Appropriate Indicators of Monetary Policy

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PART I

Chairman Jacobs: Welcome to the eleventh Conference on Savings and Residential Financing. This conference, which is sponsored by the United States Savings and Loan League, has developed as the result of the awareness of Norman Strunk, the League's executive vice president, and the members of the League's Executive Committee, of the value of a closer relationship between the academic community and the savings and loan business.

Conference papers and discussions will be published in a volume of Proceedings which will be sent to present and past conferees, to members of the American Finance Association, other interested scholars, legislatures, university libraries, and to executives of savings and loan associations.

The other members of the executive committee of the conference are Edward E. Edwards, Marshall D. Ketchum, Richard T. Pratt and Paul Van Arsdell. Don Geyer, staff vice president of the League, has worked with the committee in planning the conference.

The topic for this morning's session is "The Appropriate Indicators of Monetary Policy." Presentations will be made by Allan H. Meltzer, Carnegie-Mellon University; George Horwich, Purdue University, and Patric Hendershott, Northwestern. We shall begin with Allan Meltzer.

Mr. Meltzer: One of the most difficult problems in economic policy-making is learning to read the content of current policy. Each of us has probably looked at the sharp peaks or troughs in a time series of interest rates, the growth rate of money, the index of industrial production or some other measure and wondered why we had so much difficulty interpreting the changes at the time they occurred. Errors of judg-

*As the references at the end reveal, all of the work underlying this paper is based on joint work with Karl Brunner and has been supported by grants from the National Science Foundation. I am again indebted to Brunner for helpful comments.
ment that become apparent with hindsight result frequently from a failure to interpret correctly changes that have already occurred or that are likely to occur because of policy actions already taken. Unaware of the future effect of current or previous actions, policy makers delay action too long, change too abruptly or too much.

The term "indicator" has a number of different meanings in economics. As in previous work with Brunner, I use the term [3] [6] to refer to a scale that permits changes in the thrust of policy to be recognized and permits policies to be compared. A rise in the value of the indicator is a sign that policy has become more expansive or less contractive; a fall in the indicator means that policy is less expansive or more contractive. If market interest rates or the growth rate of money are used as indicators of monetary policy, a rise in the former or a fall in the latter is interpreted as the sign of a less expansive policy. Since higher market rates and a slower growth of money do not always occur together, judgments about the direction of policy changes depend on the choice of one rather than the other of these widely used indicators. Many disputes about the direction of policy changes and, more importantly, many of the errors caused by excessive action or excessive delay in taking action result from a misinterpretation of policy changes previously taken and the use of unreliable indicators.

Economic Indicators Provide Relative, Not Absolute, Measures

Generally, the indicators used by economists provide relative, not absolute, measures of the thrust of policy and thus permit policies to be compared to previous or alternative policies but not to ideal or optimal policies. For example, the full-employment budget surplus is a frequently used measure of the thrust of fiscal policy. Used as a fiscal indicator, the full-employment budget surplus permits judgments to be made about the timing and direction of fiscal policy changes. A larger surplus or smaller deficit does not mean, however, that output will decline, that inflation will slow or stop or that the budget will be in a balance and inflation absent at full employment. A rise in the deficit or decline in the surplus means only that fiscal policy has become more expansive or less contractive.

In previous work [3] [6], Brunner and I have considered the merits of many of the variables used as indicators of monetary policy and concluded that the growth rate of money (currency and demand deposits), while not ideal, is a more reliable indicator than market interest rates, free reserves, or the growth rate of bank credit. Since conclusions of this kind cannot be reached without reference to some hypothesis, we have relied mainly on hypotheses developed and partially tested in our own studies. Perhaps as a result, our conclusion has not been generally accepted. Market interest rates remain the most widely used indicator of monetary policy.

Two very different arguments are put forward to justify reliance on market interest rates as indicators. First, there is a belief that the choice of interest rates as an indicator is superior to "general equilibrium" rates are regarded as "impossible" to achieve. Second, central bankers, or variables such as the changes in short-term rates, to judge central bankers can be compared, based on very different theories, and I consider this result again that recent changes in short-term rates—caused the Federal Reserve System to act more contrary to. Furthermore, monetary policy. In previous work [3] [6], Brunner and I have considered the merits of these variables used as indicators of monetary policy and concluded that the growth rate of money (currency and demand deposits)—caused the Federal Reserve System to act more contrary to. Furthermore, monetary policy. In previous work [3] [6], Brunner and I have considered the merits of these variables used as indicators of monetary policy and concluded that the growth rate of money (currency and demand deposits)—caused the Federal Reserve System to act more contrary to. Furthermore, monetary policy. In previous work [3] [6], Brunner and I have considered the merits of these variables used as indicators of monetary policy and concluded that the growth rate of money (currency and demand deposits)—caused the Federal Reserve System to act more contrary to. Furthermore, monetary policy.
result frequently from a failure already occurred or that are already taken. Unaware of the different meanings in economics, I use the term [3] to the thrust of policy to be recognized. A rise in the value of the more expansive or less contract that policy is less expansive or rise in the former or a fall in a less expansive policy. Since policy changes do not always occur that policy changes depend on the widely used indicators. Many changes and, more importantly, action or excessive delay in taking policy changes previously taken.

I have considered the merits of monetary policy and currency and demand deposits), interest rates as an indicator depends on widely divergent views about the reasons rates change and more basically on the principal sources of instability in an economy such as ours. Underlying many of the arguments favoring interest rates as an indicator is the belief that waves of optimism and pessimism cause unforeseen changes in expenditure, change real rates of return and generate expansions and contractions in economic activity. Monetary and fiscal policies are viewed as the means of offsetting these random or unforeseen changes in expenditure. The alternative view is that, in an economy close to full employment, many of the unforecast and unanticipated changes in expenditure are the delayed or lagged effects of past changes in monetary and fiscal policy. Large changes in monetary and fiscal policy are seen as an important source of instability. Government policy, not private expenditure, is seen as a main cause of inflation and of fluctuations in output and employment.

Deep-seated differences of this kind are, I believe, important for understanding the attachment of many economists to the use of interest rates as an indicator. Such differences are, of course, reflected in the alternative theories used to interpret observations, and in a later section, I sketch the relation.

Inflation and Market Interest Rates

In the standard models used to exposit macro-economic theory, one of the otherwise undifferentiated commodities is selected for use in making “transactions” and is called money. A main point of the exercise is to show that once money is available, wealth owners are no longer restricted to holding wealth in the form of real capital. Prices and rates of return must therefore adjust until money and nonmonetary assets yield equivalent returns. Extended to a growing economy in which output grows because of growth in population and neutral technological change and in which tastes, productive opportunities and the rate of change of nominal money are given, there is an equilibrium rate of price change and an equilibrium real rate of interest at which the ratio of real balances to real capital remains constant. Along an equilibrium growth
path, output, real capital and real money balances grow at the same, constant rate.

Price changes are correctly and immediately anticipated. As shown by equation (1), the market rate of interest, \( i \),

\[
i = r + \frac{P}{p}
\]

(1)
is equal to the real rate, \( r \), plus the rate of inflation or minus the rate of deflation. If there is neither inflation nor deflation, the real and nominal rates of interest are equal, and in the standard model are equal to the growth rate of output and the rate of monetary expansion.\(^1\) With the rate of change of nominal money one per cent higher and a one per cent inflation, \( r \) remains unchanged if market interest rates are one per cent higher.

As long as the rates of growth and price change are known and changes in the rate of price change are fully anticipated, there is not much reason to be concerned about the choice of indicator. The indicator problem arises when accurate information is scarce and the consequences of present policies are difficult to assess. The simplest such case arises within the context of the standard model when there are changes in the rate of inflation as a result of past changes in monetary policy.

From equation (1), we know that

\[
di = dr + \left( \frac{dp}{p} - \frac{dp}{p} \right)
\]

For small changes in price, (2) can be approximated by

\[
di = dr + \frac{dp}{p}
\]

(2')

Changes in the rate of inflation affect the real as well as the market rate of interest, but neither the size nor the direction of the effect on real rates is known \([9]\) \([10]\). If the economy partially described by equation (1) remains close to full employment of labor and capital, the dominant short-term influence changing market interest rates is almost certainly the acceleration and deceleration of price changes. As monetary policy becomes increasingly expansive, \( \frac{dp}{p} \) rises raising market interest rates. On this analysis, high rates of interest are the result of a steady rate of inflation—a maintained constant growth rate of the stock of money. Low rates are (primarily) the result of maintaining the rate of deflation constant, and rise with acceleration and deceleration.

In terms of the relative overvaluation (1) it is clearly misleading by the higher rates of inflation. Monetary expansion as an indication of contractionary policies, of accelerating inflation. It is a rather clear cut case against interest rates as indicators of expectations.

Reasons for Using Interest Rates

Why, then, are interest rates used by bankers as an indicator of inflation? One is that the relation of price change to price change did not refer to the proposition that I have been arguing since 50 years ago \([7]\), it has not been the rule. For the past 25 or more years, under the alternative model, the income-expenditure model helped to popularize and determine by monetary policy. Yet policies that lower interest rates stimulate and increasing aggregate demand. The models of money and output changes in interest rates.

Needless to say, the use of interest rates does not force economists to neglect the distinction between nominal and real. Analysis of macroeconomic theory has a distinct difference between nominal and real variables. The models of money and output in recent years are evidence of changes in the rate of inflation.

The point I wish to make is that the distinction between nominal and real variables is a primary justification of monetary policy. Many empirical arguments \([12]\) \([13]\) appear to show a failure to distinguish fully between these two concepts.

The second, main justifi-
balances grow at the same, late-anticipated. As shown

\[ \text{(1)} \]

inflation or minus the rate of inflation, the real and nominal standard model are equal to the rate of monetary expansion. 1 With the rate of higher and a one per cent interest rates are one per cent

price change are known and anticipated, there is no need of indicator. The indi- nation is scarce and the con- test to assess. The simplest such standard model when there are of past changes in monetary

\[ \text{(2)} \]

approximated by

\[ \text{(2')} \]

be real as well as the market direction of the effect on real an and capital, the dominant interest rates is almost certainly changes. As monetary policy

raising market interest rates are the result of a steady growth rate of the stock of maintaining the rate of

deflation constant, and rising and falling rates are mainly the result of acceleration and deceleration of price changes.

In terms of the relatively standard analysis summarized in equation (1) it is clearly misleading to describe the higher rates of interest caused by the higher rates of inflation resulting from a higher, maintained rate of monetary expansion as an indication of contractive monetary policy. It is no less misleading to interpret increase in market interest rates as an indication of contractive policies when the rise in rates is a consequence of accelerating inflation. Use of the standard hypothesis provides a rather clear-cut case against the use of market interest rates or changes in interest rates as indicators of monetary policy.

**Reasons for Using Interest Rates**

Why, then, are interest rates so widely used by economists and central bankers as an indicator of monetary policy? I believe there are two answers. One is that the relation between market interest rates and the rate of price change did not receive much attention until recently. Although the proposition that I have called equation (1) was advanced more than 50 years ago [7], it has been disregarded in most of the intervening years. For the past 25 or more years, economists relied mainly on an alternative model, the income-expenditure model, to analyze and interpret changes in interest rates. Widespread use of the income-expenditure model helped to popularize the view that in the main, interest rates are determined by monetary policy. Expansive monetary policies meant policies that lower interest rates, thereby changing the amount of investment and increasing aggregate expenditure. An important feature of the income-expenditure model is that the level of output or production depends on the volume of expenditures. Distinctions between price and output changes and between real and nominal rates of interest are, at best, blurred and most often ignored.

Needless to say, the use of models of the income-expenditure type does not force economists to make output depend on expenditure or neglect the distinction between price and output changes. Increasingly, macroeconomic theory has redirected attention to the important difference between nominal and real changes in income and interest rates. The models of money and growth [9] [10] that have become popular in recent years are evidence of the revival of interest in the effects of changes in the rate of inflation.

The point I wish to emphasize, however, is that by blurring the distinction between nominal and real changes in interest rates, the standard, or perhaps textbook, version of the income-expenditure model furnished one of the main justifications for the use of interest rates as an indicator of monetary policy. Many, far more sophisticated, arguments for using interest rates were introduced later. On examination, many of these arguments [12] [13] appear to rest on the same weak foundation—the failure to distinguish fully between nominal and real changes.

The second, main justification for using interest rates as an indicator
of monetary policy rests on a very different framework. Bankers and central bankers are inclined to make judgments about monetary policy by observing changes in bank credit, confusing credit with money. Since the market interest rate is the price, per unit of time, of a dollar of credit, high rates are interpreted as a sign that the market is “tight” and low rates as an indicator of “easy” market conditions. This view, that I shall call the bankers’ or central bankers’ view, has come to be identified and at times confused with so-called Keynesian or income-expenditure view. The use by central bankers of market interest rates, or some surrogate such as free reserves, as an indicator of monetary policy has been interpreted as an acceptance by bankers of a more or less Keynesian interpretation.

In fact, the bankers’ view is much older, going back to the 19th century and perhaps earlier. Under the gold standard, changes in the supply of base money are determined mainly by changes in the gold stock. Inflows of gold increase aggregate expenditure, raising the supply of loans offered to banks and the rate of interest. Rising expenditures also induce an increased demand for currency (gold pieces) shifting part of the relatively fixed gold stock away from bank reserves and into circulation. In a fractional reserve banking system, the increased demand for currency reduces both the stock of money or its growth rate and the banks’ ability to acquire earning assets, i.e., bank credit. The reduction in the stock or growth rate of money and in the banks’ demand for earning assets contribute to the rise in market interest rates.

High Interest Rates, Relative Restraint

Periods with relatively high market interest rates came to be identified as times of restraint—times in which interest rates rose sharply and the amount or rate of increase in bank credit fell. The identification of high interest rates with relative restraint, low interest rates with relative ease, was carried into the modern era of central banking, although gold movements were no longer the most important source of changes in the monetary base and shifts in the distribution of the base between reserves and currency gradually became relatively less important, in part because they could be offset more readily by open market operations. Irving Fisher, who describes the bank credit-expenditure-interest rate sequence in more detail than I have repeated [7], was careful not to confuse the effects of rising interest rates brought about by a rising supply of earning assets to banks with the increase in rates caused by a rise in the currency ratio (or a decline in the base) which forced the banks to reduce both their demand for earning assets and the public’s deposits. Fisher regarded the increased expansion of earning assets from an inflow of gold as expansionary. Moreover, Fisher contributed to the identification of changes in the rate of price rises as well as other later writers have been less clear.

With the acceptance of the distinctions between credit and money values, the stock of money and demand for money replaced gold as the factors determining market interest rates on the public. The demand for bank credit, the distinction between nominal and real variables determining changes in the rate of interest, and the changing market interest rates on the supply of nominal money and in the price level and often the sole determinants of money work, monetary policy was to interpret the effects on interest rates of the demand for money caused by changes in autonomous expenditures. While nominal interest rates were interpreted as the response to changes in the inelastic supply processes economists and others about the meaning of money.

My sketch of the reasoning of using market interest rates developed some of the reasoning and why the former consensus, the way the main determinants of monetary variables in more detail and why market interest rates are a measure of than the growth rate of money.

Four main factors affect earlier work [4] [5]. One of these changes, trends in the rate of growth of non-human wealth but see no way of isolating the rate changes during the time span to the cyclical monetary policy has distinguished in nonhuman wealth from the many other systematic changes in other sources of change in the money stock.
Bankers and judgments about monetary policy, confusing credit with money, restricted the increased expenditures and supply of bank credit triggered by an inflow of gold as expansive, despite the rising rates on bank loans. Moreover, Fisher contributed importantly to the analysis of the effects of changes in the rate of price change on market interest rates. But many later writers have been less cautious.

With the acceptance of Keynesian theory and the blurring of the distinctions between credit and money and between real and nominal values, the stock of money and the proximate determinants of the demand for money replaced the determinants of bank credit as principal factors determining market interest rates. The effects of changes in expenditure on the public's demand for bank credit and of changes in the demand for bank credit on interest rates were neglected. Neglect of the distinction between nominal and real values removed from consideration changes in the rate of change of prices, another of the main factors changing market interest rates. Economists accepted changes in the stock of nominal money and in the demand for nominal money as the principal and often the sole determinants of market interest rates. In theoretical work, monetary policy was frequently "assigned" the role of offsetting the effects on interest rates of changes in "investment" or changes in the demand for money caused by changes in nominal income. The latter changes were said to be induced by changes in fiscal policy or other autonomous expenditures. Within this framework, high or rising interest rates were interpreted as a shift in the demand for money against a fixed, falling or perhaps more slowly rising stock and low rates as an increase in the inelastic stock relative to the demand. By different processes economists and so-called practical men reached similar conclusions about the meaning of ease and restraint.

My sketch of the reasoning that produced a virtual consensus in favor of using market interest rates as an indicator of monetary policy partly developed some of the reasons why interest rates are faulty indicators and why the former consensus has now broken down. In this section, I discuss the main determinants of interest rates and their relation to policy variables in more detail and make more explicit some of the reasons that market interest rates are a more misleading indicator of monetary policy than the growth rate of money.

Four main factors affecting interest rates have been discussed in our earlier work [4] [5]. One combines the effect of changes in tastes and opportunities, changes that shift the desired distribution of wealth between human and non-human components or shift the desired composition of non-human wealth between money, securities, and real capital. I see no way of isolating the long-run effects of changes of this kind from the many other systematic and random factors affecting market interest rates during the time span relevant for making judgments about whether cyclical monetary policy has become more or less expansive. Once we distinguish real from nominal values of interest rates, it becomes difficult to separate long-run, gradual changes in equilibrium real rates from other sources of change in monthly, quarterly or even annual observa-
One reason that neither money nor interest rates is an exact or ideal indicator is that there is presently no way to separate these long-run changes in equilibrium real rates of interest and the demand for real money balances, the result of changes in tastes or opportunities, from observed changes in market interest rates and the nominal stock of money. This argument, frequently advanced as a reason for rejecting the growth rate of money as an indicator of monetary policy, applies with just as much force to interest rates, hence provides no means of choosing between the two. The belief that the long-run changes just discussed furnish a basis for discriminating between money and interest rates as an indicator generally rests on the type of analysis in the preceding section and particularly on the failure to distinguish between real and nominal values.

The remaining factors affecting market rates can best be described by following a particular change, for example a change in monetary policy, or to be more explicit, a higher rate of increase in the monetary base. The higher rate of expansion in the base has three effects that I shall call (1) the impact effect, (2) the feedback effect and (3) the price effect.

The impact effect is the most familiar. The rise in the base increases the banks' demand for earning assets, increases the nominal stock of money and lowers market interest rates. If this were the entire effect of monetary policy, low market interest rates and high growth rates of money would occur together during periods of economic expansion, and there would be less reason to choose between rates of interest and rates of monetary expansion as indicators of monetary policy.

The feedback effects on interest rates reverse the direction of change in interest rates and reinforce the direction of change in the growth rate of nominal money. One main feedback comes through the credit markets. The increased expenditures resulting from the expansion of money induce an increased supply of earning assets to banks. The increase takes two main forms; one is a reduction in the public's desired holdings of outstanding bonds, the other an increase in the public's desired borrowing from banks. These actions have the effect of raising market interest rates, while expanding the stocks of money and bank credit. Expenditures, interest rates, and the stocks of money and bank credit now rise together.

In addition, there are feedback effects on market interest rates from changes in the demand for currency relative to demand deposits or changes in the composition of the money stock account. These changes in turn reinforce the effect on market rates and sales of securities. Policy rates as an indication of changes in the economy accelerate the rate of increase in the growth rate of money. If the price rise is a once-and-for-all increase on market interest rates, that results from the acceleration process, once prices stop rising. If the higher growth rate of the price level is at a steady rate and market rates and the price of change falls to its previous levels, market rates return to their previous level.

Effect of Monetary Policy

The example makes clear that monetary policy on interest rates is not as simple as suggested. The feedback and policy effects in market rates resulting from changes in the money stock if we are able to isolate the influence of each would become more relevant, however, if it suggests that the influence is regular and reliable or that it is not. On the contrary, as is so often the case, the effects occur than we can measure in magnitude.

All of the effects operating on the stock of money affect the stock of money itself change in the growth rate of and the influence of monetary policy through the credit market, raising the stock of money. A monetary policy has a definite influence on the growth rate of the monetary base and not the base itself.

One final factor affecting market interest rates is the effects of price changes. I have ignored the limited amount of available data, but the empirical work by skilled market participants...
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relative to demand deposits or
changes in the composition of deposits between demand and time account. These changes in the composition of money and deposits reinforce the effect on market rates of the public's increased borrowing and sales of securities. Policy makers, misinterpreting the rise in interest rates as an indication of contractive or less expansive monetary policy, accelerate the rate of increase in the base, believing that by this action they prevent policy from becoming excessively restrictive.

The third main effect of expansive monetary policy on interest rates comes from the change in the price level. The acceleration of the base and the stock of money accelerates expenditures. Gradually, prices rise. If the price rise is a once-and-for-all increase, the main effect of the increase on market interest rates is the temporary rise, discussed earlier, that results from the acceleration of prices. As equation (2) above shows, once prices stop rising, market rates return to their previous level. If the higher growth rate of the base is maintained, prices continue to rise at a steady rate and market rates remain at the higher level. Again, once the rate of price change falls to zero, prices remain at the higher level but market rates return to their previous level.

**Effect of Monetary Policy Not Uni-Directional**

The example makes clear that the effect of past and current monetary policy on interest rates is not a single, uni-directional effect as is so often suggested. The feedback and price effects reverse the direction of change in market rates resulting from the impact effect of monetary policy. If we were able to isolate the influence of the three factors, market interest rates would become a more reliable indicator. My discussion is misleading, however, if it suggests that the timing of the effects I have described is regular and reliable or that the separate effects can be easily identified. On the contrary, as is so often true in economics, we can be more certain that the effects occur than we can be precise about their timing and magnitude.

All of the effects operating on interest rates through the credit markets affect the stock of money also. Nevertheless, the size and direction of change in the growth rate of money is a less ambiguous indicator of the future effect of monetary policy. One reason is that the feedback effect through the credit market, reinforces the impact of monetary policy on the stock of money. A more important reason is that the dominant influence on the growth rate of the stock of money is the growth rate of the monetary base and not the feedback effects.

One final factor affecting market interest rates that has received substantial attention in recent discussions is the effect of anticipations of price changes. I have ignored this factor to this point because the limited amount of available empirical evidence suggests [11] that price anticipations affect interest rates gradually and are of greater significance for long-term movements than for cyclical changes in rates.

The empirical work may overstate the length of the lag. I believe skilled market participants form anticipations and, at the margin, adjust
the prices of outstanding securities to changes in the anticipated rate of inflation more rapidly than is suggested by empirical estimates of the lag. The long lag in adjustment more likely represents the behavior of borrowers, the gradual adjustment of portfolios and the time required for equilibrium to be restored in both stock- and flow-dominated markets. If I am correct, the marginal effect of actual price changes on anticipated price changes and market interest rates may be larger than is suggested by available evidence. In this case, some part of the cyclical change in market interest rates is attributable to changes in anticipated rates of inflation.

The facts are relatively clear. Interest rates and the growth rate of money generally rise during periods of economic expansion and fall during contractions. One of the few exceptions in this century is the expansion of the '30s when interest rates fell while the stock of money rose. The experience of the '30s provides the main evidence in support of the view that periods of monetary expansion are characterized by low or falling interest rates. During the '50s and '60s, interest rates rose in expansions and fell in contractions, just as they did in the '20s and in many earlier periods.

On one interpretation, interest rate changes reveal mainly the influence of counter-cyclical monetary policy. On the other, the feedback effects dominate the impact effects, so the behavior of interest rates during cycles reflects the pro-cyclical nature of monetary policy. In this section, I discuss two types of evidence that help to distinguish between the alternative views. One is a comparison of postwar interest rate movements and changes in monetary policy; the other is a comparison of policy decisions and policy actions.

Money Growth Rate High in Periods of Expansion

Chart 1 compares market interest rates and the growth rate of the monetary base for the postwar years. On the average, the growth rate of the seasonally adjusted monetary base\(^4\) (St. Louis definition) is higher in periods of expansion and lower in recessions. Lower turning points in the average growth rate of the base generally come after the start of the recession, and both upper and lower turning points in the growth rate are followed by sharp changes in the growth rate. Interest rates reach a peak at the end of each expansion, generally decline during the recessions and are at or near their low point at the start of the next expansion. Much the same patterns are repeated in the mild downswing of 1967 and the expansion of 1968.
Periods of above-average growth in the monetary base are followed by periods of inflation, as in the middle '50s and in 1966-68. The below-average growth rate of the base in the mid-'40s was followed by a low rate of inflation, and even deflation, in the late '40s. Despite "pegged" interest rates, the price level fell or rose slowly from 1948 to the start of the Korean War. The low average growth rate of the base in the late '50s was followed by a period of sustained expansion and price stability, even after the growth rate of the base rose. Interest rate levels, on the other hand, provide much less reliable information about the future levels of activity and prices. Although high market rates always occur during periods of highest inflation, market rates provide little information about the future rate of inflation.

The base is a reliable measure of the Federal Reserve's contribution to the stock of money, and every change in the base affects market interest rates. Indeed, the impact effect of monetary policy on interest rates, discussed earlier, is simply another name for the response of interest rates to a change in the base. An increase in the growth rate of the base lowers market rates; a decline in the growth rate raises interest rates.

If the impact effect of monetary policy dominated the behavior of market rates, on the average market rates would fall in periods of economic expansion and rise in recessions, just the opposite of their

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**MONETARY POLICY INDICATORS**

**Chart 1**

MARKET INTEREST RATES AND GROWTH RATE OF MONETARY BASE
present pattern. Changes in market rates would, then, reflect the pro-
cyclical behavior of the Federal Reserve that causes the growth rate of
the base to be higher on the average in expansions than in recessions.
Given the pro-cyclical Federal Reserve policy, changes in market rates
cannot be explained solely as a response to the impact effect of monetary
policy. The evidence on interest rates and monetary policy suggests, in-
stead, that the feedback through credit markets and the acceleration of
prices definitely overwhelms the effect of monetary policy on market
rates.

A second source of evidence comes from a comparison of the Federal
Reserve's Record of Policy Action and a measure of current money
market conditions, the level of free reserves. Several years ago, as part
of our study for Congress [1], Brunner and I identified what we called
the attachment to free reserves. We recognized that within the Federal
Reserve, free reserves were thought to combine information on short-
term market interest rates with other money market data and that free
reserves were used, at times, as the target of policy operations and at
times as an indicator of monetary policy.

Our report presented two types of evidence to document the attach-
ment to free reserves. The first, called evidence from published state-
ments, considered in rather lengthy detail written statements by Federal
Reserve officials. This evidence is persuasive, I believe, but is not con-
clusive. The second source of evidence, called evidence from the
announced changes in policy, is far more persuasive than the first. It
consists in the main of a comparison between what the Federal Reserve
said it planned to do and what was done. The data came from two
independent sources. One is the discussion that takes place at each
meeting of the Open Market Committee. At each meeting a directive was
issued to the Manager of the Open Market Account (or prior to 1955 to
the Executive Committee). These directives were not very useful sources
of information. It was possible to have a major shift in policy without
any change in the directive or to have a change in the directive without
any observable change in policy. Much more revealing was the summary
of the discussion that took place at the meeting and the statement indi-
cating the balance of opinion or consensus. We constructed a scale for
the decisions taken at the approximately 150 meetings from 1946
through 1962 and assigned values from -1 (active restraint) to +1
(active ease) to each of the decisions.6

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5 The "Record of Policy Action" has been published as part of the Annual
Report of the Board of Governors for many years. In recent years, the Record
has been published in the Federal Reserve Bulletin approximately three months
after the meeting of the Open Market Committee.

6 The scaling is published as an appendix to [2].

After 1955 meetings were
constructed a three-week moving
and compared the movement repre-
senting desired policy action
with the scale representing the
decision made. Furthermore,
the fall of 1963, we attempted to
record the Open Market Committee in the first half of the annual report was published
free reserves, we predicted that
in early February and one in
the Federal Reserve Act recorded in the annual
precisely at the predicted
times in May.

Policy Changes, Free Reserves

Chart 2 brings the earlier
announced changes in policy
reserves for the period from
is an extremely close cor-
siderations that free reserves
the decisions of the Federal
in the level of free reserves.
view that Federal Reserve
and perhaps the main—inde-

Free Reserves Not Reliable

Comparison of Charts 1 and
reserves and interest rates merit
a trough in the other general
similar information. Free res-
base give very different in-
indicator, the decline in free
the first quarter of 1960,
that the Federal Reserve
clearly rise in free
signal the reversal of policy.
free reserves in late 1967
more restrictive monetary
numerous others, the level
by the Open Market Com-
suggests that policy moves
cases, as in so many other
leading indicator, market
misleading indicator.

Some of the issues inv
would, then, reflect the pro-
that causes the growth rate
expansions than in recessions.
policy, changes in market rates
the impact effect of monetary
monetary policy suggests, in-
markets and the acceleration of
a comparison of the Federal
a measure of current money
Several years ago, as part
I identified what we  called
ized that within the Federal
combine information on short-
free market data and that free
of policy operations and at
ence to document the attach-
vidence from published state-
written statements by Federal
asive, I believe, but is not
 called evidence from the
persuasive than the first. It
seen what the Federal Reserve
The data came from two
on that takes place at each
1 Account (or prior to 1955 to
es were not very useful sources
major shift in policy without
change in the directive without
re revealing was the summary
meeting and the statement indi-
We constructed a scale for
150 meetings from 1946
( active restraint) to +1

MONETARY POLICY INDICATORS

After 1955 meetings were held at an interval of three weeks. We constructed a three-week moving average of the level of free reserves and compared the movement of free reserves with the scale values representing desired policy action. Although there was not a one-to-one correspondence between the recorded movements of free reserves and the scale representing the decision taken, there was a remarkably close correspondence. Furthermore, when we drafted our report in the late fall of 1963, we attempted to predict the decisions of the Open Market Committee in the first half of 1963 that would be revealed when their annual report was published in March, 1964. Using only the levels of free reserves, we predicted two announced moves toward restraint—one in early February and one in mid-May. There were only two changes in policy recorded in the annual report when it appeared. Both came precisely at the predicted times—early in February and in the middle of May.

Policy Changes, Free Reserves Closely Related

Chart 2 brings the earlier scaling of policy up to date by comparing announced changes in policy and the three-week moving average of free reserves for the period from mid-1964 to early 1969. Once again, there is an extremely close correspondence between the two. Despite repeated suggestions that free reserves no longer play an important role, most of the decisions of the Federal Reserve to "ease" or "restrain" are reflected in the level of free reserves. The data provide rather strong support for the view that Federal Reserve continues to use free reserves as a main—and perhaps the main—indicator of monetary policy.

Free Reserves Not Reliable Indicator

Comparison of Charts 1 and 2 brings out the indicator problem. Free reserves and interest rates move in opposite directions. A peak in one and a trough in the other generally occur about the same time and provide similar information. Free reserves and the growth rate of the monetary base give very different information. If free reserves were a reliable indicator, the decline in the average level of free reserves from 1964 to the first quarter of 1966 would mark the gradual tightening of policy that the Federal Reserve desired and believed it had accomplished. The sharp rise in free reserves early in the fourth quarter of 1966 would signal the reversal of policy, a move toward ease. The sharp decline in free reserves in late 1967 and early 1968 would represent a shift to a more restrictive monetary policy. In each of these periods, and in numerous others, the level of free reserves reveals the decision taken by the Open Market Committee: the growth rate of the monetary base suggests that policy moved in the opposite direction. In each of these cases, as in so many others, the growth rate of the base proved to be a leading indicator, market interest rates or the level of free reserves a misleading indicator.

Some of the issues involved in choosing between interest rates and
the growth rate of money as indicators of monetary policy become clearer when we compare the broader frameworks underlying the two positions. On one view, that I shall call the income-expenditure view, the effects of monetary (and fiscal) policy are limited to what I earlier called the impact effect. Both monetary and fiscal policies are seen as the means by which the public sector offsets the instability in the economy, instability that emanates mainly from the private sector. On this view, the private sector is inherently unstable and, left to itself, would, at times, generate a substantial reduction in output and employment and, at other times, a substantial increase in expenditure and in the rate of price change. Fluctuations in prices and output are seen as the result, primarily, of real forces, and among the real forces primarily of autonomous changes that raise or lower the marginal efficiency of capital. While the many factors affecting autonomous expenditure include long-run changes in tastes and technology, cyclical changes are attributed most often to changes in attitude and outlook that raise or lower investment, thereby raising or lowering nominal income, market interest rates and the demand for money.

The task of monetary policy is to offset undesired changes in market rates caused by changes in autonomous expenditure. Since, in this framework, interest rates are proximately determined by either the demand and supply for money in autonomous expenditure, shifting the IS curve alone or expenditures are the dominant demand for money depends on expenditure shifts the demand for money.

The full argument is familiar. If autonomous private expenditure develops, the burden of restoring equilibrium policy. Monetary policy is then "assigned" the task of supplying the balance of payments so that market rates are permitted to rise, as "pushing, or as "coordinated" over the long term capital from abroad. If demand for money in autonomous expenditure generates an initial rise, or all of the rise in private autonomous expenditure, is "assigned" the task of adjusting expenditures, it is a simple step to see that the demand for money is an indicator of monetary policy.
of monetary policy become frameworks underlying the two income-expenditure view, which are limited to what I earlier called instability in the economy, fiscal policies are seen as the private sector. On this view, left to itself, would, at times, and employment and, at other times and in the rate of price are seen as the result, primarily of autonomous consumption of capital. While the include long-run changes are attributed most often to or lower investment, thereby market interest rates and the decrease undesired changes in market expenditure. Since, in this framework, it is a simple step to accept market interest rates as the most useful indicator of monetary policy.

**MONETARY POLICY INDICATORS**

---

![Monetary Policy Indicators Chart](chart.png)

**Federal Open Market Committee (FOMC) and Moving Averages of Free Reserves**

- Millions of Dollars

**FREE RESERVES (Moving Average)**

**FOMC Decisions**
ALLAN H. MELTZER

The alternative interpretation—the monetarist interpretation—does not deny that changes in market interest rates are partly the result of changes in attitudes or technology that shift autonomous expenditure. The difference—and it is an important difference—is one of emphasis and interpretation. Not only are changes in autonomous expenditure assigned a smaller role, but many of the changes that are regarded as autonomous by income-expenditure theorists are interpreted by monetarists as a delayed response to past monetary or fiscal policies.

On the monetarist interpretation, the effect of a monetary (or fiscal) change is not limited to the impact effect. The response to a maintained change in policy includes the feedback effect through the credit market, the acceleration or deceleration of prices, and ultimately, if policy makers persist, the change in attitudes and particularly in anticipations of inflation or deflation. The feedback and price effects change market interest rates. These changes, however, are regarded as reliable consequences of maintaining an expansive or contractive monetary policy, just as much to be expected as the impact effect.

The monetarist views the large changes in the growth rate of the money stock as a main source of instability precisely because the feedback effects on interest rates dominate the impact effects. Policy makers misled by the change in market rates—or their interpretation of the change—permit or force the stock of money to grow at too high or too low a rate for too long a time. High and low growth rates of money, and large changes in the growth rate, become a main cause of short-run changes in the growth rate of output and long-run changes in prices. Inappropriate public policies—and not changes in autonomous private expenditure—become the main cause of instability.

The evidence cited here, and elsewhere, distinguishes between the two interpretations and suggests that the second interpretation is the more correct of the two. The use of an unreliable indicator and an inappropriate theory caused policy makers to misinterpret the direction of policy and add to instability. By relying on invalid indicators, by believing they were “easing” when they were “restraining,” or “restraining” when they were “easing,” policy makers often contributed to the very problems they sought to reduce.

**Government Should Choose More Reliable Indicators**

Government can make a larger contribution to economic stability by choosing more reliable indicators, and as a consequence avoiding the large changes in policy that have been a main source of instability in the past. This conclusion, however, does imply, or even suggest, that discretionary policy should be replaced by a rule. With the use of more appropriate theories and more accurate indicators, we improve the prospect of avoiding the misinterpretations of market events and misjudgment of the future effects of current policies. By accepting a more appropriate theory, we improve the prospect of making better policy decisions. What then is the case for a rule?

---


MONETARY POLICY INDICATORS

REFERENCES


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<tr>
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<th>SCALE</th>
<th>COMMENT</th>
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<tr>
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<td>“accommodate moderate growth in bank credit”</td>
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<td>“The consensus favored . . . no change in monetary and credit policy.”</td>
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<td>(Board raised disc. rate 11/23 from 3-½ to 4%; also raised Q rates)</td>
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<td>“moving gradually to slightly firmer money market conditions . . .”</td>
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<td>“adherence to even keel . . . was not required . . . implemented cautiously . . .”</td>
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<tr>
<td>12/14/65</td>
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<td>FOMC —½</td>
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<tr>
<td>3/1/66</td>
<td>—½</td>
</tr>
<tr>
<td>3/22/66</td>
<td>—½</td>
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<tr>
<td>4/12/66</td>
<td>—½</td>
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</tr>
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<tr>
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<td>BOG —½</td>
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<tr>
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(continued)
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<tr>
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<td>0</td>
<td>&quot;maintain the slightly firmer money market conditions . . .&quot;</td>
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<tr>
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<td>−¼</td>
<td>&quot;slight firming . . . desirable . . .&quot;</td>
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<td>0</td>
<td>&quot;no change . . .&quot;</td>
</tr>
<tr>
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<td>&quot;maintain even keel&quot;</td>
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<tr>
<td>5/25/65</td>
<td>0</td>
<td>&quot;no change . . . was required&quot;</td>
</tr>
<tr>
<td>6/15/65</td>
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<td>&quot;no change should be made&quot;</td>
</tr>
<tr>
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<td>&quot;While their reasons differed, . . . all but one member . . . agreed that no changes should be made . . .&quot;</td>
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<td>&quot;no change should be made&quot;</td>
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<td>&quot;decided that no changes should be made&quot;</td>
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<tr>
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<td>−¼</td>
<td>&quot;trend in the market toward firmer conditions . . .&quot;</td>
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<tr>
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<td>&quot;maintain about the current conditions . . .&quot;</td>
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<tr>
<td>11/2/65</td>
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<td>&quot;money market conditions had eased slightly . . .&quot;</td>
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<tr>
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<td>&quot;maintain about the prevailing conditions&quot;</td>
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<tr>
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<td>0</td>
<td>BOG raised discount rate and Q rate &quot;facilitate market adjustments to the official rate actions&quot;</td>
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<tr>
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<td>&quot;the appropriate objective for monetary policy . . . was a somewhat greater degree of restraint . . .&quot;</td>
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<tr>
<td>2/8/66</td>
<td>−¼</td>
<td>&quot;continue to pursue the policy initiated at the preceding meeting of moving gradually to reduce net reserve availability&quot;</td>
</tr>
<tr>
<td>3/1/66</td>
<td>−¼</td>
<td>&quot;voted to renew the current . . . directives&quot;</td>
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<tr>
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<td>−¼</td>
<td>&quot;reserve pressures should not be intensified to the point at which rising market rates would call into question the viability of the current discount rate . . .&quot;</td>
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<tr>
<td>4/12/66</td>
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<td>&quot;consensus that recent growth rates of bank reserves, bank credit and the money supply were excessive . . .&quot;</td>
</tr>
<tr>
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<td>−¼</td>
<td>&quot;net reserve availability should be reduced gradually further&quot;</td>
</tr>
<tr>
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<td>0</td>
<td>&quot;a further gradual reduction . . . would not be desirable at present&quot;</td>
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<tr>
<td>6/27/66</td>
<td>BOG −¾</td>
<td>raised reserve requirement ratio</td>
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<td>0</td>
<td>&quot;maintaining about the current state of net reserve availability&quot;</td>
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<td>COMMENT</td>
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<tr>
<td>7/26/66</td>
<td>0</td>
<td>&quot;maintaining an even keel&quot;</td>
</tr>
<tr>
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<td>0</td>
<td>&quot;no relaxation in the prevailing degree of monetary restraint&quot;</td>
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<tr>
<td></td>
<td></td>
<td>... &quot;maintenance of orderly money market conditions and moderation of unusual liquidity pressures&quot;</td>
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<tr>
<td>9/13/66</td>
<td>0</td>
<td>&quot;current degree of monetary restraint should be maintained&quot;</td>
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<td>... &quot;widely different levels of member bank borrowing and net borrowed reserves might be consistent with the current degree of monetary restraint&quot;</td>
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<td>&quot;no change in policy should be made at this time&quot;</td>
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<tr>
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<td>+½</td>
<td>&quot;tendency toward somewhat less firmness that had been allowed to develop... was appropriate...&quot;</td>
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<td>&quot;faster expansion in bank credit at a moderate pace... insofar as feasible given the Treasury financing&quot;</td>
</tr>
<tr>
<td>11/22/66</td>
<td>+½</td>
<td>&quot;an overt, although modest and gradual, lessening of monetary restraint was warranted&quot;</td>
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<tr>
<td>12/13/66</td>
<td>+½</td>
<td>&quot;a majority... thought that some further relaxation would be desirable...&quot;</td>
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<tr>
<td>1/10/67</td>
<td>+½</td>
<td>&quot;relax monetary restraint somewhat further&quot;</td>
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<tr>
<td>2/7/67</td>
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<td>&quot;maintain easier money market conditions achieved under the policies adopted at the three preceding meetings... resist any sharp rises in interest rates but rates should not be permitted to decline&quot;</td>
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<td>2/28/67</td>
<td>BOG</td>
<td>Reserve requirement ratios reduced</td>
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<td>3/7/67</td>
<td>+½</td>
<td>&quot;somewhat easier money market conditions were desirable&quot;</td>
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<tr>
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<td>&quot;attaining somewhat easier conditions by supporting the easing expected to result from the anticipated discount rate action... but not at achieving further easing independently of that action...&quot;</td>
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<td>&quot;maintain about the prevailing conditions&quot;</td>
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<tr>
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<td>&quot;forthcoming Treasury financing precluded any change... at this time&quot;</td>
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<tr>
<td>12/12/67</td>
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COMMENT

a keel"

the prevailing degree of monetary maintenance of orderly money market standard of unusual liquidity pres-

monetary restraint should be main-
different levels of member bank borrowed reserves might be con-

should be made at this time"

somewhat less firmness that had develop . . . was appropriate . . .

bank credit at a moderate pace . . .
given the Treasury financing"

modest and gradual, lessening of conservative warranted"!

ought that some further relaxation "

amount somewhat further"

money market conditions achieved adopted at the three preceding . . .

sharp rises in interest rates but permitted to decline"

ratios reduced

money market conditions were de-

easier conditions by supporting to result from the anticipated but not at achieving further of that action . . .

conditions in the money market"

conditions in the money market"

some conditions" . . .

prevailing conditions"

prevaling conditions" . . .

prevailing conditions in the financing precluded any

DATE   SCALE   COMMENT

11/14/67  0   "no change should be made . . . at this time, in view of the sensitive state of conditions in foreign exchange markets"

11/27/67  BOC  −%   "orderly market adjustments to take increase in . . . discount rates."

12/12/67  −%   "seek firmer money market conditions . . ."

1968

1/9/68  BOC  −%   BOG increased reserve requirement ratios

2/6/68  −%   "maintain the somewhat firmer conditions"

3/5/68  −%   "to maintain firm . . . conditions and to seek firmer conditions to the extent permitted by Treasury financing"

4/2/68  −%   "greater monetary restraint was desirable"

4/19/68  −%   "continued firming was desirable" . . . "slightly firmer conditions should be sought"

4/30/68  −%   discount rates and CD rates increased

5/25/68  0   "achieving firmer money market conditions in keeping with the higher discount rate"

6/18/68  +%   "firmer conditions . . . maintained . . . modified, insofar as permitted by the Treasury financing"

7/16/68  +%   "maintaining about the prevailing firm conditions"

8/13/68  0   "accommodating easing tendencies . . ."

8/19/68  +%   "maintain, on balance, about the prevailing conditions"

9/10/68  0   "facilitating orderly money market adjustments to reductions in . . . discount rates . . ."

10/8/68  0   "no change in monetary policy was warranted"

10/29/68  −%   "maintaining about the prevailing conditions" . . . modified, insofar as the Treasury financing permitted, . . ."

11/26/68  0   "domestic economic considerations did not suggest a clear and unequivocal need for a firmer policy at present . . ."

(8-4)   "maintaining the prevailing conditions"

12/17/68  −%   "attaining firmer conditions"

1969

1/14/69  −%   BOG increased the discount rate by 3/4%

"maintain the existing degree of monetary restraint" . . . "modified, to the extent permitted by forthcoming Treasury refunding"