A Monetary Interpretation of the Post-1965 Inflation in the United States (*)

Introduction

To highlight the monetary interpretation of the recent inflation I shall first sketch in broad terms some of the basic hypotheses that one finds in many of the non-monetary inflation theories (1). To begin with, almost all non-monetary theories share one common feature in the view that the Vietnam escalation in 1965 (and our failure to enact a surtax in 1966) is a principal factor in the post-1965 inflation. In addition, different versions of these theories also rely on some of the following propositions: (a) that the inflationary problems since 1965 were due to the rapid rise and acceleration in (public) defense and (private) capital expenditures — in some variants it is the rapid acceleration in spending that is stressed as the crucial factor (2); (b) that stabilization policies of the " new economics "

(*) An earlier version of this paper was presented to the Economics Society of Michigan in Ann Arbor, Michigan on March 28, 1969.

(1) For an illuminating discussion of the non-monetary inflation theories see H. G. JOHNSON, *Essays in Monetary Economics* (Harvard, 1967), especially Chapter 3, " A Survey of Theories of Inflation "; and G. HABERLER, *Inflation: Its Causes and Cures* (Washington, 1966). For some particular examples of non-monetary inflation theories see the *Annual Report of the Council of Economic Advisers* (CEA) for 1967, 1968 and 1969; the testimony presented at the Hearings before the House Committee on Ways and Means on *The President's Surtax Proposal* August and September 1967, December 1967, and January 1968; some of the submissions to the House Committee on Banking and Currency *Compendium on Monetary Policy Guidelines and Federal Reserve Structure* (December 1968); the testimony presented at the *hearing* and the *report* of the Joint Economic Committee on the *January 1969 Economic Report of the President*. See also the recently published dialogue between M. FRIEDMAN and W. HELLER on *Monetary vs. Fiscal Policy* (Norton, 1969).

(2) I have taken most of the following citations from the (CEA) *Annual Report for 1969* because it is a well-known and authoritative source. These citations should not be viewed as suggesting that the 1969 (CEA) inflation theory was either an extreme or a particularly dogmatic version of a non-monetary theory. In fact the 1969 (CEA) report is, in my view, more conciliatory about monetary theory than the previous reports.

" By mid-1965, the unemployment rate had been reduced to about 4½ percent, and the gap between actual and potential output was being narrowed gradually and steadily. At this

would have worked out reasonably well if the Johnson Administration and Congress had succeeded in raising taxes to cover the costs of the Vietnam War (3); (c) that we should not fault discretionary fiscal policy if the President, or Congress, refuse — or otherwise fail — to cooperate in its proper implementation; (d) that the aggregative macroeconomic models of the economy as represented by the income-expenditure GNP models provide tolerably good forecasts for implementing modern (discretionary) fiscal policy and activist management of the economy (4); (e) that the continuing inflationary pressures since June 1968 result from our failure to pass the tax surcharge when it was first proposed by the Administration, and not from the extraordinary high rates of monetary expansion (5) (6); (f) that the conduct of monetary policy could possibly have been better (though this is not entirely clear), but since credit markets have been so tight in recent years, the rate of monetary expansion could not in itself be a major contributing factor in the post-1965

point, defense orders and expenditures began to build up rapidly, and the task of economic policy became considerably more complicated. The increase in defense activity reinforced a strong expansion of business spending on plant and equipment. The result was an excessively rapid growth of economic activity which generated inflationary pressures ".

Economic Report of the President 1969, pp. 75-76.

(3) " Fiscal policy remained strongly and inappropriately expansionary — in large part because defense spending continued to outrun expectations. As the President has recently made clear in reviewing the record, he discussed a recommended general rise in taxes privately with business and Congressional leaders early in 1966 and became convinced that a tax increase could not be enacted ".

Ibid., p. 77.

(4) " Forecasting was notably successful in gauging in advance the rapid expansion of 1964 and the upsurge from late 1967 into 1968. On some occasions, however, difficulties have been encountered. Nevertheless, the whole record makes clear that explicit quantitative projections are superior to extrapolations or hunches, which are the only alternative ways of guiding policy decisions that affect the future ".

Ibid., pp. 79-80.

(5) " The major shortcomings of economic policy in recent years can be traced to difficulties in achieving prompt and appropriate adjustments in fiscal policy to offset variations in the strength of private demand and substantial changes in defense spending. The next section discusses some improvements that might be made in the formulation and implementation of fiscal policy ".

Ibid., p. 78.

(6) " The excessive buoyancy reflected, in large part, the extended delay in enacting the 10 percent income tax surcharge which had been proposed by the President in August 1967... But by the time the appropriate fiscal restraint went into effect in mid-July, the underlying forces of expansion had attained great momentum — more than was realized at the time. As a result, the needed moderation in the pace of advance developed slowly ".

Ibid., p. 33.

inflation (7); and (g) that the character, thrust, and posture of monetary policy may be gauged in terms of the supply, availability, and cost of credit — by movements in (nominal) market interest rates — and that it is neither necessary nor particularly illuminating to analyze money stock behaviour in assessing the action of the monetary authorities (8).

As a further rationalization of the continuing inflation in 1968 and 1969, and especially of the surge in inflationary pressures after the June 1968 tax action, some variants of the non-monetary inflation theories may stress the irreversible consequences [the delayed (long lag) effects] of an alleged budgetary miscalculation in December 1965, and errors in the implementation of fiscal policy in 1966 (9). The idea that the mounting inflationary pressures after the passage of the *Revenue and Control Act* in June 1968 and continuing on in the 2nd quarter of 1969, are due to errors (of omission and commission) associated with the Vietnam escalation in 1965-1966, and essentially unrelated to the extremely high rates of expansion in the monetary aggregates since early 1967, is of course intriguing. One would like to know the underlying mechanism — whether it is based on an irreversible hysteresis-type effect, or whether it assumes a very

(7) " In the absence of a full measure of timely fiscal restraint, an undue share of the burden of dampening the excessive expansion fell on monetary policy ".

Ibid., p. 77.

" Monetary and financial development in 1968 fit broadly into two periods. Interest rates climbed sharply in the early months of the year, as monetary policy tightened in defense of the dollar and to curb mounting inflationary pressures at home while enactment of the proposed tax surcharge continued to be delayed ".

" The degree of monetary restraint imposed in the first several months of the year (1968) was quite severe ".

Compendium (CEA) submission, pp. 83-84.

(8) " The one financial variable that has been rather at odds with the general picture described above is the narrowly defined money supply. Thus after growing at a relatively moderate rate in the first 3 months of the year, growth of the money supply accelerated very sharply during the April-July period. In large part, this seems to reflect a slow adjustment by the private sector of the economy to an unusually large payout of Government deposits during this period. Rising transactions needs associated with the rapidly growing economy and a heavy volume of securities market transactions may also have been a factor. As we interpret it, this surge in the money supply was not indicative of an early easing in monetary policy. Nor do we believe that return to more normal money growth in subsequent months reflects a tightening in monetary policy compared with its posture during the spring and early summer. Developments this year point up the inherent dangers in focusing exclusively on so narrow a financial variable as the money supply ".

Ibid., pp. 83-84.

(9) For an analysis of these views see D. I. Fand, " The Chain Reaction-Original Sin (CROS) Theory of Inflation ", in the *Financial Analysts Journal*, July 1969.

long but fixed (and unalterable) lag — but the *modus operandi* of this mechanism is not spelled out precisely.

One important assumption of these inflation theories does need to be made explicit. It assumes that the monetary theory of the " new economics " and the stabilization theories followed since 1965 are basically sound. Accordingly, the ensuing inflation must, almost by definition, be due to errors of implementation, whether committed by politicians (in the Executive branch or Congress) or by the technicians (in the White House staff or in the Pentagon). Moreover, the inevitable implication of these theories is that the failure of the June 1968 tax action to stop the inflationary pressures thus far is somehow due to implementation errors in 1965, 1966, or 1967, but does not reflect on the monetary actions taken since 1965.

In a forthcoming paper, discussing the role of the Vietnam War in the current inflation, I am suggesting (a) that the Vietnam escalation is not the major cause of the current inflation, (b) that (if one must oversimplify a complex causal nexus) it may be more nearly correct to reverse the causation and say that both the inflation and the Vietnam escalation may have resulted (inadvertently and not by design) from the commitment to expansion, and (c) that the recent difficulties in controlling inflation result from analytical, conceptual, and policy failures rather than inappropriate implementation of a basically sound fiscal policy (10). In this paper I shall focus on the monetary aspects of the post-1965 inflation: Are the non-monetary inflation theories essentially correct in viewing the inflationary pressures in 1968 and 1969 as consequences of implementation errors committed in 1965 or 1966, at the time of the Vietnam escalation, and compounded by the delay in passing the surtax (recommended by the Administration) in 1967; or are they abstracting from the major factor in the current inflation — the extraordinary high rates of growth in the monetary aggregates since 1965, and especially the pronounced rise in the rate of monetary acceleration after the tax action in June 1968.

(10) *Ibid.* Especially Section V on " Expansionist Economics and the Vietnam Escalation ".

I. Has Monetary Policy been Tight Since 1965?

One crucial question that we must consider is how to characterize the overall thrust and posture of our monetary policy from 1965 when inflationary pressures became evident, and continuing on, thus far without abatement, in the 2nd quarter of 1969 — some ten months after the passage of the much-debated *Revenue and Control Act* in June 1968. The immediate facts concerning this episode are not in dispute. We know that market interest rates have been rising during this period and are now at extremely high levels, that the market for all kinds of fixed-income securities (public and private) has declined, that we have experienced several financial crises, including a severe money crunch, disintermediation, continuing shortages of mortgage funds, and a growing concern for the viability of our thrift intermediaries. Many economists have apparently taken it as almost self-evident that these phenomena are the necessary consequences of tight money (11). Although this is a plausible hypothesis it appears to be incorrect, as there are substantial reasons for not characterizing the post-1965 period as one of a restrictive monetary policy. Extremely tight credit markets are not the necessary results, nor even the usual manifestations, of tight money; they are, in fact, more frequently associated with periods of monetary inflation. Excessive monetary growth, rising prices and inflationary expectations, typically generate conditions of rising (nominal) market interest rates, sustained and persistent shortages in the availability of funds, and growing pressures in all credit markets. This view is supported by the data on the monetary aggregates summarized in Table 1 and Charts (1, 2, 3) showing monetary growth rates, interest rates and prices, which do point up the extremely high rates of monetary expansion during the post-1965 period of rising prices and rising interest rates. This evidence on the growth rates of member bank reserves, of the monetary base, of the money supply and bank credit for the four periods since 1957, does lend support to the hypothesis that the rising interest rates and tight credit markets in recent years may have been the result of easy money.

(11) For an interesting approach to the " indicator problem " see the forthcoming publication by K. Brunner and A. H. Meltzer on " Targets and Indicators of Monetary Policy ".

TABLE I

GROWTH RATES OF SELECTED MONETARY AGGREGATES
(Annual Rates of Change)

	June 1968 to Dec. 1968	1967 to 1968	1964 to 1967	1957 to 1964
Total Member Bank Reserves . . .	9.3	5.3	4.8	2.8
Reserves Available for Private Demand Deposits	6.2	6.3	2.8	1.2
Monetary Base	6.6	6.6	4.9	2.7
Demand Deposit Component of Money	5.9	6.5	3.7	1.8
Money Supply	6.1	6.8	4.1	1.9
Money Supply plus Time Deposits .	11.9	6.0	8.2	5.3
Bank Credit	14.8	8.3	8.8	6.4

Source: *Monetary Trends*, Federal Reserve Bank of St. Louis.

This also appears to be the view of Chairman Martin in his March 25th testimony before the Senate Banking and Currency Committee:

> "But beginning about the middle of 1965, the cost of credit began to rise, and we are still seeing increases going on today. What accounts for this abrupt change in the demand — supply equation in finacial markets during the past 3-1/2 years?"
>
> "I want to note quite specifically that the runup in interest rates since the middle of 1965 does not stem principally from diminution in the supply of credit created by restrictive monetary policies. Monetary policy has been restrictive during some intervals over the past several years — from late 1965 to the fall of 1966, for a brief period in the late spring of 1968, and then again from late 1968 to the present. But in surrounding periods the supply of money and credit grew rapidly, and the period 1965-68 as a whole was one of rather substantial monetary expansion." (12)

Those who associate high (and rising) interest rates with tight money believe that the post-1965 period was one of monetary restraint because interest rates (as shown in Chart 2) were, in historical terms, extremely high. This conclusion does assume that market interest

(12) This important testimony by Chairman William McChesney Martin indicates quite clearly that he sees the rising interest rates since 1965 as the *consequences* of monetary inflation, and not as the *concomitants* of a restrictive monetary policy.

rates are the proper indicator and measure of the monetary posture. Moreover, if the inflationary pressures in the post-1965 period continued on in spite of such high interest rates, it can only serve to dramatize the ineffectiveness of restrictive monetary policy in curbing inflation. Indeed, those who analyze monetary policy in terms of the interest rate criterion cited this experience in pressing for the surtax and fiscal restraint. Thus G. Ackley, as Chairman of the (CEA), testified that passage of the surtax in 1968 would not only increase our effectiveness against inflation, but would also help us lower market interest rates and, most importantly, provide us with a mix of monetary and fiscal policy that is better from a social point of view (13).

The conclusion that fiscal restraint was necessary in order to effectuate stabilization policy is therefore linked in a crucial way to a particular view of the monetary process — that monetary events may be analyzed in terms of an interest rate indicator. And it was precisely this interpretation of interest rate movements that was used, by Ackley and others, to conclude that we have relied too heavily on restrictive monetary policy, that tight money was ineffective relative to fiscal restraint in curbing inflationary pressures, and that the

(13) "It is my conclusion that with enactment of the President's tax proposals, we have minimal risks of either an overheated economy or excessive sluggishness; on the contrary, that its enactement will give us by far the best prospect for achieving a healthy pace of growth that will adequately use but not strain our resources or our financial markets. Without enactment of the President's tax proposals on the other hand, we would risk imbalances, overheating, financial distress, acceleration of the price-wage spiral, and deterioration in our balance of payments".

President's Surtax Proposal: Continuation of Hearings, January 1968, p. 34.

"Without a tax increase, the cruel and unequal bite of tight money and high interest rates would impose some restraint on the growth of demand and the inflation of money incomes. But the additional revenues generated by that kind of restraint would not flow to the government. Rather, they would flow to those who have money to lend".

President's 1967 Tax Proposals, Hearings Before the Committee on Ways and Means, Part I, p. 60.

"This is another major reason why prediction in the no-tax case is precarious. We only know that there would be monetary restraint well beyond the current pressure of such restraint. Interest rates — already at peak levels for this century at long term — would rise further. The first — but not the only — sector to suffer would be home building. Interest rates on short — and medium — term open market securities cannot go much higher than they are now without drying up the flow of funds into the thrift institutions and thus into mortgages. The housing slump of 1966 could be repeated. Whether, after such a second blow, the industry would again recover as quickly as it did in 1967 is highly questionable. If any prediction can be made with certainty, it is this: A vote against the tax increase is a vote for a new slump in housing".

President's Surtax Proposal: Continuation of Hearings — January 1968, pp. 39-40.

failure to pass the surtax in 1966 was therefore the important factor in setting off our continuing inflation. But if the rate of monetary expansion in the post-1965 period was excessively high, and if the high (and rising) interest rates were the results of monetary inflation and not the manifestations of monetary restraint, then much of the analysis of recent stabilization policy, and especially of the alleged failures of restrictive monetary policy, both in respect to its effectiveness in curbing demand and in respect to its socially undesirable allocative effects (e.g. residential construction), falls by the wayside. A correct characterization of monetary policy in this period is therefore of great importance in forming an useful post-mortem of our current inflation, with implication both for stabilization policy and for monetary theory.

II. The Interest Rate Transmission Mechanism in Aggregative Models

To analyze the impact of monetary policy on aggregate demand in a typical macroeconomic aggregative model, one examines the interest elasticities — the effect of changes in interest rates and how they affect investment expenditures. Although one often sees an attempt to bring in a variable for credit availability or a liquidity measure, the typical income-expenditure model postulates a linkage mechanism, which goes from money to interest rates, and from interest rates to investment (14). This view of the linkages between the financial and the real sectors tends therefore to motivate, if not justify, the following three roles for interest rates: (a) to serve as an indicator and identify the thrust and posture of monetary policy; (b) to measure the cost of capital; and (c) as the transmission mechanism through which money affects private spending. Although this approach to interest rates is widespread and is the dominant view in the profession, I shall suggest that market (nominal) interest rates may not always serve these roles in a satisfactory way; and this is especially pronounced in a high-employment economy with rising prices, as in the post-1965 period.

(14) In a recent survey of the empirical literature, Hamburger summarizes his findings as follows:

"The major conclusions with respect to these questions are the following: First, the monetary variables which have been used most frequently are interest rates and some rather *ad hoc* measures of liquidity. The recent trend has been towards interest rates. Second, the frequency with which interest rates have been found to be statistically significant seems to increase with time. Several years ago it was thought that changes in interest rates affected only residential construction and the expenditures of state and local governments. Now, however, evidence has been offered that fluctuations in interest rates also have a significant impact on investment in plant and equipment. In addition, current research suggests that interest rates may also play an important role in determining inventory investment and consumer expenditures on durable goods".

See M. J. Hamburger, "The Impact of Monetary Variables: A Selected Survey of the Empirical Literature", Federal Reserve System *Staff Economic Studies*, # 34.

The tendency to equate monetary effects with movements in *nominal* interest rates is probably responsible for the widely held view that restrictive monetary policy has a substantial, and discriminatory, impact on some categories of expenditures (e.g. residential construction). As a matter of fact, these discriminatory effects often derive from inflation, from the failure to take sufficiently restrictive monetary action, and from the rise in interest rates associated with inflationary expectations. Similarly, the strategic role that is centered on the interest rate in the transmission mechanism may also tend to make monetary policy appear as discriminatory in its impact. To avoid such potential errors it may be desirable to be somewhat more careful in defining the relevant interest rates, which may include a whole array of rates, many of them expressed implicitly; and we need to be explicit about the relation between the (nominal) market interest rate on government securities to "the interest rate" of aggregative theory, whether defined as the long rate (Keynes), the natural rate (Wicksell), the real rate (Fisher), or the supply price of capital (Tobin) — for these are the rates that play a large role in the theory (15).

1. *Interest Rates as Indicators*

The post-1965 period in the United States is clearly one of extremely high levels of interest rates. If market interest rates, as measured by the yield on government securities, are viewed as the appropriate indicator of central bank posture, then we must certainly conclude that this is a period of very restrictive monetary policy. But this merely changes the question to a consideration as to whether interest rates are an appropriate indicator or gauge of the monetary posture.

(15) For an authoritative exposition of alternative approaches to monetary theory see H. G. Johnson, *Essays in Monetary Economics*, especially the first two chapters. See also the discussion of the two approaches to aggregative theory in D. I. Fand, "The Impact of Monetary Policy in 1966", *Journal of Political Economy*, August 1968.

The choice of interest rates as an indicator of monetary policy may appear natural in a conventional (Keynesian) income-expenditure model, in which an increase (or decrease) in the quantity of money will lower (or raise) interest rates, in which the injection of new money into the system has an immediate impact on interest rates, and in which the *modus operandi* of monetary policy is via interest rates and investment. The post-1965 period of rising and extremely high interest rates would, in this model, naturally and automatically fit the classification of monetary stringency.

Yet this conclusion must be somewhat perplexing since, as shown in Table 1 and Charts (1-3), this period was also characterized by extremely high rates of monetary expansion and by substantial inflation — the longest inflationary period in the last two decades. One is understandably reluctant to describe an inflationary period as one of tight money; and there appears to be a dilemma between the tight money verdict based on interest rates, and the expectation of inflation that is suggested by the money stock behavior. One way to reconcile the two criteria is to note that the rising and high rates since 1965 may have been the consequences of monetary inflation (16). But such a reconciliation also suggests that we reject interest rates as an appropriate indicator or, at least, recognize that they may have very considerable, and serious, limitations in given circumstances.

There are many more difficulties with using interest rates as an indicator of the monetary posture. First, we have to decide how to interpret the movements of the (nominal) market interest rate as given by the rate on riskless (in the sense of default) government bonds, and how to relate this market rate to " the interest rate " of theory — the Keynesian long rate, the Fisherian *real* rate, the Wicksellian *natural* rate, or Tobin's supply price of capital (17). Second, we must also decide on the relevant maturity, and whether the

(16) See M. FRIEDMAN, *Dollars and Deficits* (Prentice-Hall, 1968), esp. Chs. 4 and 5.

(17) Tobin defines the supply price of capital as follows:

" The strategic variable — the ultimate gauge of expansion or deflation, of monetary tightness or ease — is the rate of return that the community of wealth owners require in order to absorb the existing capital stock (valued at current prices), no more, no less, into their portfolios and balance sheets. This rate may be termed the supply price of capital ".

See J. TOBIN, " Money, Capital, and Other Stores of Value ", *American Economic Review*, May 1961.

The relation between the Keynesian long rate, Fisher's real rate, and Tobin's supply price of capital is elaborated in Section IV of D. I. FAND, " Keynesian Monetary Theories, Stabilization Policy and the Recent Inflation ", forthcoming in the *Journal of Money, Credit and Banking*.

government or corporate rate is more apt to reflect changes in monetary postures; and, if we choose the supply price of capital, whether to derive this from the equity yield or from the return on capital. Third, we must also arrive at a bench mark for determining whether rates are high or low — whether policy is tight or easy. Fourth, if (nominal) market rates do at times incorporate a premium for inflationary expectations, how do we allow for the possibility that *rising* market interest rates may be consistent with *constant*, or even *falling*, real rates.

Chairman Mc. Cracken in his February 17, 1969 testimony at the Hearings of Joint Economic Committee in the *January 1969 Economic Report of the President* has discussed this issue in the following terms:

> " There is much disagreement about the channels through which monetary policy affects the economy and consequently about the best measures of the direction and degree of monetary action. Specifically, there is disagreement about whether monetary restraint or stimulus is exerted or measured by changes in the supply of money, which can be measured in various ways, by changes in the supply of bank credit or of total credit, or by changes in the general level of interest rates or in the relationships among interest rates, or in still other variables that could be mentioned. We are inclined to the position that the behavior of the supply of money is very important. However, we do not regard this question as settled and have no desire to be dogmatic about it. "

For the post-1965 period, we obtain a clearer reading if we study the behavior of monetary aggregates. The data in Table 1 on the monetary aggregates and the Charts (1-3) do support the hypothesis that we have been going through a period of substantial monetary inflation, and that the high and rising interest rates are not the results of a restrictive monetary policy (18).

2. *Interest Rates and the Cost of Capital*

In addition to their indicator function, the interest-rate variables are also intended to pick up the monetary impact on private expend-

(18) For a succinct analysis of recent monetary developments, see the article by N. BOWSHER, " 1968 — Year of Inflation ", in the December *Review* of the Federal Reserve Bank of St. Louis.

iture. Interest rates are viewed as a measure of the cost of capital, and monetary policy is assumed to affect investment expenditures through its effect on capital costs. In light of our recent experience, it is questionable whether (nominal) market interest rates are an appropriate measure of the interest cost on capital. The correspondence that we normally assume between *real* interest rates and market rates can no longer be taken for granted; indeed, when prices are rising, *real* rates may remain constant or even fall while nominal market rates are rising. An estimate of the real rate for any borrower (or lender) requires that we adjust market rates and bring in price expectations explicitly. But price expectations may be subjective and may differ among individuals; it would therefore appear that market rates do not even provide the necessary information needed to measure the relevant interest cost for any borrower.

This raises two related problems: (a) How do we estimate a real rate in order to measure the economically relevant interest or capital costs? (b) Is there an objective and unambiguous measure of the real interest rate or the real cost of capital if individual price-level expectations do differ?

If the formation and distribution of expected prices does vary among individuals, a given development in market rates may lead some transactors to act on the basis that real rates are rising while others — experiencing the same set of market rates but expecting a larger increase in the prices — may act on the basis that real rates are falling. The use of market rates as a measure of real interest cost may thus be misleading, because the real rate to any one individual may no longer correspond to any objective movements in market rates.

It would not be surprising to learn that the elasticity of expectations for the business sector is higher than for other sectors, and that since 1965 they may have perceived real rates in different terms than the household sector. Corporate officials responsible for investment decisions may have more fully articulated price expectations and — in spite of the rapid rise in market interest rates — may have concluded that the real cost of capital was low. Indeed, it is quite possible that real rates — defined as nominal rates corrected for price expectations — may have been falling or drifting downward substantially. In contrast the household sector, still accepting the (nominal) market rates as an objective proxy for real rates, may have been acting on the basis that real rates have been rising steadily

since 1965. Observed differences in expenditures for residential construction and business investment could have been due to such differences in the formation of price expectations. This distinction between market and real rates applies especially to those who use aggregative econometric models and interest rate variables to measure either the cost of borrowing, or the cost of capital.

In Fig. 1 we present a chart on *Market* and *Real* yields, on corporate Aaa bonds as published by the Federal Reserve Bank of St. Louis. The procedure used to obtain the *real* rate is to substract the annual rate of increase in the GNP deflator (in the preceding twenty-four months) from the current market rate. Using the particular definition and measure of price expectations, it implies that *real* rates were falling, or drifting, downward since 1965. Thus if the rise in the GNP deflator has averaged, say 4% (in the past two years), we subtract 4% from the current market rate to get the *real* rate. This 4% may also be viewed as the expected rate of price inflation. Now let us suppose that this procedure provides us with an estimate of the price expectations held by the Corporate sector; let us also suppose that the Household sector still continues to look at the current market rate as a reasonably close approximation to the expected real rate. On our assumptions the Corporate sector, taking account of price expectations, will conclude that expected real rates are either constant or falling, and substantially below the current nominal market rate. The Household sector, abstracting from price expectations, will conclude that real rates have been rising steadily.

If this analysis is correct it suggests that the widely accepted view that monetary policy discriminates against housing needs to be re-examined. To the extent that there is divergence between the Household and Business sectors in estimating future price movements, it suggests that inflation and the emergence of inflationary expectations may hurt the Household sector, and not the monetary policy designed to curb inflation and stabilize expectations.

3. *Interest Rates and the Transmission Mechanism*

The impact of monetary action tends to be both understated in magnitude and narrowed in scope if we assume that monetary changes can only affect investment expenditures. This hypothesis suggests that fluctuations in economic activity are due to changes in private investment (defined either as business-fixed investment or

extended to include residential construction and inventories), that consumption is linked to income, and that changes in consumer spending typically follow changes in investment through a multiplier mechanism. Consequently, many variations in private expenditures that take place as a result of monetary changes are almost necessarily attributed to non-monetary factors. Thus any *direct* monetary influences on consumer durable goods purchases, and other direct (non-market interest rate) portfolio effects on investment expenditures, may not be seen as monetary effects (even if the implicit yields on these assets are affected); and to the extent that this framework restricts the effects that we associate with monetary actions, it may cause the monetary effects to appear as discriminatory.

Some monetary influences need not necessarily derive from any observed change in a group of market interest rate, but may result from a direct portfolio substitution due to a change in cash balances or in overall liquidity. Thus an increase in money may stimulate the purchase of consumer durables and reduce the implicit yield of these capital goods, without necessarily lowering market interest rates. The assumption that monetary policy affects aggregate demand through changes in market rates — that a small set of market yields serve as the transmission mechanism — will tend by definition to narrow the scope of the monetary impact. If such direct portfolio effects are attributed to non-monetary factors, it does tend to make the impact of monetary policy appear both as selective and discriminatory (19).

This analysis, if correct, suggests that the impact of monetary policy depends to some extent on the transmission mechanism of the model used. In some models the monetary impact is almost (artificially) reduced to that which will be directly attributed to observed changes in a select group of market interest rates (20). The theoretical framework of the observer has some implications for the kinds of effects that he associates with monetary actions and his analysis of the impact of monetary change. It therefore suggests that some of the arguments against monetary policy on the grounds that it has

(19) See A. J. Meigs, " A Monetary View ", *Business Economics*, Vol. III, fall 1967, and Beryl Sprinkel, " Moving Toward Economic Stability ", *Journal of Business*, January 1969.

(20) For an analysis of the role of interest rates in various models see M. J. Hamburger, *op. cit.*, and M. Mann, " How Does Monetary Policy Affect the Economy " in the October 1968 *Federal Reserve Bulletin*.

a selective impact, and that it discriminates against particular categories of expenditures, may depend very much on the assumptions concerning the transmission mechanism that are built in the model being used.

III. Can The Monetary Authorities Control Interest Rates?

It is often assumed that the central bank can lower market interest rates by increasing the rate of monetary expansion. But if the central bank action is to bring about permanently lower interest rates — if the fall in market rates is to be more than just a temporary effect — there is need to spell out the theoretical rationale of how it is accomplished. More importantly, we must also explain whether this technique, by which the central bank can lower interest rates, is available to other countries, especially underdeveloped countries where there is a strong desire to stimulate capital accumulation and raise the rate of economic growth.

The Keynesian liquidity preference theory, viewed as a theory of interest, is often interpreted as saying that an increase in money will be associated with lower interest rates. Accordingly, if the central bank can accelerate the growth of the (nominal) money stock and raise the quantity of real cash balances (the real value of the nominal stock), it should result in lower interest rates. But if this is the underlying rationale it applies, in the first instance, directly only to an economy with a substantial volume of unused resources, with considerable output elasticity, where employment and output can readily expand, and where there is little upward pressure on prices. But even in the case of an economy with unused resources, this theory has only a limited (and short run) application, since it is primarily a theory of *changes* in interest rates, and this limited relevance is considerably reduced as the economy approaches high employment. In any event, this theory does not seem at all applicable to the high-pressure economy of the post-1965 period.

When the economy is nearing capacity and prices are rising, it is even doubtful whether the central bank can, in fact, either change the quantity of real balances or lower market interest rates by raising the growth rate of the monetary aggregates — by additional monetary expansion; and the attempt to do so may have the effect of fueling additional inflation and causing higher interest rates. Additional

monetary inflation in a high-pressure economy will not necessarily cause market interest rates to decline, even in the short run.

Both Keynesian and quantity theorists alike agree that it is not the nominal money stock but real cash balances that must be increased in order to lower interest rates. The liquidity preference function, whether viewed as a theory of interest or as a theory of cash balances, is a relation between the interest rates (or the supply price of capital) and the stock of real balances. Can we, therefore, safely assume that we can increase real cash balances by increasing the quantity of nominal money, and that nominal and real balances will move together? Admittedly, some Keynesians may think of the quantity of real balances as a policy variable — as a central bank instrument — which may be used to control interest rates. They would deny the view of the quantity theorists, who think of the stock of real balances as an endogenous variable [with an equilibrium (solution) value determined by the system], and who therefore conclude that any attempt by the central bank to lower interest by increasing money balances may only succeed in generating inflation. In this respect there may be an important substantive difference here in these two approaches to real cash balances.

To illustrate this difference let us move away from a stagnationist economy with a large volume of unemployed resources, and consider an economy where the productivity of capital may be relatively flat, where employment and output may not increase significantly or very easily, and where additional monetary demand may cause prices to rise. In this economy there is no compelling reason why monetary expansion should result in a reduction in the level of *real* interest rates; indeed, our expectation is that an expansion of the money stock may lower interest rates *temporarily*, and raise prices *permanently*.

Moreover, if we move on to the high-employment and high-pressure economy, where prices are rising, it may not even be possible for the authorities to bring about the initial increase in the quantity of real balances in order to generate the temporary decline in interest rates, except possibly for a very brief period. Indeed, this is more nearly akin to the situation of the Gibson Paradox, where movements in interest rates and money are positively correlated, and where rising (and high) interest rates and rising prices are associated with rapid (accelerated) growth in the money stock. This sequence of events has been recognized for a long time and Fisher, Wicksell,

Keynes, and others, have all offered different explanations for the paradox (21).

Does the Keynesian monetary approach to interest rates provide us with a useful framework for analyzing monetary developments, and is the Keynesian hypothesis that monetary expansion causes interest rates to fall, while obviously an incomplete analysis, nevertheless sufficiently accurate to serve as a useful first approximation for some short run problem? Several recent studies have subjected the interest rate behavior that is postulated in Keynesian theories to a critical analysis. These authors depart from the Keynesian tradition and introduce an income effect and a price expectation effect in addition to Keynesian liquidity effect; moreover, they assume that the monetary effect on interest rates is not instantaneous and therefore allow for, and attempt to estimate, the different kinds of lags (22).

Although these studies do confirm the existence of the Keynesian liquidity effect, they do not support Keynesian interest rate doctrine. In contrast to the Keynesian hypothesis of negative association between money and interest rates, these studies find evidence of offsetting income effects, including a positive price expectation effect of the kind referred to in the Gibson Paradox. One implication of these studies is that the Keynesian hypothesis of a negative association between money and interest is a *ceteris paribus* result; in turn, the actual findings of a positive association may be viewed as a *mutatis mutandis* relation, resulting from induced income and price expectation effects offsetting the initial liquidity effect. The evidence also seems to suggest that while the lag for the income effect may be fairly short (less than one year), the price expectation lag may be quite long. These studies would also imply that a higher rate of monetary expansion will be associated with a higher level of *nominal*

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(21) For a discussion of the Gibson Paradox see I. Fisher, *The Theory of Interest* (Macmillan, 1930); the summary of the Wicksell and Keynes Analysis in P. Cagan's *Determinants and Effects of Changes in the Stock of Money* (Columbia University Press, 1965); D. Meiselman, "Bond Yields and the Price Level: The Gibson Paradox", in D. Carson (ed.) *Banking and Monetary Studies*; and D. I. Fand, "Keynesian Monetary Theories, Stabilization Policy and the Recent Inflation", *op. cit.*

(22) The particular studies that we have in mind include: P. Cagan, *The Channels of Monetary Effects on Interest Rates* (forthcoming); M. Friedman and A. Schwartz, "Trends in Money, Income and Prices" (ms); W. E. Gibson, "Effects of Money on Interest Rates", Federal Reserve System, *Staff Economic Studies*, # 43 (1968); W. Gibson and G. Kaufman, "The Sensitivity of Interest Rates to Changes in Money and Income", *Journal of Political Economy*, May 1968; and D. Meiselman, "Bond Yields and the Price Level: The Gibson Paradox", *op. cit.*

interest rates, though not necessarily a higher level of *real* interest rates.

The picture that emerges may be summarized as follows: Increasing the quantity of money at a faster rate than it has been increasing will tend to lower interest rates — at least initially — relative to what they would have been. But the acceleration in the rate of monetary growth will stimulate spending and income, and may also raise prices. In turn, these income and price effects, by raising the demand for money and reducing the quantity of real balances, tend to reverse the initial downward pressure on interest rates, and to return interest rates to the level they would otherwise have had. Moreover, if the price expectation effect is operative, a higher rate of monetary expansion will correspond to a higher, not lower, level of interest rates than would otherwise have prevailed. The price expectation effect typically develops rather slowly and is also slow to disappear; indeed it has been estimated by Fisher and others that it may take several decades for a full adjustment.

The strength of the *positive* association between money and interest rates implied by the income and price effects, relative to the *negative* association of the initial liquidity effect, explains why the monetary authority is forced to escalate the rate of monetary expansion in attempting to drive interest rates down. They also explain why high (and rising) nominal interest rates have been associated historically with rapid growth in the quantity of money, and why low (and falling) interest rates have been associated with slow growth in the quantity of money (23).

IV. Market Interest Rates (Conventional Yields) or Prices (Implicit Yields)?

Was the fiscal restraint as it emerged in the *Revenue and Control Act* of June 1968 designed primarily to help fight inflation? If so, why did the authorities permit the extraordinary acceleration in monetary growth rates shown in Table 1? Alternatively, is it possible that the surtax action was *de facto*, if not in the policy discussions preceding its enactment, also designed with the idea that it

(23) For an elaboration of this theme see the Presidential address by MILTON FRIEDMAN on "The Role of Monetary Policy", *American Economic Review*, May 1968.

may be desirable to shift the monetary-fiscal policy mix from one of high interest rates and substantial deficits to one of lower interest rates and smaller deficits. More precisely, was the surtax viewed as giving the authorities the necessary latitude to substitute fiscal restraint for what was widely viewed as an extremely tight monetary policy — to change the policy mix — and thus lower market interest rates even if the original motivation for the tax action was primarily to help curb the inflationary pressures (24). The idea that it may be desirable to shift the mix assumes not only that the post-1965 period in the United States has been one of tight money but, more importantly, that the authorities can lower market interest rates by increasing the money stock — that control over the (nominal) money stock enables the authorities to control the stock of real cash balances and thereby reduce interest rates. But if nominal and real balances do not necessarily move together in an inflationary period, and if the quantity of real balances has a more or less uniquely determined value in a full-employment economy, the reasonableness of this last assumption is very doubtful. More precisely, if monetary expansion in a high-employment economy fuels additional price rises, it will cause the (*nominal*) market interest rates to rise even if *real* rates are constant. And this rise in market rates may go on even if the monetary inflation does succeed in lowering (*real*) rates temporarily. Moreover, the rise in prices may also cause the quantity of real balances to decline, even though the money stock is rising — an additional factor causing market rates to rise (25).

The assumption that expansion of the nominal money stock will necessarily lower market interest rates (the conventional yields) tends to abstract from any *direct*, and immediate, effect of money

(24) The Neo-Classical Synthesis. The idea that the monetary-fiscal mix can be varied, enunciated by M. Friedman and P. A. Samuelson in 1951, had important implications for Keynesian fiscal policy. If monetary policy can affect investment, it can also affect the amount of the deficit or surplus needed to achieve full employment. It follows that full employment can be achieved with any one of a large number of combinations of fiscal and monetary policy.

A fascinating account of the emergence of the neo-classical synthesis from the older 45° Keynesianism is given in H. STEIN, *The Fiscal Revolution in America* (University of Chicago Press, 1969), Chapter 14. For a recent statement of the neo-classical synthesis see J. TOBIN, "The Intellectual Revolution in U.S. Economic Policy-Making" (The University of Essex, 1966). See also D. I. FAND, "The Chain Reaction-Original Sin (CROS) Theory of Inflation", *op. cit.*, Section III on the "Fiscal Refrigerator and Monetary Boiler".

(25) The implications of treating real cash balances as an endogenous variable for the liquidity preference theory are explored in D. I. FAND, "Keynesian Monetary Theories, Stabilization Policy and the Recent Inflation", *op. cit.*, especially Section II.

on prices (the implicit yields), and tends therefore to overemphasize the relative importance of a small set of conventional yields. These two effects of an increase in the money stock — the interest rate effect (the conventional yield) and the price (the implicit yield) effect — are therefore related. If we abstract from any price level effect it is easier to exaggerate the effect on market interest rates. But if we attempt to allow for price level effects, there is much less ground for highlighting the short run liquidity effects of an increase in money on market interest rates. Indeed, in an economy that is close to, or at, high employment the effect of an increase in the quantity of nominal money may be completely reflected in prices, and may raise market interest rates while causing a relative decline in some implicit yields.

The tendency to emphasize market interest rates and to abstract from price level changes are related to the underlying assumptions of many aggregative models. If we oversimplify a bit, many income-expenditure models may be characterized as follows: fiscal policy determines output; monetary policy determines interest rates; wages or unit labor costs determine prices (and sometimes the price level is treated as a datum). And while monetary action may have some impact on aggregate demand through its effect on market interest rates this effect, conditioned by whether the interest elasticities are large or small, may still have very little effect on prices. There are, however, no *direct* effects in the sense that an increase in money may lead to a direct increase in expenditures (or in prices) through portfolio substitution without involving a prior effect through changes in market interest rates. This transmission mechanism of the typical income-expenditure models abstracts from changes in the many non-conventional and implicit yields and any *direct* effects of money on prices. It is not unreasonable in this model to postulate that an increase in nominal money constitutes an increase in real balances. But if money can affect expenditure and prices directly through a portfolio adjustment affecting implicit yields without going through the market rate transmission mechanism, there is no guarantee that a given change in nominal money will bring about equivalent changes in real balances (26). Of course, it may be easy to overlook this distinction

(26) Sete the papers presented by M. Friedman and R. Eisner on "Factors Affecting the Level of Interest Rates", and D. Meiselman on "The Policy Implications of Recent Research in Term Structure of Interest Rates" in *Savings and Residential Financing*, 1968 Conference Proceedings (U.S. Savings and Loan League).

between real and nominal balances if the price level is treated as an institutional datum. Taken together, these assumptions about the conventional yields and implicit yields, about the price level, and about the behavior of real and nominal cash balances may lead to serious errors in analysis and policy when used in a period such as that we have experienced since 1965.

It may be useful to enumerate several reasons why an increase in money may directly affect expenditures, prices, and implicit yields. First, to the extent that an increase in bank money — in inside money — brings about an increase in wealth, it may have a direct effect on aggregate demand (27). Second, considering only the substitution effects of an increase in inside money, note that money may be substituted not only for bonds but also for capital, and that individuals may re-establish portfolio equilibrium by purchasing either a financial *or* a physical asset. Third, if we define physical assets to include consumer durables (e.g. cars, appliances) it would be reasonable to suppose that these expenditures — which are now classified as consumption — can be directly stimulated by an increase in money. Fourth, during an inflation the direct effects of changes in money on prices — whatever they may be — will be strengthened: first, inflationary pressures suggest that any further increase in spending will affect prices more than output; second, a period of rising prices may generate inflationary expectations and raise the real cost of holding money, and the public has an incentive to reduce the quantity of desired real balances by increasing expenditures. Indeed, the direct connection between money and prices is likely to be strongest during an inflation.

V. Easy Money and Tight Credit

An increase in the quantity of money will, according to the Keynesian analysis, cause the public to buy bonds, make additional loans, or acquire other credit instruments, thereby lowering market interest rates. The fall in rates may, in turn, be an incentive to more spending, especially on long-lived assets such as housing, plant and

(27) For a discussion of the inside-outside money issue see B. Pesek and T. R. Saving, *Money, Wealth and Economic Theory* (Macmillan, 1967), and H. G. Johnson, "Inside Money, Outside Money, Income, Wealth and Welfare in Monetary Theory" (1968), ms.

equipment, and other producer durables. If such investment expenditures do take place, this is the starting point at which monetary policy begins to take hold. Accordingly, the initial impact of monetary policy and the thrust on monetary policy may, in these circumstances, be evaluated in terms of interest rates and credit markets.

There are, however, several reasons for not evaluating money and monetary policy solely in terms of interest rates or other credit market effects. First, once money is injected into the system it can be spent for all kinds of things, not merely used to acquire bonds and credit instruments — in other words, money can be spent directly on goods or services, or lent out. More precisely, the purchases or expenditures that we associate with an increase in real or nominal balances are not necessarily limited to the bond market, and an increase in the quantity of money may affect spending on commodities (and especially durables) directly, without going through the credit market route. Second, an analysis which equates money with credit (emphasizing the particular way in which money is introduced into the economy) may overlook the continuing impact of monetary change on credit markets which often work in the *opposite* direction from the initial impact; and the effects of monetary change may be relatively independent of the manner in which it is introduced. Third, those feedbacks which tend to offset the initial impacts may be so great, that when they come into play they can swamp the initial effects of monetary change. For this reason, monetary expansion may eventually lead to higher interest rates, not lower interest rates; and monetary contraction may lead to a fall in interest rates even if it does, in the very first instance, tend to drive rates up temporarily. In other words, *easy* money may lead to *tight* credit; *tight* money may lead to *easy* credit (28).

The hypothesis that the extremely tight credit markets since 1965 were the consequences of an easy money rather than a tight money policy may strike some readers more as a theoretical curiosum, and not as a substantively relevant proposition for analyzing our recent experience. It is therefore of considerable interest to note that Chairman Martin, in his March 25th testimony before the Senate

(28) See D. Meiselman, "The New Economics and Monetary Policy", *Financial Analysts Journal*, November 1967, and K. Brunner and A. Meltzer, "Liquidity Traps for Money, Bank Credit and Interest Rates", *Journal of Political Economy*, February 1968.

Banking and Currency Committee, points out the link relating expansive monetary policies, rising interest rates, and tight credit markets.

> "I do not mean to argue that the interest rate developments of recent years have had no relation to monetary policy. We know that, in the short-run, expansive monetary policies tend to reduce interest rates and restrictive monetary policies to raise them. But in the long-run, in a full-employment economy, expansive monetary policies foster greater inflation, and encourage borrowers to make even larger demands on the credit markets, while lenders pull back from taking positions in fixed-income securities — since they fear that both interest and principal will be eroded by rising prices. Over the long-run, therefore, expansive monetary policies may not lower interest rates; in fact, they may raise them appreciably. This is the clear lesson of history that has been reconfirmed by the experience of the past several years."

To distinguish between money and credit many monetary economists look to the money stock as a more fundamental criterion for gauging the thrust of monetary policy. This emphasis on the monetary effects (rather than the credit market effects) is sometimes identified as a *monetarist* view; and the impressive regularities linking the stock of money to income and the GNP are acknowledged even by those who are critical of the *monetarist* view, and who emphasize interest rates and credit market effects (29).

Conclusion

In this paper we discuss some issues in monetary theory that need to be clarified if we are to achieve greater control and success in fighting inflation. Although high Federal Reserve officials have indicated their intention, in December 1968, to impose monetary restraint in order to cool the inflation, it was not entirely clear in February 1969 (some eight months after the June 1968 tax action)

(29) To cite just one example, we include the following statement by the (CEA) in the *Economic Report of the President for 1969*:

"On the other hand, relationships between movements in GNP and any of the money concepts have been close enough on the average — especially when processed through complex lags and other sophisticated statistical techniques — to be difficult to pass off lightly".

that we were getting the necessary slowdown in monetary expansion. In the March 1969 *Review* of the Federal Reserve Bank of St. Louis there is the following appraisal of the monetary situation:

> "Recent slower growth rates of money, money plus time deposits, and bank credit, or high market rates of interest and a large volume of net borrowed reserves, have led some observers to conclude that monetary actions in recent months have been highly restrictive. However, others note that the monetary base has continued to increase rapidly, that the slower growth of money was chiefly the result of a large and temporary buildup of U.S. Government deposits at commercial banks, and that the slower growth of both money plus time deposits and bank credit was the result of Regulation Q interest rate ceilings and does not indicate any reduction in total credit flows. Thus interpreted, available data seem to indicate that lasting monetary restraint may not yet have been exercised. The observed slower rates of monetary expansion will only be effective if they are maintained over the next few months."

At the end of March, and in early April, it did appear that the authorities were seriously curtailing the rate of monetary expansion. And this was reinforced by the highly significant testimony of Chairman Martin before the U.S. Senate Committee on Banking and Currency on March 25, 1969.

> "If my diagnosis of our current interest rate problem is correct, then it is clear what we need to do to get interest rates back down to more sensible levels. We must follow economic stabilization policies that bring inflation under control, and continue those policies long enough to be sure that a resurgence of excess demand and strong cost and price pressures does not recur."

Martin's important testimony, which may mark a turning point in our recent monetary history, was reassuring to many people who were beginning to doubt our will and ability to curb inflation. This calming influence was disturbed by the April data, indicating a money stock growth of 12-15% (annual rate), and not conforming to the spirit or substance of Martin's testimony. An influential source has cautiously referred to the April developments "as a sharp, but temporary bulge in early April, which has been attributed to technical factors". The May data suggest that the central bank is following the course chartered in Martin's testimony.

The inflationary pressures in the past year, even after the passage of the June 1968 tax action — a fiscal-restraint package that generated many influential predictions of overkill — focus attention on monetary policy. It appears that there are irresistible pressures for the central bank to evenkeel, and to abstract from any *direct* influence of monetary expansion on prices; to analyze and treat the monetary aggregates as endogenous variables (outside its control), and to focus instead on interest rate movements, credit flows, and shifts among intermediary claims; and to let technical and short term developments influence (and sometimes dominate) policy. This approach to central banking, to monetary theory, and to the policy guidelines and operating standards — viewed as an integrated policy framework — raises the risk that long term (and basic) objectives may be sacrificed (inadvertently), or traded off (balancing alleged gains and losses), to achieve some technical, short term, or money market objectives. If this is so, a careful examination of underlying theory is needed to free policy-makers and responsible government officials from an aggregative framework, an approach to central banking, a theory of money, and an inherited tradition which (even in the very best of hands) is bound sooner or later to generate errors in policy.

The aggregative theory (and associated view of central banking) emphasizes the direct *fiscal* effect on aggregate demand, and views the contribution of monetary policy as one of facilitating, and implementing, fiscal action (30). The theory of money highlights the concern with money markets and credit markets, with the flow of funds, and with changes in the composition of liquid assets; and it also rationalizes the loss of interest in the monetary aggregates because they do not directly influence aggregate demand (31). The inherited tradition often articulates, and gears, policy to money market (and other short term) developments, and may therefore set the stage (and occasion a tendency) for officials (even if extremely prudent and sensitive) to *over-react* (32).

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(30) See L. C. Andersen and J. L. Jordan, "Monetary and Fiscal Actions: A Test of their Relative Importance in Stabilization", in the November 1968 *Review* of the Federal Reserve Bank of St. Louis, the *Comment* by F. Deleeuw and J. Kalchbrenner and the *Reply* by Andersen and Jordan in the April 1969 issue of the *Review*.

(31) See D. I. Fand, "Keynesian Monetary Theories, Stabilization Policy and the Recent Inflation", *op. cit.*

(32) See J. E. Buehler and D. I. Fand, "The FOMC Minutes and Monetary Policy", forthcoming in *The Michigan Academician*.

Advocates of the non-monetary inflation theories will suggest that these potential weaknesses may have surfaced recently only because of the special burdens due to the Vietnam War. Perhaps so. But even those who believe that our inflationary problems are due to implementation errors (in fiscal policy) at the time of the Vietnam escalation, will surely agree that the test of an analytical framework, of a theory, and of an inherited tradition is how it performs in adverse circumstances and in difficult conditions. Consequently, even if one accepts the argument that, given the Vietnam escalation and our failure to increase taxes, inflation was inevitable (which we do not accept), the lessons pointed up by this experience cannot be ignored. Much of the received (and widely accepted) doctrines concerning aggregative theory, the theory of money and stabilization, needs to be re-examined; and it would be useful to review the inherited traditions, the guidelines, and the operating standards that determine how short term developments may affect policy.

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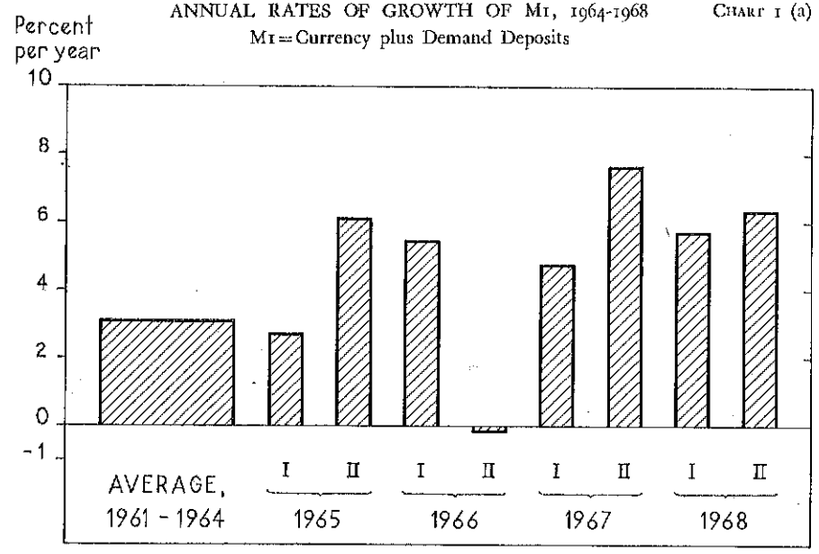
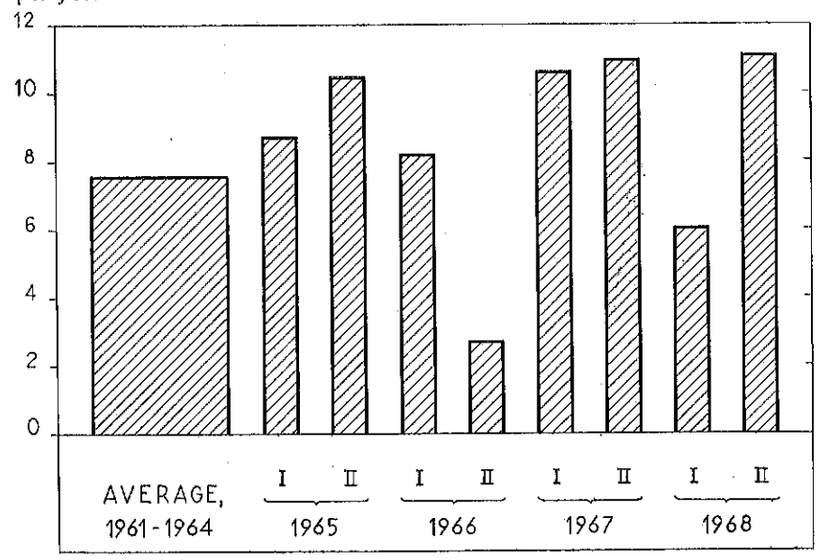
ANNUAL RATES OF GROWTH OF M1, 1964-1968 Chart 1 (a)
M1 = Currency plus Demand Deposits



Source: Federal Reserve Bank of St. Louis.
Note: Values are averages of annual rates compounded quarterly.

ANNUAL RATES OF GROWTH OF M2, 1964-1968 Chart 1 (b)
M2 = M1 plus Time Deposits



Source: Federal Reserve Bank of St. Louis.
Note: Values are averages of annual rates compounded quarterly.

SELECTED INTEREST RATES CHART 2

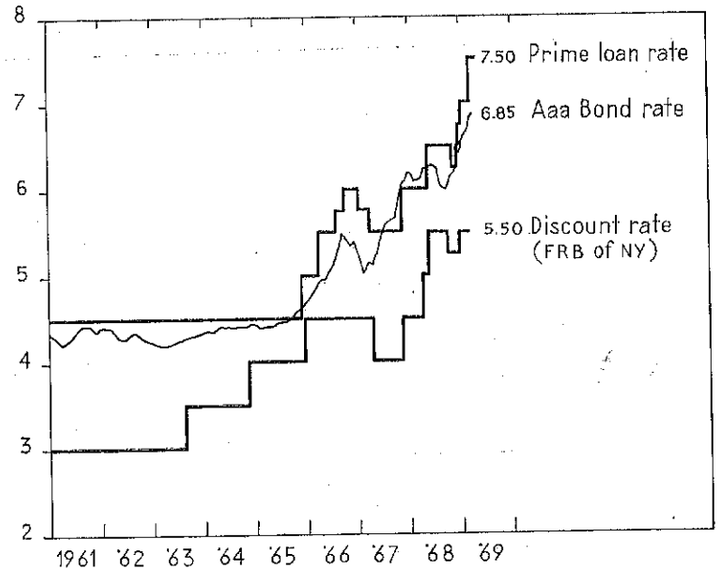
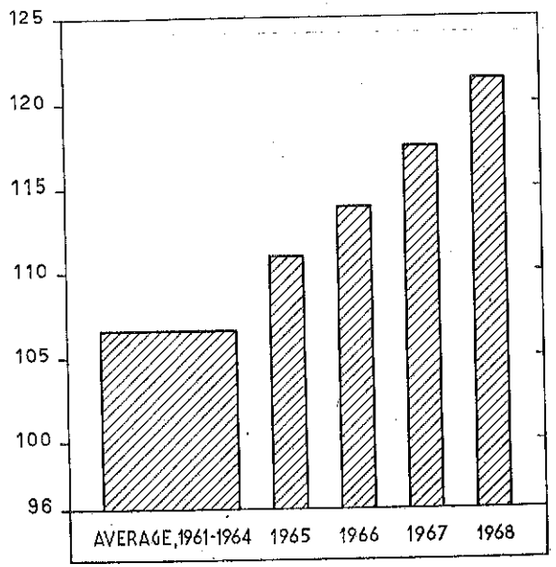


CHART 3

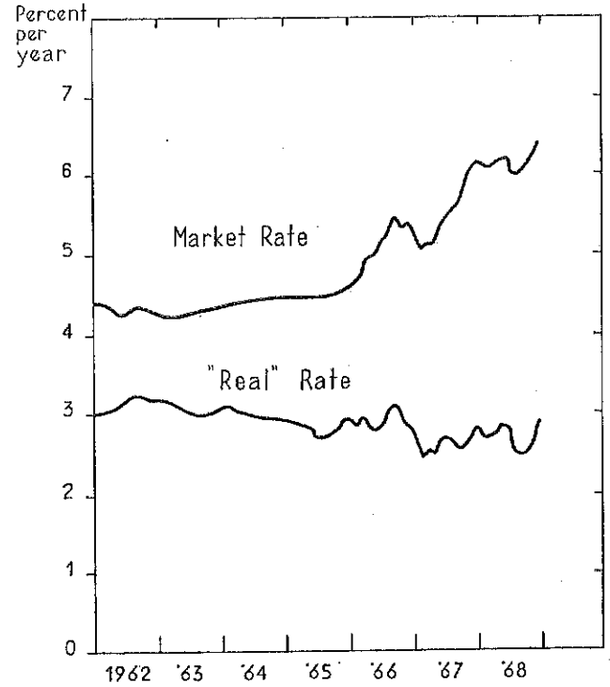
IMPLICIT GNP DEFLATOR, 1958=100



Source: Economic Report of the President, 1969 and Federal Reserve Bank of St. Louis.

FIGURE 1

MARKET AND « REAL » RATES OF RETURN ON CORPORATE Aaa BONDS



Source: January 1969 *Review* Federal Reserve Bank of St. Louis, p. 6.

Note: The method of approximating the « real » rate of return is described by the St. Louis Fed as follows:

« Estimates of " real " interest rates were obtained by subtracting the annual rate of increase in the implicit GNP deflator in the preceding twenty-four months from the market rate on corporate Aaa bonds. The price deflator for the first and third months of each quarter was estimated by linear interpolation. While this is an important phenomenon, there is no perfect agreed-upon way of calculating and presenting it, and the series may be considered an illustration or approximation of what has been going on ».

D. I. F.