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Evaluating the Effects of Monetary Action

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## Evaluating the Effects of Monetary Action

Money management and the economy's need for newly created credit are phenomena seldom off the stage of public debate and controversy. The basis for disagreement may simply be a matter of differing judgments on the economic situation. Different judgments on policy moves, for example, often arise even when there is agreement on goals and the efficacy of monetary techniques. But the realm of controversy flares into wide ranging alternatives when in addition to such judgmental differences there are differences in the weights attached to various goals and different theories as to how these goals can be achieved. In my remarks today I want to point out some of the difficulties involved in gauging the results of monetary action even assuming that a common judgment on goal has been reached.

Most debates on monetary policy include expressions of assurance or doubt about the efficacy of monetary action. The believers simply avow "money matters"; unbelievers only ask "show me how or why." Unfortunately, the train of consequences following monetary action is so involved and obscure that all sorts of hypotheses and beliefs can gain a foothold in the bankers', the politicians', the econometricians', or the economists' convictions.

Where the faith is serenely confident, the mechanism that makes monetary policy work may be thought of as being locked away in a black box which cannot be opened. Where heresy or agnosticism prevail monetary action may be derided as little more than economic voodooism. In between these extremes, scholars and monetary practitioners have been

laboring over the years to improve their understanding of the ways in which monetary action affects the economy, unashamed to admit that in this world there is a great deal the human mind can describe but very little it can fully explain or comprehend.

As a practicing central banker, I must say that I very much welcome scholarly studies of the academician into the mechanisms of monetary action and economic response. Our need for an improved understanding of these matters is very great indeed. While I suspect that we will never eliminate the necessity for professional judgment in shaping central bank actions, still empirical findings which lay a basis for greater reliance on objective standards are very much to be desired. Central banking practitioners should be humble on this score, whether impelled to such humility by the learned writings of the economics profession or by a painful personal awareness of how often the complexities and obscurities in the workings of the financial mechanism defy subjective efforts to predict the responses to specific monetary actions.

Having been this candid about the uncertainties in subjective monetary policy determination, I can also say that a healthy degree of humility is probably also desirable to the furtherance of empirical studies of objective standards for decision making. Some of the same complexities and obscurities that plague subjective judgments in this area also harass efforts to develop sophisticated quantitative explanations of the role of the monetary variable. A policy maker, cannot feel very satisfied with simplified techniques of analysis or predictions that

either abstract from the nasty complications of the real world or sweep them under the rug by working with sufficiently aggregative variables or sufficiently long periods of observation so that short run deviations are subsumed.

I come then to a number of questions that I would like to pose regarding the current thrust of empirical research into the monetary mechanism. By pointing to such questions it is certainly not my intent to thwart or discourage such research, but rather to identify the areas where further and more sophisticated studies would involve conclusions more relevant to a policy-maker's needs.

My first question involves the choice of the appropriate time span for analysis. Central banking policy primarily works through the financial mechanism, and typically has mainly a counter-cyclical orientation. This being so, these two conditions impose some practical constraints on the length of time over which it is desirable to judge monetary behavior. Our financial system is a dynamic one, and it is continually in process of change. The institutions that make it up, the liabilities it creates, the assets it acquires, and the environment in which it operates are now a far different mixture from those of 50, 30, or even 10 years ago. As a consequence, I question the applicability of statistical analyses which make no distinction between recent and earlier periods. I do not deny the oftentimes helpful perspective provided by the works of our monetary archaeologists, but I favor a considerably greater weight being assigned to the responses observed in a modern environment.

I have another bone to pick with the particular time spans chosen for analysis. As I have said, monetary policy is chiefly cyclically oriented. The kind of economic fluctuations our economy has been undergoing recently tend, by and large, to generate significant changes in direction and in rate of change within the span of a relatively few months. Distinct cyclical stages may have a life span of no more than a year or two, and within these stages quite different performance characteristics of our monetary mechanism can be observed. Should not a realistic empirical formulation of our monetary system then be designed so as to capture such cyclical differences in behavior, and should not it be fed weekly or monthly data so that the unfolding of cyclical changes could be traced? Doing this might tax the current state of the statistical art, but if researchers feel impelled to use annual data to reduce the "statistical noise", or to make all their equations linear because of mathematical limitations rather than analytical ones, I would judge this to be a cause for humility rather than complacency about the results.

Turning now from time spans for analysis to money measures, there is no doubt that the most popular attention to date has been concentrated upon changes in the supply of money itself. These are believed to have stimulative or contractive effects on economic activity through some mechanism which, though imperfectly observed, is nonetheless believed to be operative, though with variable lags.

Some analysts prefer to examine monetary behavior in the prenatal period, that is, by focusing on the creation of reserves that in turn leads the banking system to expand its assets in a way that

creates money. This approach has the advantage of greater comprehensiveness, and attention to earlier steps in the monetary process. But persons who begin their observations of the monetary machine by fixing their gaze upon the total of bank reserves run the risk of being distracted by irrelevancies.

There are, in fact, a good many diversions of reserves away from their use as a support for the demand deposit component of the money supply. For example, a highly varying amount of reserves are needed to support Government deposits in the banking system, although such deposits are rightly not counted as part of the privately held money supply. Varying amounts of reserves are also required to accommodate changes in time deposit rates of growth, reflecting in large measure the banking system's changing competitiveness in satisfying the public's desire for interest-earning liquid assets. Moreover, a certain portion of total reserves actually goes unused as excess reserves. This comes about partly because there is a persisting tendency for them to be diffused in amounts so small as to be economically unemployable, and partly because the vast volume of transfers of funds continually occurring in our financial system may create transitory eddies before the reflex actions of financial managers can employ them. For all these reasons, it does not make very good sense to describe policy objectives or actions by changes in a single aggregate reserve measure, whether that be total reserves, required reserves, or even reserves behind the combined total of privately held time and demand deposits. I would advise model builders who are determined to use a single reserve variable to represent

money, to choose reserves required for privately held demand deposits, but I would have to add the warning that even this reserve measure involves an exposure to an occasional significant change in other uses of reserves.

Some analysts have moved beyond demand deposits and currency as a proper definition of the money supply; they contend that time deposits in commercial banks are so much like money that the least violence to monetary inferences is done by counting time deposits as a full equivalent of demand deposits in the money supply.

This is a pertinent issue at the moment, because of the spectacular rise in bank deposits in the past two years made possible by the banking system's enhanced ability to bid for corporate and individual funds invested at interest. But how, if money is to include time deposits at commercial banks, should one deal with the share accounts of savings and loan associations, United States savings bonds, and Treasury bills, all of which can provide properties for investors that are virtually identical with those provided by one form or another of the time deposit contract being marketed by commercial banks? These other types of liquid assets have been large or rapidly growing in our recent history, and it is hard for me to understand how their totals can be completely ignored, once one extends the money definition beyond the confines of "means of payment." Furthermore, it is naive to regard time deposits as a homogeneous lump, particularly in view of the fact that their upsurge in the past two years has been accounted for in important degree by that late-blooming instrument, the negotiable time certificate of deposit, a time deposit form which on

occasion actually embodies lesser primary liquidity characteristics.

I should not want these comments to suggest to you that I am an advocate of a money supply definition that encompasses any liquid asset that happens to catch the public's fancy. I hew to a definition of money that rests upon two unique characteristics--its noninterest-bearing nature and its ability to be employed directly as a general medium of exchange. Such characteristics apply in any practical fashion only to demand deposits and currency. Other roles of money as a store of value, a quickly available financial cushion for emergencies, a standby asset to be held pending the availability of better investment alternatives, are all shared by a variety of other assets in one degree or another. And in these respects, the attractiveness of money's competitors can be enhanced or diminished by changes in circumstances, expectations, or interest rates.

The fact that this competitive attractiveness of near-moneys can be altered creates a continual stream of problems for the analyst which he ignores at his peril. For example, the moves of the Federal Reserve Board to permit banks to pay more competitive rates on time deposits have led to a relative elevation of interest rates paid on time deposits and on other liquid financial assets. The result has been a significant influence on the structure of debt and the degree of intermediation in the U. S. financial system.

In the last four years, the share of total borrowed funds provided by investors directly to borrowers, as distinct from through financial

intermediaries, has dropped to about 10 per cent of the total, in contrast to a direct financing proportion more in the neighborhood of 25 per cent in the three preceding years. Clearly, the relative importance of financial institutions as a conduit for channeling savings into investment has been enhanced. The hard question for empirical research is, "How precisely shall such marked changes in intermediation be handled? Can they properly be ignored?" Probably not. Abstracting from these effects, or averaging them out over longer spans of time, are not techniques conducive to the development of valid conclusions for policy.

But even supposing that we have arrived at a useful amalgam of measures to represent the aggregate monetary quantity whose changes seem to have some significance for over-all spending, we still face a need to allow for its changing rate of use. The conventional measure of rate of use is termed "velocity" or "turnover." A quick review of the statistics shows that at times changes in the turnover of money supply have reinforced the direction and degree of presumed effects from money supply changes. At other times, turnover has changed in ways that tended to offset money supply changes.

These velocity changes are not all of the kind that can simply be dismissed as a response to changing interest rate levels. Since more money use is involved in equity and debt transactions than in transactions connected with production, distribution and consumption, it is frequently the former uses for money that give rise to changes both in the quantity of money demanded and in the rate at which it is used. Furthermore, changes

in the extent to which other assets substitute for money as a store of value tend to encourage changes in the residual amount of money that is not held strictly for transactions purposes, and hence in the average rate of turnover of money holdings alone. We have data for observing the changes in money stock and the turnover of demand deposits, but the complex process by which changes in money supply and/or turnover affect spending is certainly not self-evident in these aggregative statistics. It seems to me that these data are patently too crude to provide us with dependable analytical insights.

What we need is a substantial degree of disaggregation of data on money ownership and money use, along lines that would support inferences of more homogeneous attitudes toward money within each disaggregate sector. We know, for example, that corporate management of deposit balances has become very responsive to changing economic conditions. We know that the size of the business unit has a bearing on the characteristics of its money management. We know that money held in the financial accounts of corporations, trustees, or large investors is managed differently from that held in regular business accounts. At the other extreme, we know that personal balances tend to have comparatively low rates of turnover, and that this is even more true of large personal balances than of small accounts. These distinctions in money ownership that I have cited are not just peripheral; major parts of our total money stock are held by classes of depositors from whom it is fair to expect a markedly different kind of money use.

Thus, of the total demand deposits of individuals, partnerships, and corporations, a little less than two-thirds is owned by domestic businesses, about 30 per cent by individuals, and the remainder by an assortment of nonprofit institutions, bank trust departments, and foreign holders. Furthermore, according to the 1959 Deposit Ownership Survey, nearly one-third of the total is held by business enterprises with more than \$100,000 in their accounts; another 11 per cent by businesses with less than \$10,000 in the bank; 13 per cent by individuals with more than \$5,000 in their accounts; and, on the other hand, 7 per cent is held by individuals with less than \$1,000 in the bank. Clearly no single set of motives can logically describe the monetary behavior of so differing a population of money owners. It seems to me that if a clear chain of action and reaction to monetary moves can ever be traced through money, it will undoubtedly develop from empirical investigations of sector money ownership and money use.

Some of the same comments I have just made concerning money turnover can also be applied to attempts to place near-money totals in analytical perspective. The most popular device here has been to create a pseudo-velocity measure (a term for which I am indebted to Professor Franco Modigliani) by calculating the proportionality of one or another, or some combination of near-moneys and money to an aggregate measure such as gross national product. How, within such aggregative measures, is it possible to allow for the shifts in liquidity characteristics of various types of debt and assets over time? How also

can empirical research allow for changes in the financial net worth and borrowing capacity of the liquid asset owners and borrowers, in order to preserve some kind of comparability over time in the economic import of changes in the indicated liquid asset measures? For example, it is clear in my mind that negotiable certificates of deposit in the hands of corporations exercise a significantly different economic influence from that exercised by small passbook savings accounts owned by individuals. Isn't it, therefore, incumbent upon analysts to treat these assets differently? It is not enough to allege that the required subsectoring of aggregates outruns the convenient capacity of our current statistical and computational capabilities; the vulnerability of analyses that ignore such distinctions cannot be overlooked.

It may be that we strain too hard to encompass statistical universes in our monetary statistics. By pressing always for the comprehensive sum total, we may be subsuming divergencies which could provide analytical clues to current events. We might find, by observing many independent fragments of the data, a persistence of tendencies in a sufficiently high number of cases to be suggestive of some underlying propensities within the major sectors of the economy. To be sure, aberrations in small-area data are a functional disease, but statistical techniques exist which allow some screening out of aberrant movements leaving underlying changes to be more clearly perceived.

Let me try to clarify these suggestions concerning data fragments by referring to a concrete case. The Research Department at the

Federal Reserve Bank of Chicago collects and releases monthly data for a number of midwestern cities, showing balances and rates of inflow and outflow in time accounts of both individuals and corporations. In some areas these data are supplemented by similar data for savings and loan associations, and some comparable gross inflow information is even available for sales of savings bonds. These city-by-city data provide a number of independent observations of the attitude of individuals toward holdings of financial assets, and indirectly of their saving and spending proclivities. Furthermore, the information can be related to other economic and financial data for at least some of these areas, such as the area's secular growth trend and current cyclical performance, and the sources and distribution of its income. Such financial flows must be treated with due regard for the competitive posture of other intermediaries, and for alternative investment opportunities in market instruments, but knowing the specific competitive environments in each city buttresses judgments in this respect. Given these allowances, such detailed cross-sectional data can be converted into measures which, when persistently signalling a similar change in widely differing areas, can be indicative of an underlying shift in financial propensities.

Let me now backtrack and look briefly at the problem from the perspective of credit rather than from the viewpoint of money and money use. The reserve-creating capacity of the Federal Reserve System has its effect initially on the supply of bank loans and investments. Banks can hold reserves idle, but significant fluctuations in idle reserves

have tended to be small. By and large, reserves made available to banks are put to work either in meeting new credit demands from the Government or the private sectors or in buying existing financial assets away from other holders. In doing so, bank lending has important effects on conditions in credit markets, either reducing interest rates or preventing them from rising in the face of rising credit demands.

To those who find the link between money and spending--or even liquidity and spending--too elusive or too mysterious, the alternative linkage of reserve availability-bank credit-financial market conditions usually appears a more fruitful avenue for tracing and assessing the impact of monetary policy. While no one professes satisfaction with the current state of knowledge of credit conditions spending relationships, conceptually it can be at least as appealing as a money supply/spending link, and there is a slowly growing body of empirical investigation that bids to pin down the specific timing and intensity of relationships in major spending areas.

Let the credit-approach enthusiast beware, however, for he will find conceptual and statistical pitfalls as numerous as those besetting the traditional money supply analyst. For example, if he instinctively turns to interest rate behavior to signal changes in credit market conditions he will usually receive sluggish signals or no signals at all although significant changes in borrowing contracts may be taking place. Many conditions surround each lending and investing transaction about which, unfortunately, we are quite

ignorant. The "stickiness" of quoted rates, for example, the prime lending rate of commercial banks, undoubtedly conceals many changes in lending terms other than dollar cost--such as modification in compensatory balance requirements, in maturities, and in restrictive clauses, etc.--that do change fairly quickly in response to changes in reserve availability. One can argue that fluctuations in the short rates are a better measure of changes in the cost of all borrowed funds--both short- and long-term--than are the published rates on long-term instruments, but better than argument would be an array of improved statistics which more accurately measure changes in credit market conditions.

Leaving measurement difficulties aside, what are the relevant monetary parameters for the credit-conditions-approach enthusiast to watch?

The variables that are usually discussed are interest rates (as a proxy for general credit market conditions), the amount of bank credit, the total amount of credit extended by banks as well as non-bank lenders, and the ratio of bank credit to total credit.

In a highly elaborate economic model all of these data and the money supply and other liquid assets might well appear. And if such a model were hitting in the vicinity of reality these quantities would all be highly interrelated and this complex of interrelated magnitudes which constitutes the financial mechanism of our economy would bear some relationship to total spending.

But no one of these magnitudes is alone sufficient to serve as a reliable indicator of the impact of monetary policy.

The relationship between total lending and total spending in the economy is far from uniform or readily predictable. The volume of total credit flows frequently moves in the same direction as first differences in GNP, but although the direction of movements tends to be the same, the proportionality is not constant. With our present knowledge we are not in a position to adopt target amounts for total credit flows, quite apart from the difficulty that monetary policy has in effecting any given credit total by operating through bank credit alone.

To illustrate that the change in total bank credit--relative to some total credit change--is not the relevant nor the most sensitive indicator of credit availability consider that in 1958 and 1963 bank credit expansion was about two-fifths of total credit flows. Yet no one would contend that credit market conditions were the same in both years. Nor is the flow of bank credit a reasonably stable proportion of total credit expansion; as recently as 1959 it was as low as 9 per cent of total lending. Again, on the sensitivity point, bank credit expansion rose from 35 per cent of total credit flows in 1962 to 38 per cent in 1963, yet few would contend that credit conditions were easier last year than in the preceding year.

Bank credit expansion can be--and in the past two years has in large part been--a substitute for credit flows that would in any event have reached borrowers through other channels. To the extent that bank

intermediation merely substitutes for other intermediaries or for the direct flow of saving to credit users, costs of credit are affected only marginally. Banks may be more efficient lenders than other intermediaries or than individuals, and by their capacity to divert flows over a wide range of credit demands can iron out distortions in the interest rate structure, but intermediation per se should not be expected to result in substantial changes in the over-all level of costs of borrowed funds.

Measuring the degree of credit creation as against intermediation in bank credit expansion is not an easy task, however. As a first approximation, one can deduct the increase in time and savings accounts from total bank credit expansion, and treat the remainder as credit "created" by reserve actions of the monetary authorities. In practice this is a reasonable way of setting rough dimensions, but one can easily think of conceptual flaws, many of which were cited earlier in the discussion of relevant money supply guides. Depending on money rate relationships--between market rates of interest, rates offered by competitive intermediaries, rates on time and savings accounts and the implicit negative rate of service charges on demand deposits--changes in demand deposits may reflect intermediation by banks. Conversely, with the practice of paying savings deposits on demand prevailing, increases in savings deposits may include consumers' transactions balances. It is dangerous to impute economic motivation to traditional captions on bank balance sheets, or to draw fine economic distinctions on legal distinctions which are not effectively practiced.

In pointing up the difficulty of evaluating and gauging monetary action and in suggesting methods for sharpening our knowledge and perception

of its effects I may have made it seem that monetary policy has taken us to sea in a pretty unmanageable boat. But it is not all that bad. Fortunately we have a pretty good idea of the course we would like to follow. We have reasonably good intelligence on the economic environment in which we are operating and fairly good forecasts of what we can expect to encounter. The major deficiency lies in our inability to more precisely gauge the effects of our monetary actions on the real economy, both in terms of timing and magnitude of impact. As a result, our boat does seem a rudderless scow at times as it yaws or drifts off course before our techniques can reassert control. This is doubtless the reason some refer to monetary management as an "art." However it may be called, there is much of "art" and practice that can and should be put on a more certain quantitative basis. This I would hope could be done without the risk of embracing a solve-it-all gimmick which might imperil the economy and give cause for anxiety to many of us.