy statements and policy actions and to explain why monetary policy is currently feeding the inflation.

The explanation is in three parts and can be stated easily.

- First, there appears to be a general belief that monetary policy has nothing—or next to nothing—to do with the stock of money. Monetary policy is made responsible for changes in free reserves, in total reserves, in credit, in housing, in mortgage lending, in municipal lending, in the quality of credit, in short-rates, in long-rates—but hardly ever made responsible for the stock of money.

- Second, inflation is said to be the result of cost-push of pressure groups and especially union pressure groups, of speculators, of high interest rates, of government deficits, of the failure of Congress to vote for tax increases, of anything—well, almost anything—except increases in the quantity of money and/or its growth rate.

- Third, economists apparently have great confidence in the quality of their forecasts, in their ability to read and interpret many, all, or each of the variables mentioned above that are used as indicators of the direction of monetary policy, and in their ability to reverse direction and to counteract in the future the errors that they make in the present while at the same time offsetting the effects of changes in levels, in rates of change and in rates of acceleration or deceleration of public-policy variables.

Two Heresies

Economists in and out of government or the Federal Reserve frequently write and talk as if they do not believe that the stock of money is a legitimate concern of monetary policy or that inflation is a consequence of a high, maintained rate of monetary expansion. They discuss and carry out changes in policy as if the size and frequency of changes in the rate of change of policy variables had no effect, as if lags were inconsequential or as if the length of relevant lags was unaffected by changes in the rate of change of policy variables. Of course, when confronted with statements such as the ones I have just made, they
will say: "Of course, there are lags, and of course they are variable. Surely no one claims that the Federal Reserve should not look at the growth rate of money. The Federal Reserve must consider everything before deciding on the appropriate direction of monetary policy. To say otherwise is to set up a straw man." To forestall such criticism, I want to report the result of a small sample.

As a monetary economist, I am exposed regularly to speeches and papers on the principles by which monetary policy should be conducted. I want to spend a few minutes presenting and criticizing two ideas that appear with deplorable regularity in these papers as a prelude to some comments on the consequences or implications of the procedures used to conduct monetary policy.

It has become customary—in some circles it appears to be mandatory—for speakers on monetary policy to make disparaging references to rules or institutional rearrangements designed to provide a more steady rate of monetary growth. Isn’t it obvious, we are asked, that monetary rules cannot expect to achieve as much stability in output prices and employment as decisions reflecting the judgment of experts? Once the rules approach has been demolished, to the speaker’s satisfaction, the audience must be purged of a second possible heresy—the belief that monetary policy should attempt to control the stock of money. Whatever monetary policy is capable of doing—it is now given far too many specialized tasks—it seems clear from reading or listening to these papers that monetary policy either cannot or should not be used to control the stock of money.

Most of the arguments against rules and in favor of discretion take for granted that we know a great deal about the timing, magnitude and direction of changes in real variables resulting from changes in monetary policy. In the following sections, I discuss the principal arguments against the use of monetary rules, pointing out that the arguments generally fail to make explicit the alternatives to a monetary rule or to make clear the amount of knowledge that is required to improve the conduct of monetary policy. Then, I consider some of the main arguments against the use of the quantity of money as an indicator of monetary policy pointing out that these arguments are incomplete, often for similar reasons.

**More Variability vs Less**

To bring the discussion into focus, let me state two propositions. First, despite the long history of the dispute, there is no reason to choose between rules and discretion. As long as we have some knowledge about the way in which policy works, the choice will be between different rules. Each advocate of discretion generally has in mind a set of policies that he would like to follow. I give all such people the benefit of the doubt and accuse them of being rational—in the limited sense in which that word is used by economists. I expect their policy decisions to be consistent so that if a particular change in the direction of policy is called for under one set of circumstances, the same change in the direction of policy will be called for if the same or roughly similar circumstances reoccur.

In short, choices do not have to be made between rules and discretion but between rules that are more rather than less complicated, more rather than less difficult to administer, more rather than less open to scrutiny and evaluation. Policy choices depend upon theories that may not be clearly articulated, but which serve, nevertheless, as the basis for policy decisions. This point, once stated, is too well known to require elaboration. Although no one openly advocates that policies be selected haphazardly, the precise guidelines for policy that are offered as an alternative to specific rules are rarely made clear. Let me turn to the second proposition.

Different rules or procedures for making monetary policy produce different rates of variation in monetary policy. The less clearly stated the theory the more apparent room for variation in policy. This is because the consequences of policy changes that are more distant in time are compared to the expected gain from current changes in policy. The benefits of frequent policy changes have been described often, the costs much less often. I plan to discuss the costs first, using an example to illustrate my point. Then, I will discuss the benefits of a variable monetary policy. My point, of course, is that the benefits of changing policy frequently and by large amounts are more apparent than real.

Suppose that we agree that in a growing economy such as ours it is appropriate to increase the quantity of money over time. To be explicit, suppose we decide to double the quantity of money during the next twenty years. Consider the effects of two possible ways of bringing about the change in money. One policy calls for doubling the quantity of money immediately, leaving it unchanged thereafter. The second policy requires the stock of money to grow at a constant daily or weekly rate for the entire period.

What differences do we expect if we are able to observe the adjustments under the two policies? Under the first, there is an initial, sharp rise in prices
but since some contracts are fixed, all prices do not rise. Those under contract to deliver goods and services at a fixed price lose; their wealth is redistributed to those who have contracts to receive goods and services at the old prices. If the doubling of the stock of money was unanticipated, expectations must be changed suddenly, and the community bears the cost of adjusting to the new conditions. These costs fall most heavily on those who are creditors—those who contracted to receive payments at the prices prevailing before the quantity of money doubled. The sharp changes in relative prices and the losses imposed on some members of the community causes some firms to fail and produces a temporary decline in output.

Eventually, new expectations are formed. In time, the community learns that one consequence of maintaining a zero rate of change of money in a growing economy is that prices fall. New contracts are signed, reflecting the expected decline in prices. Output rises and the growth of output is resumed. At the start this policy appears to be very variable. Its initial effect is a fall in output and a rise in prices. Eventually price and price expectations are adjusted.

How different things are in an economy with a steady rate of growth of money. If prices change, they change very slowly, so that adjustments are gradual and the costs of revising expectations are reduced. No changes in output are caused by the very large rise and subsequent fall in the growth rate of money, since the large changes in the rate of monetary expansion do not occur. Changes in output will arise for other reasons. But the large cyclical changes in output caused by the alternative policies just discussed are no longer a problem.

Eventually, the two policies produce very similar results. At the end of 20 years the price level, growth rate of output, quantity of real money balances, etc. will be much the same in the two economies. The important difference will be in the transition, not in the final results.

You may be tempted to say that my hypothetical example is prejudicial to the variable monetary policy. My example is designed to bring out the costs, not to close the argument. Let us look at the alleged benefits of a variable policy to see if they more than outweigh the costs of adjusting assets, revising expectations and contracts, etc. I believe it will become clear that the usual argument for a variable policy overstates the benefits of variation just as I have overstated the costs by overstating the range of variation.

Gap Between Theory and Practice

The benefits of a variable policy are said to arise because the central bank offsets changes in interest rates by changing the supply of money. Let the change in the demand for money be a consequence of a change in technology that raises the expected growth rate of output in the economy and the expected return to real capital. Since capital is more productive, other things unchanged, the price level will rise less or fall more than it would have before the new technology was introduced. Changing the quantity of money now avoids the revision of expectations and the adjustments required to learn about and adapt to the new rate of change of prices.

This argument for a variable rate of change of money is repeated in numerous contexts. If the yield on real capital falls, whatever the reason, then the monetary authority should reduce the market rate of interest by increasing the quantity of money; if the yield on real capital rises, so that investment and consumption are expected to exceed output at the current price level, then the monetary authority should reduce the quantity of money or its growth rate to prevent inflation. These standard arguments do not require elaboration.

Difficulties begin to arise when we ask questions about the means of applying the strategy. How do we find out what the yield on real capital is? How do we estimate the amount of new money to supply so our policy is stabilizing rather than destabilizing? How long does it take—not on the average but in the particular case—before the policy operations of today offset the changes that have produced recession or inflation? What do we look at to decide whether our current policy is too expansive or too contractive?

There is an enormous gap between theory and practice. In discussions of theory, it is easy to get many economists to agree on the general proposition that the best thing for the central bank to do is to set the market rate of interest equal to the real rate of interest adjusted for the expected rate of change of prices. But how does one get a rationale from that guide to policy for the actions in which the Federal Reserve specializes—jiggling free reserves and interest rates in one corner of the money market.

Perhaps there is a point to these efforts. For the moment, let us suppose that there is. How does one get from successful operations in the money market to success in stabilizing the economy. Since we do not observe real rates of return or the expected rate of change of prices, we need some measures to take their place. Since we do not expect today's policy
operations to affect output and prices immediately, we need some measure of the effect of policy changes; we have to know how long it takes for current policy changes to achieve whatever it is that they are designed to achieve. In the current jargon, we need estimates of the lags. But the lags are not constant and unchanging. The size and variability of policy changes affects the length of the lag. As my previous example suggests, the response to large changes is faster than the response to small changes. We become aware more quickly of the fact that prices have changed if they double overnight and remain unchanged for the next twenty years than if they rise at a steady rate.

We have recently been looking at the evidence on the effect of variations in the stock of money using data for a number of different countries with very different rates of monetary change and very different rates of inflation. Although our study is at an early stage, one result seems clear from the short-term data that we have examined. Countries that have a large amount of variation in the growth rate of the stock of money have a large amount of variation in the growth rate of output. The smaller the variation in the rate of monetary growth, the smaller the variation in the growth rate of output. This result comes through clearly for the countries we have examined. More interesting to us is the fact that the relation between the deviations from the average growth rates of money and output is much more reliable than the relation between the growth rate of money and the growth rate of output or between percentage rates of change in money and percentage rates of change in output or between other measures of the average level or the short-term change in money and output.

The preliminary conclusion we have drawn from these results is that they reveal the variability of the lag between monetary policy operations and their effect. This lag differs from country to country and within the same country at different points in time. Its length depends, at least in part, on the speed with which prices adjust to monetary change. The greater the response of prices to variations in the growth rate of money, the smaller the effect of variations in the growth rate of money on the growth rate of output.

The results do not suggest that changes in monetary policy are of no use. They suggest that the timing of the effect of changes in money is, at best, uncertain and that the timing of the response varies systematically with changes in prices. Along with other evidence of the variability of the lag between changes in money and their effect, the results support those who favor less variable to more variable policies.

Money as an Indicator of Monetary Policy

Up to this point, I have talked about monetary policy and changes in money as if the two are closely related. There are a large number of economists who deny this view and, as I noted earlier, many variables have been suggested as indicators of monetary policy. Several years ago, Karl Brunner and I set out to compare the qualities of variables frequently mentioned as indicators of monetary policy. We concluded that money was the least misleading of the commonly suggested indicators of monetary policy, although we suggested that an appropriately weighted combination of policy variables—changes in the monetary base, in the reserve requirement ratios, etc.—is a better indicator. Since that time further research has been done, but the problem of selecting an appropriate indicator has not been solved.

Let me repeat that we do not claim that the stock of money is an ideal indicator of the current direction of monetary policy. The size of the stock or its rate of change is affected by changes in interest rates, output and other variables. The response of the stock of money to these variables means that changes in the stock of money are, at times, the result of forces other than monetary policy. The same is true of other variables frequently mentioned as indicators of monetary policy—market interest rates, free reserves, bank credit, etc. Our choice of stock of money as an indicator is based on the fact that the influence of other variables is smaller for money than for most of the variables commonly mentioned as indicators of monetary policy. This means that current changes in money do a better job of indicating the future effect of monetary policy on prices and output at some future time than other variables commonly used as indicators.

So much for the restatement of our argument. What arguments are raised against the use of money as an indicator of monetary policy? I consider four that reoccur with great frequency.

Arguments Against Money as an Indicator

The first and perhaps the most common argument, is that monetary policy should be used to bring the market rate of interest into equality with the real rate of return on capital, given some expected rate of change of prices. This statement is, as I mentioned earlier, a useful summary of a portion of monetary

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theory. As a guide for policy action, it suffers from the defect that two elements in the equation—the yield on real capital and the expected rate of change of prices—are not directly observable. More importantly, market rates of interest reflect both current monetary policy operations and changes in the demand for bank credit, in the demand for money and in other variables that affect prices in the credit markets. The difficulty with the use of market interest rates as an indicator of monetary policy or as a guide to future policy is that it is not possible, at present, to disentangle the effects of monetary policy on interest rates from the effects of other variables.

As an example of the difficulties in using market interest rates as an indicator of monetary policy, let us compare the rates of interest in the summer of 1966 with the rates of interest in the summer of 1967. In both periods market rates reached the highest level in several decades. In 1966, the stock of money was falling; in 1967 the stock of money was rising. The high rates of 1966 were followed by a contraction; the high rates of 1967 will be followed by expansion and inflation. In these cases the market rate of interest was a misleading indicator, the rate of change of the quantity of money, a leading indicator.

The example of 1966 and 1967 is not an isolated example. Interest rates have risen in virtually every period of economic expansion in this century and declined in virtually every period of contraction. The quantity of money has risen more rapidly in periods of expansion than in periods of contraction. Interest rates rise and fall with output and are generally higher at the peak than at the trough. It is of little value to say—after the fact—that interest rates were too high in the summer of 1966, relative to the return on real capital. This is but another way of saying that market interest rates are an unreliable indicator of monetary policy.

A second argument made against the use of money as an indicator of monetary policy is that the Federal Reserve cannot control the stock of money. This argument takes various forms, the most common of which is that the money supply depends on interest rates, on income and on other variables in addition to policy operations. There are three problems with this argument. First, it is non-sequitur to argue that because money depends on interest rates or on income it cannot be controlled. Second, there is no evidence to support this position. Third, there is a substantial body of evidence to contradict it. As David Fand shows in a recent paper, the dominant effect of policy opera-

A third argument against the use of money as an indicator of monetary policy is that the demand for money and monetary velocity depend on interest rates and other variables. Changes in money affect interest rates and thus velocity, so the effect of changes in money on output is mediated by the change in velocity. Therefore, it is said, the effect of changing money is uncertain. A less elaborate version of this argument is that the demand for money is not perfectly predictable, so the effect of changes in money on output cannot be predicted.

One may grant the premise—that the demand for money is not entirely predictable—without granting the conclusion. The choice of money as an indicator is not based on the fact that it provides absolute certainty about the future; the choice is based on the relative merits of alternative indicators none of which is entirely reliable.

We can go beyond these general statements and consider the extent to which changes in monetary velocity are so large or so unpredictable as to cast substantial doubt on the usefulness of money as an indicator of the current direction of monetary policy or of the future effect of money on output and prices. I shall treat this as equivalent to the problem of predicting monetary velocity from a knowledge of its determinants.

**Stability of Velocity**

Once again the evidence is most one-sided. There are now numerous empirical studies of the demand equation for money and of monetary velocity. These studies differ in many ways, but each of them suggests that the demand for money can be predicted reasonably well from the knowledge of a few determinants. A few years ago, Brunner and I used many of these equations to predict monetary velocity for a long sequence of years as a means of finding out whether there were important differences in the errors made when using the various equations for prediction. We found that the errors were small enough to dispose of the notion that velocity moved about in an erratic, unsystematic way. Moreover, for the most reliable theory predicted and actual velocity always moved in the same direction at business cycle

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turning points after 1924, a finding that strikes against the argument that monetary velocity is difficult to predict when predictions are most important.

Our original series of predictions stopped with the year 1958. We have recently updated our predictions to 1966 using a slightly different procedure. Originally, we predicted the level of velocity. We thought it would be a more challenging test if our theory was made to predict annual changes in velocity. To compare with previous results, we computed the prediction of velocity by adding the predicted change to the past level year by year.

The error in prediction is lower than before. For the period in which the old and the new results overlap, 1951-1958, the new results give a smaller average absolute error, 1.6% against 2.2%. For the more recent years, 1959-1966, the average absolute error in prediction is 1.7%.

These findings once again suggest that monetary velocity does not move erratically and that changes in velocity are predictable. The results lend no support, therefore, to the argument made against the use of money as an indicator of monetary policy.

The fourth and last argument against the use of money as an indicator of monetary policy is in fact an argument for the use of market interest rates as an indicator. Monetary changes, it is said, change market interest rates and induce short-term capital movements. Now that the effect on the balance of payments must be considered when deciding on appropriate policy, the central bank must compare domestic market rates to foreign market rates.

At most this is an argument that monetary policy must control short-term market interest rates to prevent large short-term capital movements. In addition to the objection that the avoidance of short-term capital movements should not be the main goal of monetary policy, there is another objection to this argument. The argument confuses the function of a target, or short-term objective of monetary policy, with the role of an indicator.

If the central bank makes frequent changes in monetary policy, some statement of objective—expressed or implied—is generally used to limit the amount of discretion given to those responsible for implementing the decision. We call the variable selected to fill this role the target of monetary policy because the directions of the central bank to the operating officials are expressed or interpreted in terms of levels or changes in this variable. For example, the central bank may decide to keep Treasury bill rates at the level of the previous week. Bill rates are then the target of monetary policy.

If this is the procedure that is used, and it frequently is, it is difficult to get much information about the future effect of monetary policy on output and prices by looking at short-term market interest rates. If the staff carries out the policy according to the directive, interest rates remain unchanged from the previous week. If there is an increase in the demand for Treasury bills, the central bank must sell to keep interest rates unchanged; if there is a decrease in demand, the central bank must buy to keep interest rates unchanged. Interest rates cannot serve both as target and indicator. One function precludes the other.

Prior Experience

Our experience with pegged interest rates prior to 1951 makes clear that the level of market interest rates gives no information about the effect of monetary policy. The money supply rose and fell during the period of pegged interest rates. During part of the period there was an inflation; during part of the period, there was recession. There was little change in the level of pegged rates during most of the entire period.

These replies to some of the main arguments against the use of money as an indicator suggest that interest rates are one of the main alternatives to money as an indicator of the direction of monetary policy. I want to dwell briefly on the other side of the argument to bring out some of the errors that have been made in the recent and more distant past as a consequence of using interest rates for this purpose.

Let me state my conclusion. Major errors in monetary policy are a consequence of the use of interest rates as an indicator of monetary policy. The reason is that the Federal Reserve has long believed that low or falling short-term market interest rates mean that monetary policy is "easy" or "easing" and that "high" or "rising" short-term market interest rates mean that policy is "tight" or "tightening." Beliefs such as these led the Federal Reserve astray in periods as varied as 1929, 1937, 1938 and 1966. On each of these occasions, policy was described officially as "easy" when short-term market interest rates were low or falling. The fact that the money supply was declining, or not rising, was treated as a fact of negligible importance or was ignored. The minutes of the open market committee and the George L. Harrison papers make it very clear that during each of the earlier periods—and most emphatically during
1929-1933—Federal Reserve officials were fully aware of the recession or the catastrophe that had occurred. Most often they failed to take action because conditions that they then called “credit conditions” seemed “easy.”

The belief that short-term interest rates indicate the prevailing policy position explains just as well why the Federal Reserve eventually engaged in expansionary monetary policy during the recessions of 1923-1924, 1926-1927 and 1933-1934. This belief explains also why the Federal Reserve permitted excessive increases in money during early 1966 after inflation had clearly become a threat. In each case, the level or change in short-term market rates indicates whether the policy was described as “easy” or whether it was described as “tight” and whether or not monetary policy was used to raise or lower short-term interest rates. Lest these statements be misinterpreted, I want to reiterate that I do not claim that the Federal Reserve did not look at, talk about, ponder, discuss, weigh and consider other variables. They did. I assert that we can predict reliably whether or not the Federal Reserve engaged in expansive, contractive or no important policy operations by looking at the level of—or direction of change in—short-term market interest rates. On this interpretation, the main failures of monetary policy resulted from the belief that when short-term rates were low or falling, monetary policy was “easy” or “easing” and that when short-term rates were “high” or “rising” monetary policy was deemed to be “tight” or “tightening.” In short, I believe that the use of the market interest rates as an indicator of monetary policy has been a main reason for past errors in monetary policy.

Burden Should Shift

The large amount of theoretical work and empirical evidence that has accumulated in recent years has had an effect on thinking about monetary policy, judging from recent statements of legislative committees and executive agencies in the U.S. and Canada calling for less variability in monetary policy. Neither theory nor evidence has yet had much apparent effect on central bankers, and—judging from the growth rate and variability of money in recent years—they seem to have had a perverse effect on the Federal Reserve, so it would be premature to claim any positive influence on policy or on policymakers in the U.S. Because of the consistency of their disdain for money and its growth rate and of their attachment to interest rates or its surrogate free reserves. I believe we can explain some of the failures of monetary policy in the past.

The use of money as an indicator of monetary policy has been bolstered by theory and evidence developed in recent years. The issue is not settled, but it seems reasonable to conclude that the burden of proof should now shift under the weight of evidence brought forward in recent years. It is time for those who reject money as an indicator of monetary policy to produce some evidence for their position. It is time for those who assert that frequent changes in policy are stabilizing rather than destabilizing to produce some evidence also.
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